Consumer Labeling Initiative
Phase II Report

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Contract Number: 68-W6-0021

October, 1999

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LIST OF ACRONYMS

APCC	American Poison Control Centers
ARC	American Red Cross
BOD	Biological Oxygen Demand
CESQG	Conditionally Exempt Small quantity Generator
CLI	Consumer Labeling Initiative
CPSC	Consumer Product Safety Commission
CSMA	Chemical Specialties Manufacturers Association
CTF	Communications Task Force
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
HHW	Household Hazardous Waste
HIPIC	Household and Institutional Products Information Council
LOEL	Lowest-Observed-Effect-Level
MRF	Material Recovery Facilities
MSWL	Municipal Solid Waste Landfill
NAHMMA	North American Hazardous Materials Management Association
NOEC	No-Observed-Effect-Concentration
NOEL	No-Observed-Effect-Level
OPP	Office of Pesticide Programs
OPPTS	Office of Prevention, Pesticides and Toxic Substances
PEC	Predicted Environmental Concentration
POTW	Publicly Owned Treatment Works
PPDC	Pesticide Program Dialogue Committee
PR	Pesticide Registration Notice
RCRA	Resource Conservation and Recovery Act
TSS	Total Suspended Solids
WWC	Waste Watch Center

FOREWORD

The Consumer Labeling Initiative (CLI), a pilot program of the U.S. Environmental Protection Agency, was initiated in March 1996. The initiation of the project was announced in a *Federal Register (FR)* notice dated March 22, 1996 (61 FR 12011). The goal of the CLI is to foster pollution prevention, empower consumer choice, and improve consumer understanding of safe use, environmental, and health information on household consumer product labels. The CLI is a multi-phased pilot project focusing on indoor insecticides, outdoor pesticides, and household hard surface cleaners (i.e., floor and basin, tub and tile), some of which are registered antimicrobials/disinfectants. The CLI has involved a wide range of participants representing many interests related to consumer labeling issues, including federal and state government agencies, private industry, public interest groups, and individual citizens.

CLI participants have worked voluntarily for more than three years, with the goal of finding ways to help consumers:

- quickly locate essential safe and appropriate use, environmental, and health information on product labels;
- use information on the labels to reasonably compare products intended for similar uses;
- purchase, use, store, and dispose of products safely and with minimal effect on the environment; and
- make informed choices among products based on their own needs and values.

Phase I of the CLI involved performing qualitative consumer research and summarizing existing research and programs concerning the effectiveness and limitations of labeling as a policy tool to protect public health. The *Phase I Report* (EPA-700-R-96-001, September 1996) published the findings, recommendations, and action steps that resulted from Phase I research. Recommendations made at the conclusion of Phase I included the suggestion for a second phase.

Phase II of the CLI began in October 1996. Phase II of the CLI followed directly from Phase I, with the intention of providing more support for the Phase I research findings. Its activities were intended to include the following:

- perform in-depth quantitative research to establish a baseline of consumer understanding, attitudes, behavior, and satisfaction about product labels;
- carry out qualitative research on potential standardized information, particularly for ingredients, precautionary statements, and signal words;
- develop a multi-faceted, broad-based education campaign to 1) help consumers understand and use labels effectively, and 2) disseminate information about future labeling changes;

- find simpler, clearer ways to word label information about what to do in an accident or emergency involving household products;
- perform research about storage and disposal information, with the goal of improving labels to address conflicting laws, ordinances, and community practices for waste recycling and disposal; and
- identify other information about ingredients that consumers want and need on labels for pesticides and other products.

Outline of the Phase II Report

The Executive Summary, which appears before Chapter 1, highlights the types of research performed in Phase II and describes important findings, implications, and conclusions of the research, as well as the EPA recommendations developed through the project.

Chapter 1, *Overview of Phase II of CLI*, describes the overall process, structure, activities, findings, and recommendations of Phase II of the CLI.

During Phase II, CLI participants funded and directed quantitative and qualitative research to assess consumers' comprehension, attitudes, behavior, and satisfaction with labeling; to evaluate alternatives; and to recommend comprehensive, specific improvements to labels, as well as regulatory or policy changes that would enable these improvements. Chapters 2, 3, and 4 discuss in detail the quantitative and qualitative research process, findings, and conclusions.

The quantitative segment of this research (Chapter 2) involved a detailed and comprehensive national telephone and mail survey. Chapter 2 describes the goals, methodology, process, and results of this quantitative research. The results are discussed in two categories: findings and implications. Findings result directly from the quantitative survey results and are supported by the data. Implications, however, are derived from the findings and are included to identify connections between separate but related findings.

The qualitative research done in Phase I formed the basis of the quantitative research, which in turn provided a necessary foundation for continuing qualitative research in Phase II. The CLI's quantitative research team identified a number of areas in which a more in-depth interview technique could be used to advantage, particularly exploring consumers' preferences regarding possible language and format options for standardized product labels. Qualitative focus groups were designed and run with 27 groups of consumers in different parts of the United States. This research is described in Chapter 3.

The findings and implications reported in Chapters 2 and 3 are very extensive and closely connected conceptually. To help readers assimilate these research data and understand the directions in which they point, a separate chapter (Chapter 4) outlines the conclusions of both the quantitative and qualitative research. Conclusions, as used in this report, are defined as broad statements — arising from the research findings and implications — about product labels and consumers' comprehension, satisfaction, and preferences.

The next four chapters focus on other related work done during Phase II. Chapter 5 discusses qualitative research that was performed to update and improve First Aid statements on consumer product labels for indoor insecticides, outdoor pesticides, and household hard surface cleaners. The research involved in-depth one-on-one interviews with consumers to identify problematic language and potential alternative wording.

The CLI is a collaboration among many different stakeholders, who explored many issues related to product labeling for household insecticides, pesticides, and hard surface cleaners. Chapter 6 describes the different subgroups that contributed to Phase II, the specific activities undertaken by the subgroups, the process followed by each subgroup, and the findings that the subgroups generated. Specifically, this chapter describes the work of (a) the Standardized

Environmental Information Subgroup, (b) the Storage and Disposal Subgroup, and (c) the Consumer Education Subgroup.

One of the most important elements of the CLI has been the coming together of some of its most committed participants and stakeholders, including CLI Partners and the CLI Task Force. The Task Force consists of federal, state, and other regulatory entities with expertise and interest on labeling issues. The Partners are a larger group of voluntary participants who have expressed interest in these labeling issues and have made a long-term commitment to participate actively in the work of the CLI. Several large Partner and Task Force meetings were held during the course of Phase II. Chapter 7 discusses the information that was presented at each of these meetings.

Throughout its history, the CLI has encouraged the input and participation of all interested individuals and groups, regardless of their level of involvement. Stakeholders provided particularly valuable input in identifying possible deficiencies in current labels and in suggesting options for changes to EPA programs not directly related to product labels. Stakeholders have included consumer product manufacturers, retailers, marketers, trade associations, environmental labeling program practitioners, government (federal, state, and local) agencies (including non-U.S. government agencies), academics, public interest groups, consumer groups, environmental groups, health and safety professionals, standards-setting organizations, media groups, and individual citizens. Chapter 8 describes both the outreach efforts made by the CLI to obtain comments from all interested stakeholders, and the Stakeholder responses submitted in the course of Phase II. Chapter 8 focuses specifically on the participation of stakeholders other than Partners and Task Force members.

Finally, Chapter 9 lists the recommendations for action that came out of Phase II. The Partners and Task Force members together drafted and approved recommendations regarding Signal Words and Hazard Hierarchy, Ingredients, Label Formats, Consumer Education, and Storage and Disposal. The CLI carefully considered all the Phase II research findings, implications, and conclusions discussed in Chapters 2 through 4, as well as the supplementary research described in Chapters 5 through 8, in coming up with its recommendations. The final list of recommendations was submitted to EPA senior management for consideration, and during the April 7-8th, 1999 Partner and Task Force meeting, EPA announced which recommendations could be implemented immediately, and which still needed approval from EPA senior management. (See Chapter 9 for details.)

How to Use this Report

Individuals who are interested primarily in the outcomes of Phase II research should begin by reading the Executive Summary, which outlines the goals of Phase II, briefly discusses the process that was followed, and lists all the recommendations.

Readers with a strong interest in a particular topic may go directly to one or more specific chapters. This report has been structured so that each chapter can be understood independently of the others.

For readers who are interested in the Phase II research methodology and findings, many of the Appendices to this report provide a great deal of useful related information about the CLI and the Phase II research. A complete list of appendices can be found in the Table of Contents. The report and the appendices will be available in print from the National Technical Information Service (NTIS) or from the Administrative Record (AR-139). The report and the appendices will also be available electronically through the Internet at the following site -- http://www.epa.gov/opptintr/labeling.

For further information about the Consumer Labeling Initiative, including access to all previously published documents and descriptions of future activities, readers are encouraged to visit the CLI website (http://www.epa.gov/opptintr/labeling). Alternatively, interested parties can obtain CLI information from the Administrative Record AR-139, located at the TSCA Non-confidential Information Center, N.E. Mall Room B-607, EPA Headquarters, 401 M. Street, Washington DC 20460. All raw data from the CLI research, correspondence, comments, and publications are in the Administrative Record. Consumer Labeling Initiative publications may be ordered from the Pollution Prevention Information Clearinghouse by calling 202-260-1023 or by sending an e-mail to ppic@epa.gov.

EXECUTIVE SUMMARY

The Consumer Labeling Initiative (CLI), a pilot program of the U.S. Environmental Protection Agency, began in March 1996 with a *Federal Register (FR)* notice (61 FR 12011). A voluntary initiative, the CLI was established with the goal to foster pollution prevention, empower consumer choice, and improve consumer understanding of safe use, environmental, and health information on household consumer product labels. The CLI is a multi-phased pilot project focusing on indoor insecticides, outdoor pesticides, and household hard surface cleaners (i.e., floor and basin, tub and tile), some of which are registered antimicrobials/disinfectants.

The CLI was undertaken in two parts. Phase I began in early 1996 and ended on September 30, 1996. The *Phase I Report* (EPA, September 1996) published the findings, recommendations, and action steps. Phase II, which began in October 1996, resulted from this first phase of research. Phase II addressed issues that Phase I did not complete or include, and focused on the following objectives:

- performing in-depth quantitative consumer research to establish a baseline of understanding about consumer attitudes, behavior, and satisfaction concerning these types of product labels;
- carrying out qualitative research about potential standardized labeling information, particularly for ingredients, precautionary statements, and signal words;
- developing a multi-faceted, broad-based education campaign to help consumers understand and use labels effectively, and to disseminate information about future labeling changes;
- finding simpler, clearer ways to word label information about what to do in an accident or emergency involving household products;
- performing further research about storage and disposal information, with the goal of improving labels to address conflicting laws, ordinances, and community practices for recycling and disposal of waste; and
- identifying what other information about ingredients consumers want and need on labels for pesticides and other products.

The Phase II Process

The CLI is a voluntary initiative that depends upon extensive stakeholder participation. EPA staff have worked with stakeholders on all aspects on the CLI, and oversaw the research and preparation of the reports. EPA made certain decisions and recommendations about policy questions and issues that arose during the project, but only after requesting input from Task Force members, EPA Partners, and other stakeholder groups. Dissenting opinions have always been invited, and a wide diversity of opinions is reflected in the findings. All stakeholders with an interest in labeling issues concerning consumer products have been strongly encouraged to participate.

CLI Stakeholders were organized into several types of groups, including the CLI Task Force, Partners, and specific task subgroups. The CLI also invited the participation of other interested stakeholders throughout the Initiative. Notices in CLI "Updates" (brief documents published at several times during Phase II and distributed widely), website postings, and mailings invited individuals to contact key EPA staffers, join subgroups, attend meetings, and provide feedback.

The CLI Task Force was created by EPA to provide direction for the Initiative. The Task Force consists of federal, state, and other regulatory entities that have expertise and/or interest in labeling issues. The Task Force helped to determine the overall direction of the project, provided input on the development of the research plan, shared labeling-related experience and knowledge, coordinated with EPA to avoid regulatory duplication or interference, and participated in the design and execution of the CLI research.

After the Task Force was set in motion, EPA invited all interested entities and individuals to become "CLI Partners" and participate regularly and on a long-term basis in the CLI. In Phase II, the Partners, along with EPA and the Task Force, worked on the design, testing, and execution of the quantitative and qualitative research; provided information and data for the literature review; funded and directed quantitative research; reviewed components of this report; donated their considerable experience and effort to the research process; and provided input on specific policy-related issues being debated. The active CLI Partners included a number of businesses and trade associations related to manufacturing and distributing these products. They helped to disseminate information on the CLI to their members, and to assemble and organize comments and ideas from their membership for presentation to EPA.

Subgroups of CLI Partner and Task Force Members concentrated on each of the following areas during Phase II:

- consumer research about knowledge, attitudes, and behaviors related to labeling information. Consumer research was pursued separately by both a Quantitative Research Subgroup and a Qualitative Research Subgroup, each composed of experts in the techniques relevant to that type of research;
- standardized environmental information;
- storage and disposal information on products;
- identification of ingredients on product labels;

- First Aid statements on product labels;
- consumer education related to label awareness and use; and
- outreach to CLI stakeholders.

CLI Partner and Task Force members, as a whole, met in person several times during Phase II. During these meetings, subgroups presented their findings to the CLI Partner and Task Force members and other interested Stakeholders. Future direction of the CLI was also discussed and planned.

Throughout the CLI, the EPA actively encouraged the participation of all interested Stakeholders through outreach methods, including public announcements, publication of memos and other documents, posting of all relevant information about Phase II to the CLI website, and public meetings. The CLI offered Stakeholders a wide variety of opportunities for ongoing comments and feedback to EPA.

Phase II Research

A crucial part of Phase II was the funding, development, and implementation of a detailed quantitative telephone and mail survey to assess consumers' comprehension, attitudes, behavior, and satisfaction with labeling, and to evaluate alternatives. CLI Partners funded and directed the quantitative research, with input from all CLI participants. An independent market research and polling firm conducted the survey. The study included consumers from many demographic segments of the U.S. population, including low-income, low-education, and minority representation. The survey included questions about locating label information, how well consumers understand the information, when and where they consult the labels, the relative importance of different kinds of label information, and which information they wish to be able to find most quickly and easily.

The quantitative survey was designed to address six learning objectives that were identified as a result of the CLI Phase I research. The learning objectives aimed to determine the following:

- determine the current situation relative to consumers' satisfaction with the format and content of existing labels;
- determine consumers' hierarchy of importance of basic label information;
- determine where on the label consumers expect to find particular information, such as First Aid and ingredients;
- determine consumers' current comprehension of label language;
- determine whether or not a preference exists for non-FIFRA over FIFRA labels (for household cleaner category only); and
- determine consumers' reaction to standardized safe use, environmental, health and safety information.

These learning objectives were intended to focus the Phase II research on specific issues related to improving labels. Each objective was intended to generate research findings that would enable the EPA and CLI Stakeholders to take immediate and near-term steps to improve labels. Some changes, such as revised guidance and regulations, are almost entirely under the purview of EPA. Others, such as consumer education, involve many Stakeholders and require a longer time frame. Most important was the willingness of industry Partners owning significant market share of products in the three categories to make label changes based on this process.

These learning objectives and the results of the quantitative research were expected to lead to certain actionable steps that the EPA and its CLI Partners could implement, such as these:

- quantify key learnings from the qualitative research in Phase I of CLI;
- collect data that will serve as input into additional qualitative and quantitative research, such as consumer evaluation of potential new label formats;

- benchmark current consumer practices and preferences, so that changes in behavior/preference (based on label changes and on consumer education activities) can be assessed;
- provide information that will allow the EPA and its Partners to consider policy implications and to take some immediate action steps;
- guide the Consumer Education Subgroups's efforts;
- guide the Storage and Disposal Subgroup in making recommendations; and
- provide information for potential changes to label language and formats.

In addition to the quantitative research, qualitative research in the form of small ("mini") focus groups was conducted with consumers in three U.S. cities during the Summer of 1998. These groups were intended to elicit in-depth, qualitative information on a number of topics related to the quantitative research surveys. The qualitative research was funded by EPA.

The key learning objectives for the qualitative research, were to determine the following:

- Consumer *preference* for a specific format for the presentation of standardized information.
- Consumer *understanding* of the same information presented in different formats.
- Consumer *preference* for which information should be presented in box(es) or other standardized formats of information groups together.
- Consumer *preference* for where particular groupings of information should be located on the product label.
- Consumer *understanding* of the existence of a hazard hierarchy in the signal words CAUTION, WARNING, DANGER, when conveyed graphically, and of the point in the hierarchy on which a given product falls.
- Consumer *preference* for a particular graphical representation of the CAUTION, WARNING, DANGER hierarchy and product status information.
- Consumer *understanding* of the association between the product ingredients, the hazard(s), and the relative hierarchy.

Conclusions of Quantitative and Qualitative Research

The CLI Partners and Task Force developed findings and implications from the quantitative and qualitative research. These findings and implications yielded a number of conclusions, which follow:

1. There is no strong motivator that suggests fundamental label changes, but language and format can be improved. Consumers are generally satisfied with current labels and are able to find the information they want on the label. However, the data indicate that improvements would encourage more reading and use of product labels.

2. Labels for each of the product categories should not be treated in the same way since consumers perceive the products differently and have different label reading habits for each category, as follows —

   - *Household cleaner labels* should be simpler, with exceptional information (i.e., very important or different than anticipated) highlighted. There is a lower motivation to carefully read these labels because of the perceived familiarity with cleaning products.

   - *Indoor insecticide labels* are quite effective now. Incremental changes to simplify labels and make them easier to understand should be tested.

   - *Outdoor pesticide labels* are confusing because they are more complex and less frequently used, and therefore less familiar to consumers. They should be simplified and arranged for easier reading.

3. Consumers want clear, concise, easy-to-read information that connects consequences with actions. Instructions on labels should say ‘why’ and jargon should be avoided.

4. Consumers look to all traditional media to gain information. Therefore, outreach to consumers should incorporate traditional media, and should also include education efforts directed toward store personnel and other "influencers."

5. Ingredient information can be communicated by name, type or category of ingredient, and purpose of ingredient, not just by a list of chemical names. Ingredients should be presented in tabular form, with flexibility as to where in the label they are located (e.g., front vs. back panel of the label).

6. Additional information is needed to better understand how to answer the need some consumers expressed for useful ingredient information. A full disclosure list of names does not further consumer understanding.

These conclusions are supported by detailed research findings.

Phase II Recommendations

Out of the Conclusions of the research, the CLI developed suggested Recommendations. These Recommendations were developed by the CLI Partner and Task Force Members in September 1998, and subsequently were presented to the EPA. The complete list of suggested Recommendations stemming from the September 1998 Partners and Task Force meeting follows.

Signal Words and Hazard Hierarchy Recommendations

Product Label Changes

1. For products that fall into toxicity categories 1, 2, or 3, recommend that manufacturers be encouraged to voluntarily put one or more bullet points underneath the signal word on the front label, explaining the precautions associated with the product. The statement which currently refers people to turn to the back of the package for more explanation of the precautions should remain on the front of the label.

Further Research

1. Recommend that additional research be conducted on the effects of "highlighting" and graphical depictions of the signal words on the front of the label before any such changes are implemented. ("Highlighting" means things such as bolding the word, boxing the word, using colors to make the word stand out, making the word bigger, etc.; graphical depictions could include bar graphs, thermometers, "laugh meters," or similar designs incorporating all three words into a hierarchical visual format.) Also explore as a part of this research "information fragmentation" (i.e., placing precautionary-related information on both the front and back label panels) issues. Note on intent: the need for this research is not intended to preclude the change recommended pertaining to placing the precaution bullet on the front panel with the signal word.

Policy Choices

1. For toxicity category 4 products only, the EPA should consider not having a signal word. (Currently, both category 3 and category 4 products can have the signal word "Caution" associated with them.)

2. The EPA should determine what the consumer should understand about signal words and the hazard hierarchy. If the intent is for the signal words to flag for the consumer that care should be taken, then the recommendations here are enough along with appropriate educational efforts (see education recommendations). If the intent is for the hazard hierarchy to be understood, then additional research and education are necessary.

Consumer Education

1. Recommend that an effort be made to educate consumers about the meaning of the signal words, and how they are defined and used on labels. This should be done in a factual context, and without judgement calls which conclude the meaning for the consumer (i.e.,

the Agency should not recommend that consumers always buy products marked CAUTION in preference to products marked DANGER).

Ingredients Recommendations

Product Label Changes

1. Recommend that the EPA not make any across-the-board label changes for ingredients at the present time.

2. Recommend that the EPA allow manufacturers the flexibility to voluntarily provide "other ingredient" information on the label in a way that consumers in the study expressed they wanted (i.e., listed by category, perhaps with some explanation of purpose).

3. Recommend that the EPA allow manufacturers more flexibility in where they provide ingredient information (e.g., back panel versus front panel).

Further Research

1. Recommend that the EPA conduct further research to identify how to supply consumers' expressed need for medical information to people who want it. It was noted that information learned from the quantitative research of Phase II should be incorporated in any further research.

Policy Choices

1. Recommend that the EPA further examine how to provide ingredient information on the label in the way consumers expressed they want it, as indicated by the research (i.e., give them categories of ingredients along with the purpose.) Also, refer to research recommendations in the format section.

Consumer Education

1. Educate consumers about ingredient information on labels (i.e., why they appear on the label and the meaning of "active" and "other"), through the "Read the Label *FIRST!*" campaign. Additionally, it was suggested that the education campaign be utilized to inform the public about where to get health and safety information, e.g., for people prone to allergies, etc.

Label Format Recommendations

Product Label Changes

1. Recommend that statements that were clearly preferred by consumers in the quantitative research be used, as appropriate, and that the EPA make program changes to allow this to happen to the extent possible.

<u>Directions for Use</u>

2. Recommend that the EPA consider replacing the statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling," with the simpler phrase tested on the quantitative survey — "Use only as directed on this label."

3. Recommend that manufacturers *voluntarily* put direction for use in bulleted form with no wrapping text (i.e., making sure that each new direction for use is set off on a separate line, and does not continue on the same line), using ordinal numbers if sequence is important.

Precautionary Statements

4. Recommend that manufacturers *voluntarily* put the principal health hazard information from the precautionary statements in bulleted form underneath signal words.

5. Recommend that manufacturers and the EPA, where possible, use simple language, avoiding jargon; avoid wrapped text; keep sections together in same column; use more white space; and eliminate needless words. This recommendation was particularly expressed with regard to precautionary statements.

6. Recommend that the EPA remove language that is not appropriate to consumers from precautionary statements, e.g., language more appropriate for agricultural pesticides, etc.

Precautionary Statements — First Aid Specific

7. Recommend that manufacturers *voluntarily* put First Aid information in a table format and within a box.

8. Recommend that manufacturers who provide a toll-free number for emergencies voluntarily include that number beneath or within any table/box that includes First Aid information.

Further Research

1. Recommend that further research be structured to investigate location and presentation of ingredient information (e.g., placing ingredient information on the front or back of the label, tabular formats, etc.), before any across-the-board changes are made to ingredients information. This recommendation addresses the variation in need which can arise between product categories, e.g., indoor and outdoor versus cleaner product labels.

2. Recommend that further research be conducted to investigate how the information hierarchy (i.e., information that consumers in the quantitative research said was most important to them) translates into the order in which information appears on labels.

Policy Choices

1. Given the efforts in other non-CLI forums to standardize the use of icons, further work on this topic should not be pursued as a part of the CLI.

Consumer Education

1. Recommend that the "Read the Label *FIRST!*" campaign educate consumers that it is acceptable for them to open and read label booklets (particularly for outdoor pesticide products) in the store.

Consumer Education and "Read the Label *FIRST!*" Recommendations

It was noted that the Consumer Education Subgroup will address any recommendations from other topic areas related to Consumer Education.

1. Educate consumers on what specific parts of the label mean or are intended to communicate; specifically, signal words, active and other ingredients, storage and disposal, and precautionary statements including First Aid.

2. As the CLI project continues, expand membership of the Consumer Education Subgroup to include brand managers, marketing staff, and label designers from within the Partner companies, particularly with respect to designing and assessing the impact of the logo for the "Read the Label *FIRST!"* campaign.

3. Recommend that messages conveyed through the consumer education campaign be market-tested in appropriate ways before they are launched.

4. Recommend that retailers be brought into the Consumer Education Subgroup, as they will be important for distributing the messages developed by the group.

Storage and Disposal Recommendations

Phase II Follow Up

1. Recommend that the EPA send information from the quantitative study about recycling symbols (those with chasing arrows) to relevant organizations.

2. Recommend the EPA gather any available information on risk assessments regarding product disposal from states, manufacturers, and other appropriate organizations and share this information with all applicable parties, in an effort to coordinate these types of studies.

3. Recommend that the quantitative data on disposal practices be sent to the North American Hazardous Materials Management Association (NAHMMA) and that NAHMMA be encouraged to share this information with its members.

Product Label Changes

1. Recommend that for empty containers, the statement on product labels read, "Place in trash. Recycle where available." The recycling statement would be optional for manufacturers. Also optional, manufacturers may use the statement that reads: "Do not re-use container."

2. Recommend that, given that there was no agreement on label statements for partially filled containers, there be a delay in any *Pesticide Registration (PR)* notice regarding the disposal statement on empty containers until the EPA makes a policy decision about how to handle partially filled containers.

3. Recommend to keep the status quo for storage statements on product labels.

EPA Actions on CLI Recommendations

During the April 7-8, 1999, Partner and Task Force meeting, the EPA discussed how it intended to address the recommendations made during the September 1998 Partner and Task Force meeting. The EPA's Office of Pesticide Programs (OPP) is handling the recommendations for label changes, and it presented a draft strategy for dealing with those recommendations at the April 1999 meeting. Also at the meeting, planning was initiated for a CLI media event in Spring 2000, to announce the CLI recommendations; and updates on both the completion of the Phase II Report and the Consumer Education Campaign activities were presented.

Draft OPP Strategy for Implementation of the Phase II Label Changes

OPP's draft strategy for implementing some of the CLI recommendations, presented in the April 1999 Partner and Task Force meeting, includes the following:

1. OPP will circulate an internal guidance memorandum to forewarn EPA product managers about the type of paperwork to expect coming from companies making label changes recommended by the CLI. The memo would cover label changes that can be approved now, changes that would be considered on a case-by-case basis, and changes that would not be considered at present. These draft changes are listed below.

2. Revised First Aid statements have been agreed upon and a draft *Pesticide Registration (PR)* notice announcing these new statements is currently being reviewed by EPA staff. The PR notice is expected to be issued in Fall/Winter 1999.

3. PR notices for all recommendation topics will be issued after the guidance memo. Some PR notices may be issued as "final" notices without a time period allotted for public comment, while others will be issued "for comment."

4. Label changes will apply to all FIFRA regulated pesticide products, not just consumer pesticides and household cleaners.

5. Sometime in the future, the PR notices will be incorporated into EPA regulation, where necessary.

Label Changes That Can be Submitted Now

While manufacturers must abide by current regulations, they can submit the following label changes to the OPP (see Appendices 3-3 to 3-6 for examples of some of these label changes):

- adding hazard bullet points under signal words;
- removing inappropriate language on consumer labels;
- providing information on "other ingredients" in a variety of ways; and
- presenting first aid information in simplified formats, including a toll-free number, and using the new revised First Aid statements.

Changes to the overall label format and presentation that can currently be made include:

- use of preferred statements;
- use of simpler language and less jargon;
- use of revised hazard and use statements;
- use of bullet formats;
- avoidance of narrative text formats (e.g., using bullets and headings);
- keeping sections together in the same column;
- using white space;
- eliminating needless words, while still abiding by current regulations;
- adding numbers for sequential actions;
- use of tables;
- adding sub-heading into the Directions for Use section; and
- rearranging precautionary statements to give prominence to those of greater interest.

Label Changes That Need to be Discussed with EPA Product Managers Before Submitting

- changing the location of the ingredients statement.

Label Changes That Cannot be Submitted at Present Time

- changing, combining, or deleting headings;
- locating storage and disposal instructions outside of the Directions for Use section;
- revising the Federal misuse statement; and
- leaving off the signal word for products in toxicity category 4.

CLI Media Event

During the April 1999 Partner and Task Force meeting, the EPA informed CLI Stakeholders about plans for an upcoming media event, to announce some of the labeling recommendations that EPA will be making as a result of the CLI. Plans for the media event were postponed until Spring 2000, however, to coincide with the 'kick-off' of the CLI Consumer Education Campaign; the media event will serve as the 'kick-off' event for the "Read the label *FIRST!*" Campaign. This launch is timed to coincide the appearance of newly redesigned labels on store shelves with consumers' general interest in seasonal gardening and cleaning activities. Eventually, the

Consumer Education Subgroup intends to finalize and make available to the public a variety of educational materials (e.g., brochures, pamphlets, etc.).

1. The goals of the media event are to announce to the public CLI's accomplishments, inform the public that labels are changing to become simpler, promote the "Read the Label *FIRST!*" campaign, promote the CLI partnership between EPA and its Stakeholders, and increase consumer awareness in general regarding product labels.

2. The media event is scheduled for Spring 2000. It was proposed at the April 1999 meeting that because the event serves as a way in which to reach the general public, a well-known public figure may be appropriate to convey the messages of the event, in addition to the EPA and CLI Partners.

3. The target audience for the media event is the general public, the trade press, community newspapers, and lifestyle magazines.

4. Messages for the event will be drafted by EPA and circulated to CLI Partners and other Stakeholders prior to the event.

Completion of the Phase II Report

An update on the Phase II Report and details for its completion were presented to CLI Partner and Task Force members during the April 1999 meeting. Partners and Task Force members were informed that all of EPA's recommendations on label changes, as a result of CLI, will be included in the Report. Partner and Task Force members agreed that displaying the Phase II findings on the Internet before the completion of the Report would be counterproductive and, therefore, resources should be spent on completion of the Report.

Consumer Education Campaign

An update of the activities since the September 1998 Partner and Task Force meeting regarding the Consumer Education Campaign was presented during the April 1999 meeting.

1. Upon recommendation from the September Partner and Task Force meeting, the Consumer Education Subgroup had been expanded to include marketing, brand, outreach, and public relations experts.

2. A message development group was formed to develop the messages for the "Read the Label *FIRST!*" campaign, for use in both outreach fliers and/or brochures.

3. A message placement group was also formed to identify and implement the most appropriate avenues for distributing the messages and products for the Consumer Education Campaign in order to promote the "Read the Label *FIRST!*" campaign.

4. Ideas for generating a unique logo for the "Read the Label *FIRST!*" campaign were shared during the April 1999 Partner and Task Force meeting. Logo design concepts included the idea of a design competition or contracting with a graphic designer to produce the logo. The goal would be to have a logo in place that companies and other

CLI participants could use on products, in advertising, and on education materials in time for the Spring 2000 promotion period.

Next Steps for the CLI

The launch of the "Read the Label *FIRST!*" consumer education campaign by EPA and the CLI Partner and Task Force members is targeted for Spring 2000. The campaign will include media messages about the entire CLI project. EPA's Office of Pesticide Programs will be implementing its strategy for adopting and announcing label changes beginning in the Summer of 1999 and continuing through 2000. Policy issues that were identified by the CLI and that remain to be resolved — for example, the appropriate disposal language to be used on partially filled containers — will be addressed separately by the Office of Pesticide Programs. Final changes to First Aid statements are expected to be announced in a *Pesticide Registration (PR)* notice in Fall/Winter 1999. The CLI will continue to accept public comment on the project and its effects, and the Agency will consider implementing future research to assess the effectiveness of both the recommended changes in labels and the "Read the Label *FIRST!*" campaign.

CHAPTER 1

OVERVIEW OF PHASE II OF THE CLI

This chapter describes the goals, structure, processes, and activities of Phase II of the Consumer Labeling Initiative (CLI). Phase I of the CLI included qualitative research to investigate consumer comprehension and satisfaction with product labels for indoor insecticides, outdoor pesticides, and household cleaners[1]. Phase II, begun in October 1996, involved a more in-depth investigation of label information and consumer satisfaction, comprehension and preference for these product labels.

During Phase I, recommendations were made regarding the following topics:

- label changes that could be implemented immediately. Announced in September 1997, these included using the headings First Aid and "other ingredients";
- further improvement to labels that could be made, but that would require additional quantitative research to investigate how to make these improvements;
- gaining an understanding of consumers' comprehension of and preference for current labels on household cleaning products, indoor insecticides, and outdoor pesticides;
- addressing consumer needs for better information about specific issues, such as ingredient and storage and disposal information; and
- creating a consumer education campaign to inform consumers about the importance of reading product labels carefully.

[1] For a complete list of all the product types that are covered under the CLI, please refer to Appendix 1-1.

Focus of Phase II

The Environmental Protection Agency's (EPA) commitment to Phase II of the CLI was announced in a September 1997 press briefing by EPA Assistant Administrator, Lynn Goldman. Phase II focused on the following issues:

- finding simpler, clearer ways to word advice concerning an accident or emergency involving household products;
- initiating a multi-faceted, broad-based education campaign to help consumers understand and use labels effectively, and to disseminate information about future labeling changes;
- investigating further issues regarding storage and disposal information, with the goal of resolving conflicts among product labels and laws, ordinances, and community practices for recycling and disposal of waste;
- conducting in-depth research to determine baseline consumer understanding, attitudes, behavior, and satisfaction about these types of product labels; and
- conducting research to determine what ingredient information consumers want and need on labels for pesticides and other household products.

CLI Participants and Their Roles

The CLI is a voluntary initiative that depends upon extensive Stakeholder participation. The many Stakeholder groups involved in the CLI have included: consumer product manufacturers; retailers; marketers; trade associations; environmental labeling program practitioners; government (federal, state, and local) agencies, including non-U.S. government agencies; EPA Partners; academics; public interest groups; consumer groups; environmental groups; health and safety professionals; standard-setting organizations; media groups; interested companies; and individual citizens.

All Stakeholders with an interest in labeling issues concerning consumer products have been encouraged to participate. Stakeholders have been actively involved in project planning, implementation, review, and comment. Stakeholders have provided particularly valuable input in identifying possible deficiencies in current labels and in suggesting options for changes to EPA programs not directly related to product labels. Individual consumers also participated in qualitative and quantitative aspects of the research.

Role of the EPA

The EPA staff directed the project and worked with Stakeholders on all aspects of the CLI, oversaw the qualitative research, and prepared the Phase I and Phase II reports. After considering the input from Task Force members and CLI Partners, the EPA made certain decisions and recommendations about some policy questions and issues that arose during the project. Dissenting opinions were always invited, and a wide diversity of viewpoints is reflected in the findings.

Role of the CLI Task Force Members

The CLI Task Force was created by the EPA to provide direction for the initiative. The Task Force consisted of federal, state, and other regulatory entities that have expertise and/or interest in labeling issues. The Task Force helped to determine the overall direction of the project, provided input on the development of the research plan, shared labeling-related experience and knowledge, and participated in the design and execution of the CLI research. Appendix 1-2 includes the complete list of Task Force members.

Role of EPA Partners

After the Task Force was set in motion, the EPA invited all interested entities and individuals to become “CLI Partners” and participate regularly and on a long-term basis in the CLI. In Phase II, the Partners worked on, and were crucial to, the design, testing, and execution of qualitative and quantitative research; funded quantitative research; provided information sources for the literature review; reviewed sections of this report; and donated their considerable experience and expertise to the research process. The active CLI Partners included a number of businesses holding significant market shares of these product categories, and trade associations related to manufacturing and distributing indoor insecticide, outdoor pesticide, and household cleaner

products. Partners also helped to disseminate information on the CLI to their members and colleagues. They also assembled and organized comments and ideas from their membership for presentation to the EPA. Appendix 1-3 lists the CLI partners.

Stakeholder Outreach

Success of the CLI required the involvement of many project Stakeholders. Over the course of both phases of the CLI, hundreds of individuals and organizations expressed interest in the initiative. These Stakeholders included consumer advocacy groups, environmental groups, consumers, health and safety professionals and organizations, international groups, government agencies, manufacturers of consumer household products, and retailers (for a listing of CLI Stakeholders, please refer to Appendix 1-4). The CLI Partners attempted to identify the particular interests of individual Stakeholders and the most effective ways to communicate with and learn from them. Communication methods that were utilized to identify and communicate with Stakeholders included the following:

- press conferences and public announcements for all important milestones in the CLI, such as the Phase I and Phase II recommendations;
- public meetings, announced and publicized several months in advance, at which Stakeholder feedback was actively sought;
- news releases;
- publication and dissemination of CLI informational memos to EPA staff, Partners, Task Force Members, subgroup members, and other participants;
- publication and dissemination of consumer-oriented CLI "Updates" to all parties that had expressed interest;
- posting of all published materials on the CLI website, in a form that could be downloaded or printed online;
- publication of the names, telephone numbers, and e-mail addresses of CLI project leaders at the EPA;
- active encouragement of participation by new Stakeholders;
- identification of important points for feedback on the CLI process and content;
- solicitation of written comments on public notices printed in the *Federal Register*; and
- informational meetings of Stakeholders with the EPA management and staff.

Other Participants in the CLI

Other businesses that participated in the CLI included:

- Abt Associates Inc., which, under contract to EPA, in Phase I reviewed the literature and Stakeholder comments and wrote the Phase I report; and in Phase II coordinated work of many participants, as well as performed research, helped to develop questions for the quantitative research, and wrote the Phase II report;
- Macro International, which, under contract to EPA, conducted the qualitative research in Phase I, and the First Aid one-on-one interviews in Phase II;
- The Newman Group, Ltd., which, under contract to EPA, performed the qualitative survey research in Phase II; and
- National Family Opinion Research (NFO), which, under contract to one or more CLI Partners, performed the quantitative survey research in Phase II.

The Process of Phase II

At the close of Phase I, it was decided that in-depth quantitative research was needed to further investigate consumer understanding, preference, and satisfaction with current product labels. Additional information was needed on specific topics such as First Aid, ingredient information, precautionary statements, direction for use, storage and disposal instructions, consumer education, and standardized environmental information on product labels. Smaller subgroups of Partner and Task Force members were established to develop the quantitative research and to address these specific topics.

Throughout the course of Phase II, subgroups worked both separately and together. Information from quantitative and qualitative research was incorporated into decisions made by different subgroups. Similarly, knowledge provided by various subgroup members was taken into consideration when developing the quantitative and qualitative research; although, in one case, an omission led to inconclusive data. For example, the Storage and Disposal Subgroup shared information with the Consumer Education Subgroup in preparation for the Consumer Education Campaign. Another example of this interaction is that the quantitative mail survey questionnaire included questions about consumers' storage and disposal practices.

The History of Phase II

Phase II of the CLI began in **October 1996**. Between then and February 1997, Stakeholders involved in CLI engaged in planning and preparation activities. The group formally adopted and initiated a joint strategy for Phase II during the **March 1997** CLI "kick-off" Partner and Task Force meeting. At this meeting the proposal for the Phase II quantitative research was presented and Partner and Task Force members gave their support for the research plan and development. It was announced at this meeting that EPA would be unable to fund any quantitative research, given the magnitude of the project. Company and trade association partners felt very strongly that such research would be vital for producing sound recommendations for label improvement, and they voluntarily undertook to jointly fund and direct a quantitative research program that would involve all of the CLI project participants. Interim label improvements arising from the Phase I research were also announced at this meeting, as were policy initiatives such as standardizing label information. Finally, preliminary ideas for a consumer education campaign were discussed at this meeting.

In **April 1997**, the EPA met with environmental and public interest groups, and other interested parties, to bring them up to date on the CLI project and to introduce to them the quantitative research plan, interim label changes, policy initiatives, and consumer education project. Environmental and public interest groups were invited to actively participate in all aspects of the development of Phase II.

After initiation of Phase II, a media event was held in **September 1997**. The Assistant Administrator of EPA's Office of Prevention, Pesticides and Toxic Substances (OPPTS), Lynn Goldman, announced the immediate label changes that resulted from Phase I of CLI. These included: inclusion of a toll-free number on labels so that consumers could call someone in case of emergencies, use of common names for ingredients instead of chemical names, encouraging companies to use "other ingredients" instead of "inert ingredients," simple first aid instructions,

and changing the heading for these to read "First Aid." It was also announced that in Phase II a fuller investigation of the ingredients issues (i.e., right-to-know issues), and storage and disposal issues would take place. Finally, the initiation of the quantitative research and the development of the consumer education efforts were announced at this media event.

In **February 1998**, the entire CLI Partner and Task Force met in Alexandria, VA. At that meeting, the various subgroups gave status updates of the work they had done up to that point. Development of the quantitative consumer research was well under way and the research Core Group updated the rest of the Partner and Task Force members on the research methodology, questionnaire development, and research implementation. The EPA's Deputy Assistant Administrator for the Office of Prevention, Pesticides and Toxic Substances, Susan Wayland, asked Partner and Task Force members to begin investigating the feasibility of including standardized environmental information on product labels of household cleaners, indoor insecticides, and outdoor pesticides.

Implementation of the (national) quantitative survey began in **April 1998** with screening for participants and ended in **June 1998**. Results from the quantitative research were tabulated in several volumes of raw data. Relevant data were shared with the various subgroups (e.g., information about consumers' sources of information was shared with the Consumer Education Subgroup), to gain feedback and interpretation of the data from the subgroup. The data were analyzed by the research Core Group. This group met several times via conference calls and face-to-face meetings throughout the months of July and August to interpret and analyze the data in order to develop findings and implications.

During **June 1998**, while the quantitative research was coming to a close, a small subset of the Research Core Group was formed to address the Phase I charge of investigating standardized environmental information on product labels. It was decided that qualitative consumer research would be the best way to find out what types of environmental information consumers want to see on labels. At this point, results from the quantitative research were beginning to materialize, and they showed that, by and large, consumers did not consider environmental information to be one of the more important parts of product labels. Instead, they indicated that standardized label formats would be useful for increasing consumer comprehension of label information. The Core Group's focus, therefore, shifted: the qualitative research, used to enhance the findings from the quantitative research, would also be used to investigate consumer preference for standardized label formats.

Qualitative research took place during **July and August 1998**. Results from the research were incorporated into the overall conclusions from Phase II. The findings, implications, and conclusions of both the quantitative and qualitative research were presented to the entire CLI Partner and Task Force on the first day of the Partner and Task Force meeting in Washington, DC, in **September 1998**. Subgroups also presented the work they had done since the February meeting. During the second day of the meeting, CLI Partner and Task Force members made recommendations to the EPA for potential next steps (beyond Phase II) for CLI.

In **April 1999**, the EPA held another Partner and Task Force meeting in Alexandria, VA, to update CLI participants on steps that had been taken since, and in response to, the recommendations made at the September meeting. The CLI recommendations were considered by the EPA. The EPA's Office of Pesticide Programs (OPP) announced how it intended to

address the recommendations for label changes. Planning for a media event in Spring 2000 was announced. In addition, an update for the completion of the Phase II Report was given, as well as an update on the activities for the Consumer Education Campaign.

Research in Phase II

First Aid Qualitative Research

Phase II began by addressing the issues relating to First Aid information on product labels. The qualitative research in Phase I found that the consumers tested often referred to the First Aid section on labels only in the event of an emergency or accident. When prompted to read the text during the qualitative survey, however, many of these consumers reported that the phrases on labels that tell them what to do in these types of situations were confusing.

During Phase I, CLI Stakeholders had recommended that one of the goals for Phase II of CLI be to find simpler, clearer ways to provide instructions to consumers about what to do in case of an emergency or accident. In accordance with this goal, the phrase "Statement of Practical Treatment" was replaced by "First Aid." Furthermore, CLI Stakeholders worked with the EPA's OPP to update and improve First Aid statements. The CLI team made a decision, based on previous research, to replace the word "physician" with "doctor" and "area of contact" with "skin."

During Phase II, qualitative consumer research was conducted on a series of proposed First Aid statements, to assess the potential for changing, simplifying, and clarifying these statements. In July of 1997, the CLI conducted 23 follow-up interviews with consumers to test several proposed wordings of First Aid statements. (See Chapter 5 for a full description of the Qualitative First Aid research.) First Aid instructions for all combinations of the Federal Insecticide, Fungicide, and Rodenticide Act's (FIFRA's) toxicity categories and hazard indicators were tested. The Office of Pesticide Programs (OPP) proposed an initial set of First Aid statements, with input from industry, the American Poison Control Center, and other CLI Partners and Stakeholders.

Based on the results of these consumer interviews, the EPA revised the First Aid statements. CLI Partners, Task Force members, and Stakeholders, such as the American Red Cross, PPDC, and academia, commented and gave their feedback on these revisions. The statements were subsequently revised one final time, taking all of the feedback into account. The final revisions to the First Aid statements are expected to be released in an OPP *Pesticide Registration (PR)* notice in Fall/Winter 1999. See Chapter 5 for a detailed discussion of the First Aid qualitative research.

Quantitative Consumer Research

Phase I research yielded qualitative results about the circumstances under which consumers read product labels, which parts of labels they pay the most attention to, and satisfaction about current label information and format. Since the qualitative research could not provide quantifiable results, the CLI used quantitative research in Phase II for this purpose.

The quantitative research was a major component of Phase II of the CLI. The research was funded by several CLI industry Partners. The development of the quantitative research, including questionnaire development, was a collaborative group effort involving industry Partners, EPA personnel, Task Force members from the EPA and other federal agencies, (e.g., the (Consumer Product Safety Commission (CPSC), and the Food and Drug Administration (FDA)), as well as other interested CLI Stakeholders. The industry Partners hired an independent market research

and polling firm, National Family Opinion (NFO), to conduct the survey. The study design team took direction from the results of the CLI Phase I research, including the many public comments received, as well as input from the various CLI Subgroups (see discussion below) that were meeting at the same time as the survey was being developed and implemented.

The quantitative research consisted of a national survey of consumers. The survey aimed to:

- collect more data from consumers about potential new label formats and wording changes;
- benchmark and study current consumer practices and preferences with regard to product labels, to help the CLI determine what other label changes are appropriate and how best to make them;
- provide information to help the EPA and CLI Project partners consider policy implications and take some immediate actions;
- assess consumer ability to locate label information;
- measure consumer comprehension of labels; and
- provide demographic analysis capability.

The survey was conducted during May and early June 1998. Survey results were analyzed during the Summer of 1998. The survey included questions about how consumers locate label information, how well consumers understand the information, when and where they consult the labels, the relative importance of different kinds of label information, and which information consumers wish to find most quickly. The quantitative portion of the study included both a mailed, written survey instrument and a telephone interview. The study was designed to include a fair representation of low-income, low-education, and ethnic minorities in the U.S. See Chapter 2 for a detailed discussion of the survey research design, implementation, and results.

Qualitative Consumer Mini Focus Groups

The qualitative research performed in Phase I, backed by Stakeholder comments and the literature review, found that while generally satisfied with the labels, many consumers do not consistently read or understand product labels for household pesticides, insecticides, and hard surface cleaners. This finding was also supported by Phase I Stakeholder comments and the Phase I literature review. Possible reasons that were proposed for this finding included:

- excessively technical and sometimes obscure wording of information on labels;
- poor layout and design of information, with inadequate contrast and difficult-to-read type;
- information that does not address consumers' needs;
- consumers' lack of understanding of the potential benefits of reading the label information;

- consumers' lack of motivation to read labels; and
- general consumer satisfaction with the existing level of information on labels.

Quantitative survey techniques, including those used in Phase II quantitative research, do not lend themselves well to detailed probing of interviewees to uncover why and how they react to a variety of different text phrasings and formats. The CLI felt that a more subjective approach would enlighten certain areas of inquiry. The CLI, therefore, pursued further qualitative research in Phase II to investigate:

- consumer understanding of where to locate information on product labels;
- consumer understanding of the meaning of specific phrases;
- possible alternatives to the way certain label information is stated;
- how labels can be more clearly designed;
- consumer interpretation of certain "signal" words, such as DANGER;
- consumer reactions to the possibility of standardizing label information;
- consumer reactions to possible logo designs for the Consumer Education Campaign; and
- compelling motivators for reading and understanding labels.

Qualitative research was funded by the EPA, which hired The Newman Group, Ltd. to conduct the research. The qualitative research took the format of 27 "mini" focus groups, each consisting of 3 to 5 participants, who were purchasers and users of the products under consideration. Nine focus groups were held in each of three cities, Chicago, IL; Ft. Lauderdale, FL; and Dallas, TX, during July and August of 1998. In each city, hard surface cleaners, indoor insecticides, and outdoor pesticides were each covered by three separate focus group discussions. A strong effort was made to represent low-income, less-educated, and minority-group segments of the populations of each city.

See Chapter 3 for a detailed discussion of the Phase II qualitative research design, implementation, and results.

CLI Subgroup Activities

The CLI was envisioned from the beginning as a partnership and a process involving teamwork among many Stakeholders. Phase II of the CLI had several different focuses, each of which required the expertise of different EPA management and Stakeholders. Subgroups concentrated on each of the following areas:

- research on consumer knowledge, attitudes, and behaviors related to labeling information;
- standardized environmental information;
- storage and disposal information on products; and
- consumer education related to label awareness and use.

Members of each subgroup consisted of CLI Partners, Task Force members, EPA, other federal agency personnel, and other interested CLI Stakeholders. Each subgroup made efforts to keep other CLI groups informed of all significant activities and findings. Subgroup members were responsible for collaborating with others in their subgroup and conveying information from the subgroup meetings to people in their own organizations. Subgroups provided information to the group developing and implementing the quantitative and qualitative research. Input from subgroups was instrumental in survey development, analysis of the survey results, and formulation of the Phase II recommendations. In many ways, the work of each subgroup affected that of the others, and the CLI has been a dynamic process of teamwork among the many Stakeholders.

Quantitative and Qualitative Research Core Group

A group of 22 CLI Stakeholders volunteered their time and expertise to coordinate the quantitative and qualitative research of Phase II. Members included key people from the EPA, market researchers from Amway Corporation, Bayer Corporation, the Chemical Specialties Manufacturers Association (CSMA), Procter and Gamble, Reckitt and Colman, The Clorox Company, Monsanto Lawn and Garden, S.C. Johnson and Son, Inc., RISE (Responsible Industries for a Sound Environment), the Consumer Product Safety Commission (CPSC), and the Food and Drug Administration (FDA). Appendix 1-5 lists all the Core Group members who were involved primarily with the quantitative research.

The group met on a weekly basis via conference calls to develop and refine questions for the quantitative survey instruments (telephone and mail survey). The market researchers from the companies were experts in their field and were able to provide input on the types of questions and question formats that would be appropriate for each product category. The group worked together to formulate questions addressing consumer understanding, preference, and satisfaction with current labels. Additional questions were asked regarding specific topic areas, such as ingredient information. (See Chapter 2 for a full description of the quantitative research.)

The Core Group also developed the focus and questions for the qualitative research and helped familiarize The Newman Group, Inc. with the CLI and its goals and objectives. Members of the Core Group observed several of the qualitative focus groups and provided feedback after each group on ways in which the moderator might be better able to convey the ideas being tested in subsequent focus groups. Appendix 1-6 lists all the members of the Qualitative Subgroup.

Finally, after the quantitative and qualitative research was completed, a small subset of the Core Group (consisting of market researchers [one each from Amway Corporation, Bayer Corporation, The Clorox Company, Procter and Gamble, and S.C. Johnson and Son, Inc.] and three EPA Task Force members), continued to meet on a weekly basis to interpret and analyze the survey results. This group studied the data thoroughly, and formulated findings, implications, and conclusions. (See Chapters 2, 3 and 4 for a complete discussion of the findings, implications, and conclusions from the quantitative and qualitative research.)

Standardized Environmental Information on Product Labels Subgroup

A small working group consisting of EPA personnel and industry Partners was formed to address the issue of standardized environmental information on product labels. The group initially met regularly; as the scope of this issue changed, the group also met with the research Core Group. Appendix 1-7 lists all the members of the Standardized Environmental Information Subgroup.

Initially, the group set out to investigate the possibility of developing standardized information on product labels in the form of a facts box of environmental information (analogous to the food nutrition label). Based on input from this working group and the desire of the Agency to advance the development of this concept and frame the debate, consumer research on standardizing environmental information was performed as part of the quantitative research. Part of the quantitative research asked consumers what they felt was the most important information on a label and to identify which types of information they looked for in different situations. The quantitative research found that consumers interviewed did not generally consider environmental information to be one of the more important sections of the product labels. Consumers also said that a standardized format for labels would help them to more easily locate the information that they consider to be important.

The group's focus regarding standardization of information on product labels then shifted. Given what consumers were saying, the group decided that it was most important to test variations of standardized formats on product labels to see whether any of the formats improved consumers' understanding of label information. It was decided that various box and standardized label formats would be tested via the qualitative research. Consumers in the focus groups were asked questions about their preference for specific formats, whether the formats made a difference in their understanding of the information presented, and whether they had a preference for which *information* should be presented in standardized or box formats.

See Chapter 6, section 1 for a more details regarding the standardized format research.

Storage and Disposal Subgroup

The Storage and Disposal Subgroup was formed at the end of Phase I to address some of the key findings from Phase I research on storage and disposal issues. (The complete Storage and Disposal Subgroup is listed in Appendix 1-8.) These Phase I findings included the following:

- consumers often do not read storage and disposal instructions;
- consumers frequently attempt to recycle the empty plastic containers that hazardous household products come in, which often violates regulations relating to public health and safety; and
- EPA standard disposal instructions on labels may conflict with some state or local laws or practices.

In Phase II, the CLI Storage and Disposal Subgroup directed research to obtain a better overview and understanding of current state and local regulations and practices regarding storage and disposal of household hazardous products. The Subgroup also identified problems related to modifying storage and disposal language on labels. An informal survey was made of members of the North American Hazardous Materials Management Association (NAHMMA). Telephone interviews, a literature review, and discussions with and presentations of data by a variety of Stakeholders supplemented the survey results. Input from the storage and disposal groups was also taken into consideration when formulating questions for the qualitative and quantitative research, and in the analysis of the research data.

See Chapter 6, section 2 for a detailed discussion of the Storage and Disposal Subgroup activities.

Consumer Education Subgroup

The ultimate goal of the CLI is to change the behavior of consumers regarding pesticides and household cleaning products, especially to:

- increase reading and use of labels;
- decrease the misuse of products;
- decrease the incidence of accidents involving products; and
- decrease environmental impacts caused by improper use, storage, and disposal of these products.

Phase I research and the extensive literature search, supported by many Stakeholder comments, found that many consumers do not consistently or thoroughly read labels for these types of products. Changes of label information or design will not be beneficial to consumers unless they read the labels. As part of Phase II, the CLI therefore established a Consumer Education Subgroup, to concentrate on ways to 1) increase consumer awareness of labels; 2) encourage consumers to read labels and use their information thoughtfully, for both their personal safety and as part of their environmental responsibility; and 3) to help people understand the information presented on labels. Appendix 1-9 lists all the members of the Consumer Education Subgroup.

The Consumer Education Subgroup conceptualized, developed, and began implementing a broad-based, long-range consumer education plan intended to help people to read, understand, interpret, and use label information. The Subgroup developed an easily understood message —"Read the Label *FIRST!*"— and began developing a unique, memorable, consumer-friendly logo of the message. The various components of the campaign were designed to work with and reinforce each other. The Subgroup also strategized the goals of the education campaign and support materials, and suggested ways in which to use the materials. The subgroup prepared brochures targeting different audience groups, and designed succinct messages that can be adapted to a variety of educational approaches and materials.

See Chapter 6, section 3 for a detailed discussion of the Consumer Education Campaign.

CHAPTER 2

QUANTITATIVE RESEARCH

At the end of Phase I, EPA, in consultation with CLI Partner and Task Force members, concurred with the recommendation that quantitative research in Phase II would be valuable to better understand consumers' preference for, comprehension of, and satisfaction with current product labels. A quantitative approach was favored because it was necessary to obtain statistically sound data to support the findings from the earlier qualitative research. Furthermore, unlike qualitative research data, quantitative research data are representative of the study population and projectable to the entire population. Quantitative research was also used to determine the prevalence of particular opinions on a given issue expressed in the qualitative interviews. Additionally, quantitative research was appropriate for measuring both attitudes and behavior of consumers to current and new product labels. Demonstrating their support for this concept, the CLI Partners volunteered to fund and direct this research, which they felt would be of use even beyond the CLI. Quantitative research also provides a baseline that can be surveyed periodically to determine changes in attitude and behavior.

The Phase II quantitative consumer research was designed to assess consumer comprehension, attitudes, behavior and satisfaction with labeling and to evaluate labeling alternatives (for both registered and non-registered products) in the outdoor pesticide, indoor insecticide, and hard surface cleaner categories. The quantitative survey was organized along the six learning objectives identified by the CLI Partner and Task Force members at the beginning of Phase II. These learning objectives are as follows:

Quantitative Learning Objectives

Determine the current situation relative to consumers' satisfaction with the format and content of existing labels;

Determine consumers' hierarchy of importance of basic label information;

Determine where on the label consumers expect to find particular information, such as First Aid and ingredients;

Determine consumers' current comprehension of label language;

Determine whether or not a preference exists for non-FIFRA over FIFRA labels (for household cleaner category only); and

Determine consumers' reaction to standardized safe use, environmental, health and safety information.

Each learning objective was intended to generate research findings that would enable the EPA and CLI Stakeholders to take immediate and short-term steps toward label improvements. Some changes, such as revised guidance and regulations, are almost entirely under the purview of the EPA. Other changes are entirely within the purview of the product marketers but may be subject to EPA label approval. Others, such as consumer education, involve many Stakeholders and would be implemented over a longer time period. The results of the quantitative research were expected to lead to certain actionable steps, such as:

- quantify key learnings from the qualitative research in Phase I of CLI;
- collect data that will serve as input into additional quantitative research, such as consumer evaluation of potential new label formats;
- benchmark current consumer practices and preferences, so that changes in behavior/preference (based on label changes) can be assessed;
- provide information that will allow the EPA and its Partners to consider policy implications and to take some immediate action steps;
- guide the Consumer Education Subgroups's efforts;
- guide the Storage and Disposal Subgroup in making recommendations; and
- provide information for potential changes to label formats.

Strategy for the Quantitative Research

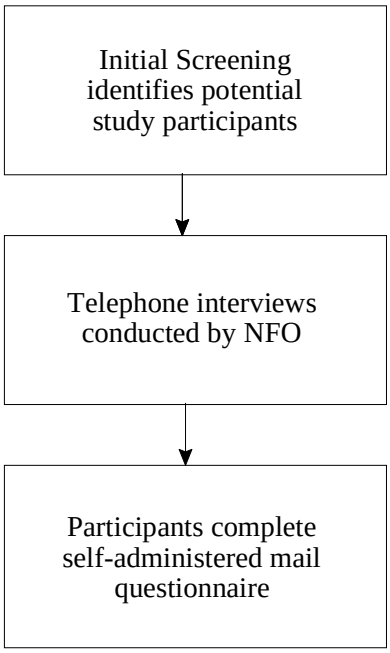
The design and implementation plan of the quantitative research was developed by the Research Core Group, consisting of EPA personnel, industry and trade association Partners, people from other federal and state agencies, and other interested CLI Stakeholders. The Core Group began, by addressing the learning objectives identified at the beginning of Phase II by CLI Partner and Task Force members, to develop the quantitative screening and survey questionnaires. Several of the members of the research group were market researchers in their own organizations and, therefore, had extensive experience with survey design. The quantitative research was voluntarily undertaken and funded by industry and trade association Partners of CLI including: AgrEvo Environmental Health; American Cyanamid (American Home Products); Bayer Corporation; the Chemical Specialties Manufacturers Association (CSMA); Dow AgroSciences; FMC; Reckitt & Colman; S.C. Johnson & Son, Inc.; The Procter and Gamble Company; The Clorox Company; Purcell Industries, Inc.; Riverdale Chemical Co.; SC Johnson; The Andersons, Inc.; The Scotts Co.; Solaris (Monsanto); United Industries Corporation; and the RISE (Responsible Industry for a Sound Environment). This group of companies hired an independent survey research firm, National Family Opinion (NFO) Research, Inc. to implement the study.

During Phase II, the Core Group met on a weekly basis via telephone conference calls, and occasionally in ad hoc face-to-face meetings, to discuss the development of the survey instruments, the implementation of the survey itself, and interpretation of the data once the results of the survey were available. In July 1998, a smaller subgroup of the Core Group met in Washington, D.C., to discuss the survey data in detail and establish some of the preliminary findings from the survey results. This smaller group consisted of EPA Task Force members, and market researchers from Amway Corporation; Bayer Corporation; S.C. Johnson and Son, Inc.; and the Procter and Gamble Company. In August, the subgroup finalized the preliminary findings and prepared data tables to illustrate these conclusions. In September 1998, the subgroup presented these results at the Partner and Task Force meeting in Alexandria, VA.

Quantitative Study Design

The quantitative study consisted of three parts: an initial screening (to identify potential study participants), followed by telephone interviews and a self-administered mail questionnaire among those selected to participate in the main portion of the quantitative study.

The Three Parts of the Quantitative Study Design



Screening to Identify Product Category Users for Use in the Study

In the first part of the quantitative phase of the study, a postcard with a very short screening questionnaire (screener) was mailed to members of the NFO Panel.[2]

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[2] Consumers were screened from NFO Research's consumer panel of 550,000 households. The panel of 550,000 was randomly chosen from the population as a whole. The NFO panel consumers have agreed in advance to participate in marketing research studies. When households become members of the NFO panel, they provide a large amount of demographic information about their household (e.g., age and gender of household members, household income, household size, education and employment information on the male and female heads of household, and many other types of information). This large database of pre-recruited households allows NFO Research to:

- easily find households which are willing to participate in marketing research studies, particularly those that are longer and more complex in nature;
- design the sample (i.e., determine which households are chosen to participate in the study) in a way that ensures that the demographic make-up of participants (and thus the results) are representative of the U.S. population as a whole; and
- eliminate the need to collect a series of demographic information from each respondent, since the panel database already contains a large amount of demographic information for each panel household.

The screener contained questions to identify consumers eligible for participation in the main portion of the quantitative study (and to eliminate those consumers not eligible for participation). Screener questions asked respondents the following:

- Whether any household member used a household cleaner in the past 12 months. For those who indicated usage of a household cleaner, the age and gender of the household member who is the primary user of household cleaners;
- Whether any household member used an indoor insecticide in the past 12 months. For those who indicated usage of an indoor insecticide, the age and gender of the household member who is the primary user of indoor insecticides;
- Whether any household member used an outdoor pesticide in the past 12 months. For those who indicated usage of an outdoor pesticide, the age and gender of the household member who is the primary user of outdoor pesticides; and
- Whether the respondent had gone to the store to purchase each of the three types of products, but did not because of information contained on the label of the product.

In March 1998, the screening postcard was mailed out to a total of 10,000 NFO consumer panel households. The distribution of recipients who received this postcard was balanced to be representative of the U.S. population as a whole on age and gender of the head of household, geographic region, household size, market size, and household income. An additional 2,250 postcards were mailed out to households from three low incidence groups of interest (minority, lower formal educational level, lower income) on NFO's panel of 550,000, to ensure adequate representation in the final survey results. These low incidence groups were also balanced to be representative of their counterparts in the overall U.S. population. In April 1998, returns were closed out and the returns tabulated. A total of 8,447 households returned the postcard (69% of the number sent out). These results were then used to determine which households and which individuals to include in the main portion of the CLI quantitative study (i.e., phone and mail questionnaires) for appropriate demographic representation. Appendix 2-1 contains the screening questionnaire.

Non-User Results

As stated above, non-users (in the past 12 months) were excluded from the main portion of the quantitative study. It must be noted that among the group of consumers who said on the screener that they had not used the specific products in the past 12 months (and were thus ineligible for inclusion in the main portion of the study), a small number also indicated on the screener that they went to the store to buy such a product, but did not purchase it because of information on the package (6% of those who did not purchase household cleaners, 7% of those who did not purchase indoor insecticides, and 5% of those who did not purchase outdoor pesticides). The information on the package cited as the reason consumers did not buy the product was not specified. It cannot be determined, therefore, what biasing impact, if any, was created by excluding these consumers from the study. Based on the low number of consumers who were excluded (between 5% and 7% of non-users for each category), it is unlikely that any such biases would alter the survey findings in any meaningful way.

Sample for the Telephone Interviews and Mail Questionnaire

For each product category, a group was formed of participants who indicated that they had used that type of product in the past 12 months. Additionally, supplemental samples of low-income households (i.e., those making less than $10,000 per year), less educated heads of household (i.e., those with less than high school education), and minorities were drawn for all three categories, and a supplemental sample of fogger users was also drawn for the indoor insecticides category. These additional samples were needed because the overall incidence of these groups in the U.S. population is so low that there would not be enough members of these groups in the nationally representative sample to allow for meaningful quantitative analysis of these particular groups.

These supplemental groups (i.e., supplemental samples) were included only for analyses that looked specifically at the group for which the supplemental sample was pulled. For example, the respondents who were part of the supplemental group for low-income households were included only in the separate analysis of consumers from low-income households. Excluding these special supplemental groups of respondents from other groups (e.g., the nationally representative sample) prevented the creation of an unnatural skew toward over-representing consumers from those groups for which a supplemental sample was pulled. It is important to note that, due to random selection, there are still members among the nationally representative sample who fall into the demographic groups for which supplemental samples were pulled.

The samples for each product category were balanced to be representative of the portion of the U.S. population that uses that particular category (i.e., household cleaners, indoor insecticides, outdoor pesticides). The samples were balanced on the following demographic variables:

- age of user,
- gender of user,
- household income,
- household size,
- market size, and
- geographic region.

The self-administered mail questionnaires were mailed out to a total of 6,438 households, broken down as follows:

Nationally representative sample of category users:	
All categories	1,775 per category

Supplemental Samples				
	Low-education heads of household	**Low-income households**	**Minority households**	**Fogger users**
Indoor insecticides	102	122	77	144
Household cleaners	102	124	90	N/A
Outdoor pesticides	108	132	112	N/A

When survey returns were closed in early June 1998, a total of 3,234 consumers (50% of the total sent out) completed both the telephone and mail portions of the study, with approximately 850 to 900 being nationally representative users of each of the three product categories. As appropriate, the remainder of returns were used to supplement the various low incidence groups.

Telephone and Mail Questionnaires

The main portion of the CLI quantitative study was composed of 1) a telephone interview, followed by 2) a self-administered 8-page mail questionnaire. The telephone interview was used to collect information that would have been difficult to collect without direct interaction with an interviewer (e.g., having the respondent state where certain label sections were located). Telephone interviewers also allowed for clarifications and follow-up probing of responses regarding comprehension. Questions on the phone survey were rotated so that any order bias or "question fatigue" would be avoided. The mail questionnaire was used to collect a large amount of detailed information that could not be collected over the telephone due to time (i.e., length of interview) considerations. The telephone interview also asked consumers for "top of mind" responses to mimic actual consumer behavior (e.g., exercise of choices and capabilities) when they encounter the label both in the store and at home.

There were three different versions of the survey: one for household cleaning products, one for indoor insecticides, and one for outdoor pesticides, with the bulk of questions being identical on all three. In April 1998, participants were sent *one* version of the questionnaire booklet, along with a letter of instruction and a "mock" label (for use in both the phone and mail portions of the study). The mock label was representative of a typical product label for the product category for which respondents were selected. Participants were instructed to await a telephone call before completing the self-administered mail questionnaire. After allowing time for mail delivery, respondents were contacted by phone in early May and asked to complete a 10-minute telephone interview (average time), with responses collected using a computerized telephone questionnaire. After completion of the telephone survey, respondents were then instructed to complete the 8-page mail questionnaire and return it to NFO Research. After one month for completion and return of the self-administered mail questionnaire, returns were closed in early June 1998, and all results from the telephone and mail surveys were then tabulated. Only results from those completing both the telephone and the mail portions of the survey were included in the final results.

Procedure for Telephone and Mail Questionnaires

Survey Questionnaires and Learning Objectives

The telephone and mail survey instruments were designed by the Core Group (quantitative research group) to address the learning objectives outlined at the beginning of this chapter. The learning objectives, questions from each questionnaire relating to that learning objective, and the *potential* action steps emerging from these questions are provided in Table 2-1.

In addition to the learning objectives, the Core Group developed the survey instruments to investigate consumer attitudes, behaviors, and understanding related to specific areas and issues, including:

- *Consumer Education* — What other sources of information, besides the product label, do consumers turn to for information about the product?
- *Product Ingredients* — Do consumers understand the ingredient listing on products and know how to use this information?
- *Signal Words* — Do consumers understand the signal word hierarchy for CAUTION, WARNING, and DANGER?
- *Storage and Disposal* — What are consumers' current storage and disposal practices?
- *Precautionary Statements* — What are consumers' understanding and use of precautionary statements?

Telephone Interview Outline

The telephone interview questionnaire used "mock" labels to ask questions related to consumers' comprehension of and ease of finding information on the labels. More specifically, the telephone questionnaire tested respondents' ability to locate key sections of the label, the accuracy with which respondents were able to locate these sections, and their opinions on the ease of finding these sections. Respondents also were asked what they thought certain language on the label meant, including specific key words and phrases. Finally, the telephone survey asked several demographic questions. (See Appendix 2-2 for copies of the phone questionnaires, and Appendix 2-3 for the mock labels.) Each interview was conducted by trained interviewers from NFO Research, Inc., and lasted approximately 10-12 minutes. At the conclusion of the telephone interview, the interviewer instructed the respondent to complete the written questionnaire in his or her own time and mail it back to NFO Research, Inc., once completed.

Table 2-1: Learning Objectives, Survey Questions, and Potential Action Steps		
Learning Objective	**Questions Relevant to the Learning Objectives Addressed the Following:**	**Potential Action Steps**
1) Determine current satisfaction with the format and content of existing labels	**Telephone:** • ease of locating key label sections **Mail:** • overall satisfaction with the current label • likes and dislikes of label sections	If current labels are not meeting consumers' needs, provide general input on which sections need further revisions. Level of consumer dissatisfaction indicates strength of motivation for change, thus determining focus and degree of difficulty for education effort.
2) Determine consumers' hierarchy of importance of basic label information 3) Determine where on the label consumers expect to find label information	**Telephone:** • ease of locating key label sections **Mail:** • where and how often consumers read sections of labels • information on labels that are the most and least important • where consumers expect to find information on labels, and which information they want to find most easily • where consumers expect to find recycling icons	Make format recommendations, such as organizing information when needed in the store, before use, or in case of emergency.
4) Assess consumers' comprehension of current label language	**Telephone:** • comprehension of language by label section **Mail:** • meaning of the recycling icons • likes and dislikes about label sections	1. Identify terminology that consumers find difficult to understand. 2. Recommend additional qualitative work with consumers to understand what terminology should be used, as appropriate. 3. Recommend word changes (limited).
5) Determine preference of FIFRA versus non-FIFRA labels (for household cleaner category only)	**Mail:** • like and dislikes about label sections • consumers' preference for FIFRA and non-FIFRA labels • paired preference statements	1. Quantify whether non-FIFRA label is preferred to FIFRA language. 2. Make word changes where possible. 3. Make format recommendations, such as organizing information when needed in the store, before use, or in case of an emergency.
6) Solicit consumers' reactions to standardized information on safe use, environmental, and health information	**Mail:** • most and least important information to consumers • where consumers expect to find information on a label, and which information they want to find most easily • where and how often consumers read sections of the label	1. Provide direction on the types of information that could be standardized. 2. Make format (location) recommendations.

Mail Questionnaire Outline

The mail questionnaires (see Appendix 2-4) were designed to address the following specific questions:

- respondents' overall satisfaction with current labels;
- when (i.e., in the store or right before use) and how often respondents read label sections;
- if they do not read the label, why not;
- most and least important information to respondents;
- where respondents expect to find information on a label, and which information they want to find most easily;
- respondent likes and dislikes about product label sections;
- other sources (besides the label) for product information;
- meaning of recycling icons, including what actions respondents think the icons are asking them to take, and where they expect to find these icons on the product packaging;
- respondent preference for FIFRA versus non-FIFRA labels (for household cleaning product category only);[3]
- respondent preference for FIFRA language and alternate wording;
- respondent attitude toward reading product labels; and
- respondent habits and practices, such as: products used; accident experience; current storage, disposal, and recycling practices; and the incidence of product category use and non-purchase due to confusion about the label.

[3] Pesticides, disinfectants, and antimicrobial cleaners are subject to labeling requirements under FIFRA. Other products (i.e., in the case of products covered by CLI, non-disinfectant and/or antimicrobial household cleaners), are governed by other authorities. In the cleaner category, therefore, product labels are markedly different, depending on whether FIFRA or a different statute applies, even through the products in the bottle may be similar. For the CLI quantitative research, respondents in the household cleaners category were presented with a FIFRA and a non-FIFRA label to determine how each was perceived.

Quantitative Research Data

National Family Opinion Research completed collection of the survey responses and data tabulation during the months of June and early July[4]. In the final count, the total number of responses received for the mail and the telephone surveys were as follows:

- Household Cleaners — 894 completes;
- Outdoor Pesticides — 846 completes; and
- Indoor Pesticides — 889 completes.

Statistical Testing of Data

When comparing different groups of data quantitatively, statistical tests are needed to help determine which data are meaningful and which are not. A two-tailed t-test, which compares the percentages or means of interest and the sample sizes, was used to determine whether differences existing among groups are significant on a statistical level.

This type of statistical testing is done based on the level of significance desired. Data are most frequently tested for significance at levels between 80% and 95%. The higher the level of statistical testing performed, the more likely it is that data differences detected in the study reliably reflect differences in the "real world." If a significant difference between two data points at the 95% confidence interval is found to exist, this means that the same study, if conducted 100 times, would show a significant difference reflected in its data at least 95 of those times. For the CLI study, data were tested at the 95% confidence level. In the raw data tables, significance was routinely tested. For each question asked, the mean, standard deviation, and standard error are also shown for each type of respondent.

Breakdown of CLI Data

The Core Group determined that it would be important to investigate whether significant differences existed among various groups of respondents. To this end, the raw data were broken down by various demographic categories and by ways in which respondents answered several key questions. These breakdowns were necessary so that analysis and comparisons could be made among different groups that responded to the questionnaire. For example, the gender category allowed the Core Group to determine if there is any significant difference between the numbers of males and females who read information on product labels. A total of seven demographic categories were made for the CLI study as follows:

- gender (male, female);
- household income (less than $10,000; $10,000-$24,999; $25,000-$49,999; and $50,000 or greater);

[4] A complete set of the quantitative data may be found in the EPA's Public Docket, Administrative Record AR-139. The availability of the data for public review was announced in a *Federal Register (FR)* notice (63 FR 57298, October 27, 1998).

- respondent education level (less than high school, high school graduate, and some college level education);
- minority status (yes, no);
- age of respondent (18-34, 35-54, and 55 or older);
- presence of children in the household (yes, no);
- dog/cat ownership (yes, no); and
- overall satisfaction level expressed with the label for that category, as indicated on the mail questionnaire.

In addition, seven categories were made to compare the ways in which respondents answered key questions of interest for the Core Group's analysis, as follows:

- frequency with which labels are read (respondents who read label section "occasionally or every time," or those who "do not read label sections occasionally or every time");
- ability to correctly identify most sections (respondents who were able to correctly locate label sections and those that could not correctly locate label sections two or more times);
- whether or not respondents looked for information about ingredients (respondents who said that they looked for ingredient information and those that said that they did not look for this information);
- preferred ingredient format (respondents' preference for four different ingredient information presentation options (for details on these options, refer to question 4c on mail questionnaires in Appendix 2-4);
- whether or not respondents looked for information about harmful effects of the product (respondents who said that they look for information on a label on the harmful effects of a label, and those that said that they did not);
- preferred labeling format (respondents who answered that they would "make no change to the current label format," those that said they would like to see "headings to highlight key facts," and those that said that they preferred the suggested "box format"); and
- geographic region (indication of where respondents were from for use by the Storage & Disposal Subgroup to see how respondents from states with strong household hazardous waste management programs ("strong HHW") answered questions in comparison to those respondents from other states ("other HHW")).

Data Precision

Based on a standard statistical measure for sample sizes of about 850 to 900 respondents, the data for the nationally representative sample of users for each of the three product categories are accurate to ± 3½% at the 95% confidence interval. This means that if the study were conducted 100 times and 50% of respondents gave a certain response, 95 out of those 100 tests would yield a result for that response if given by between 46.5% and 53.5% of respondents. As percentages move towards the extremes (i.e., closer to 0% and 100%), the precision of these data points will actually be higher. It is important to note that these precision measures refer to specific data points, and not to differences between data points. Precision for groups with smaller sample sizes will be lower.

Quantitative Research Findings and Implications

The raw data tabulations were analyzed by the Research Core Group for several reasons:

- to discover what *overall findings,* or observations, could be made from the quantitative data about consumers' comprehension, attitudes, behavior and satisfaction with labeling;
- to identify the *implications,* or connections, among the various findings related to a learning objective or topic area; and
- to evaluate labeling alternatives (for both registered and non-registered products) in the outdoor pesticides, indoor insecticides, and hard surface cleaner categories.

The Core Group hoped to be able to organize the findings in accordance with the learning questions and the topic areas studied in the quantitative research. Once in-depth analysis began, however, it became evident that the data leading to the findings were not clear-cut, but in fact overlapped with one or more of the learning objectives and topic areas.

Wherever possible in this report, findings and implications have been organized according to topic area. Data charts and tables follow the findings that they support; most charts are presented in both graphic and numerical formats. Implications of the findings are provided following the findings from which these have been drawn.

Learning Objectives and Topic Areas

The quantitative survey was designed to address six learning objectives identified by the CLI Partner and Task Force members at the beginning of Phase II.

Quantitative Learning Objectives

Determine the current situation relative to consumers' satisfaction with the format and content of existing labels;

Determine consumers' hierarchy of importance of basic label information;

Determine where on the label consumers expect to find particular information, such as First Aid and ingredients;

Determine consumers' current comprehension of label language;

Determine whether or not a preference exists for non-FIFRA over FIFRA labels (for household cleaner category only); and

Determine consumers' reaction to standardized safe use, environmental, health and safety information.

In addition to the learning objectives, the quantitative study also focused on the following topic areas:

Specific Topic Areas Addressed by the Quantitative Research

Consumer Education — What other sources of information, besides the product label, do consumers turn to for information about the product?

Product Ingredients — Do consumers understand the ingredient listing on products and know how to use this information?

Signal Words — Do consumers understand the signal word hierarchy for CAUTION, WARNING, and DANGER?

Storage and Disposal — What are consumers' current storage and disposal practices?

Precautionary Statements — What are consumers' understanding and use of precautionary statements?

Findings and Implications

Terminology

Findings are observations resulting directly from the quantitative survey results and are supported by the data.

Implications show connections among the various findings related to a topic or learning objective and are derived from consideration of the quantitative findings.

Findings on Respondents' Satisfaction with Existing Labels (Chart 2-1, Table 2-2)

In general, respondents expressed overall satisfaction with the product labels in the three product categories. However, when presented with specific alternate label formats or language preferences, they indicated a desire for specific changes.

Chart 2-1

HOW SATISFIED ARE YOU OVERALL WITH THE INFORMATION CURRENTLY AVAILABLE ON PRODUCT PACKAGING?

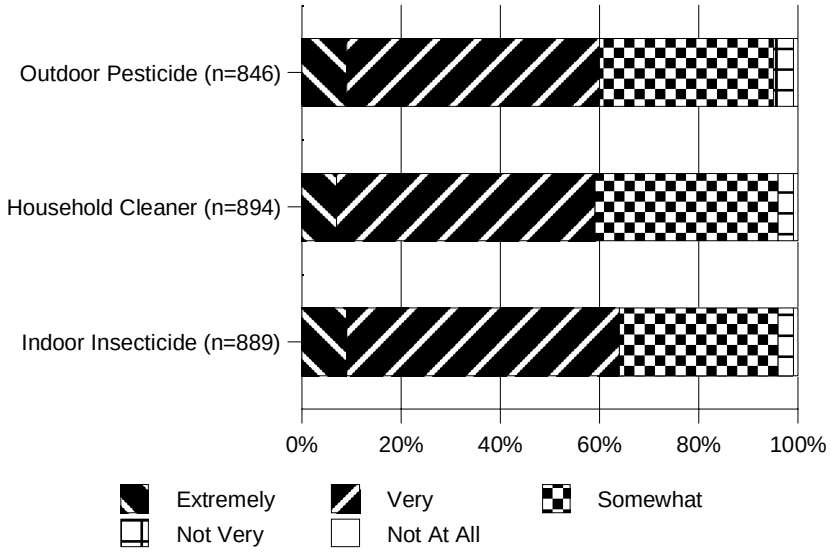


Table 2-2: How Satisfied Are You Overall With the Information Currently Available on Product Packaging? (%)					
	Extremely	**Very**	**Somewhat**	**Not Very**	**Not At All**
Outdoor Pesticide	9	51	35	4	1
Household Cleaner	7	52	37	3	1
Indoor Insecticide	9	55	32	3	1

(Base = All Respondents)

<u>Findings</u> on Respondents Comprehension of Existing Labels (Tables 2-3, 2-4, 2-5)

1. Overall respondents' comprehension of the label sections was high in all three product categories. A consistent exception to this finding is that over half of the respondents found the words in the ingredients section to be confusing.

2. The overwhelming majority of respondents for all three product categories said there were no confusing words or phrases in any of the various label sections. In the outdoor pesticides category, however, over one third said there were confusing words or phrases in the environmental hazards section.

3. In all three product categories, respondents preferred the alternative, revised statements over the existing label language, with only a few limited exceptions.

4. In each of the three product categories, comprehension of the label language was high, with just a few exceptions. However, there are noteworthy findings for Indoor insecticides and outdoor pesticide categories:

   - For *indoor insecticides* — nearly one-half of the respondents indicated that there was something confusing about the First Aid section of the label. A large majority of these respondents had difficulty with the phrase "gastric lavage is indicated if material is taken internally."

   - For *outdoor pesticides* — one-third of the respondents indicated confusion with the Environmental Hazards section. The phrase "This product is toxic to aquatic invertebrates" was mentioned most often as the source of this confusion.

5. Respondents were fairly definitive with regard to the preference for various statements tested related to household cleaners. In particular, each statement had two-thirds or more of the respondents preferring one alternative or the other. Please refer to the following table for a complete listing of statement preferences.

Table 2-3: Preference Statements for Household Cleaner Labels

% Preferring	Statement A	Statement B	% Preferring
66.8	For safe and effective use, read the label first	Use safely. Read the label before use	33.2
32.0	For safe and effective use, read the label first	Use only as directed on this label	68.0
87.4	Hazards to humans and animals	Effects on humans and animals	12.6
78.4	Environmental hazards	Effects on the environment	21.6
73.1	Avoid contact with eyes	Protect your eyes during application. Wear safety glasses.	26.9

6. While consumers exhibited strong preference for certain statements on indoor insecticide labels such as “Can be absorbed through skin” (97%) versus “Can be absorbed dermally” (3%), there was considerably less agreement on statements such as “Do not re-enter for X hours after application” (52%) versus “Allow X hours before re-entering treated rooms” (48%). Please refer to the following table for a complete listing of statement preferences.

Table 2-4: Preference Statements for Indoor Insecticide Labels

% Preferring	Statement A	Statement B	% Preferring
33.8	Repeat as needed	Apply no more than X treatments per week	66.2
24.5	Do not allow children or pet to contact treated areas	Keep children or pets out of treated areas for X minutes	75.5
41.7	For safe and effective use, read the label first	Use only as directed on this label	58.3
91.0	Hazards to humans and animals	Human and animal effects	9.00
85.5	Environmental hazards	Environmental effects	14.5
56.8	Avoid contact with eyes	Protect your eyes during application. Wear safety glasses.	43.2
48.0	Allow X hours before re-entering treated rooms	Do not re-enter for X hours after application	52.0
57.1	Use only in well-ventilated area	Open windows before use to provide free flow of air	42.9
30.4	Do not spray directly over food or utensils	Do not apply where spray may settle onto food or utensils	69.6
3.0	Can be absorbed dermally	Can be absorbed through skin	97

7. Consumers exhibited strong preferences for certain statements found on outdoor pesticide labels such as “Hazards to humans and animals” (96%) versus “Human and animal effects” (4%). There was considerably less agreement on statements such as “This pesticide can kill wildlife” (56%) versus “This pesticide is toxic to wildlife” (44%). Please refer to the following table for a complete listing of statement preferences.

Table 2-5: Preference Statements for Outdoor Pesticide Labels

% Preferring	Statement A	Statement B	% Preferring
35.0	Use safely. Read the label before use	Use only as directed on this label	65.0
96.3	Hazards to humans and animals	Human and animal effects	3.70
89.8	Environmental hazards	Environmental effects	10.2
6.10	Re-entry not allowed until sprays are dry	Do not re-enter treated area until spray has dried	93.9
27.9	Do not apply directly to water	Do not apply directly to lakes, streams, rivers, or ponds	72.1
14.5	Do not contaminate water when disposing of equipment washwaters or rinsate	Do not dump rinse water into sewers or other bodies of water	85.5
10.8	Do not contaminate water when disposing of equipment washwaters or rinsate	Do not dump leftover pesticide or rinse water into drains or sewers	89.2
3.90	Do not use where soils are permeable	Do not use where product may seep into ground water	96.1
11.7	Do not use where soils are permeable	Do not apply to sandy soils	88.3
44.2	This pesticide is toxic to wildlife	This pesticide can kill wildlife	55.8
41.0	This pesticide is toxic to wildlife and domestic animals	This pesticide may harm pets and wildlife	59.0
5.6	Do not apply when weather conditions favor drift from treated areas	Do not apply in windy conditions. Pesticides may drift away from application site	94.4
3.5	Pre-harvest Interval-allow X hours before picking or eating crops	Do not pick or eat garden crops for X hours after application	96.5
33.7	Drift or runoff may adversely affect fish and nontarget plants	Drift or runoff may unintentionally harm fish and plants	66.3
2.60	Phytotoxic to woody plants	Application may injure woody plants	97.4

Table 2-5: Preference Statements for Outdoor Pesticide Labels			
% Preferring	**Statement A**	**Statement B**	**% Preferring**
76.4	Wrap in paper and dispose of in trash	For information on safe disposal of unused product, contact a household hazardous waste program, or your local or state environmental agency	23.6
46.9	Do not apply where runoff can occur	Do not use on sloped areas when heavy rain is expected	53.1
22.3	Repeated contact may cause skin sensitization reactions in come individuals. Avoid contact with skin.	May cause skin allergies to develop. Avoid contact with skin	77.7

8. There were demographic differences in respondents' comprehension of the labels:
   - Respondents in higher income categories understood labels better.
   - Respondents at higher education levels understood labels better.
   - Respondents in the younger age categories understood labels better.

9. Ability to locate information on the label and comprehension of that information correlate positively with income and education and correlate inversely with age. This is true despite higher reported interest in label information among the elderly, less educated, and lower income participants in the survey.

10. Interest in specific information on labels (e.g., looking for information on harmful effects) correlates positively with understanding labels.

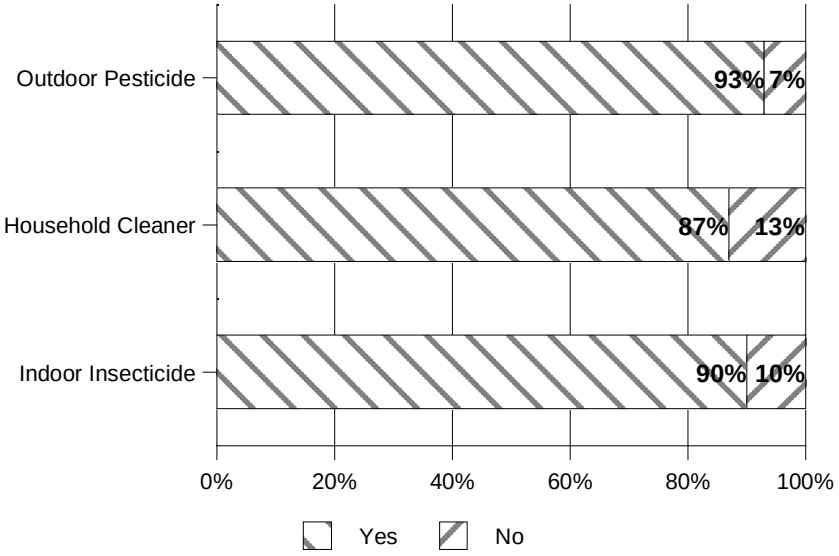
Findings on Respondents' Ease of Locating Information on Labels (Chart 2-2, Table 2-6, Table 2-7)

11. In all three product categories, an overwhelming majority of respondents indicated that the information on the label was where they expected it to be. Of those who did not find the information where they expected, the most popular suggestion was to put the ingredients on the back label. (For specific product information, see Charts 2-3 and 2-4 and Table 2-7.)

12. The information respondents found most difficult to locate on product labels were:
    - For *all three product categories* — where the product should not be used.
    - For *outdoor pesticides* — First Aid information and precautions to pets and the environmental effects for wildlife.
    - For *indoor insecticides* — precautions to personal health.

Chart 2-2

WAS ALL OF THE INFORMATION ON THE LABEL WHERE YOU EXPECTED IT TO BE?



(Base = All Respondents)

Table 2-6: Was All of the Information on the Label Where You Expected It To Be? (%)		
	Yes	**No**
Outdoor Pesticide	93	7
Household Cleaner	87	13
Indoor Insecticide	90	10

(Base = All Respondents)

Chart 2-3

ABILITY TO IDENTIFY EFFECTS ON PERSONAL AND CHILDREN'S HEALTH OR SAFETY

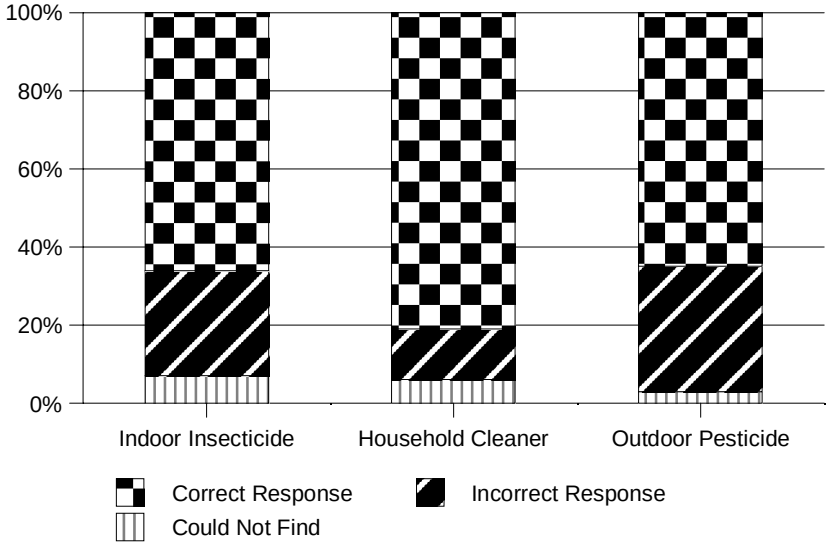


Table 2-7: Ability to Identify Effects on Personal and Children's Health or Safety (%)			
	Could Not Find	**Incorrect Response**	**Correct Response**
Outdoor Pesticide	3	32	65
Household Cleaner	6	13	81
Indoor Insecticide	7	27	66

(Base = All Respondents)

Chart 2-4

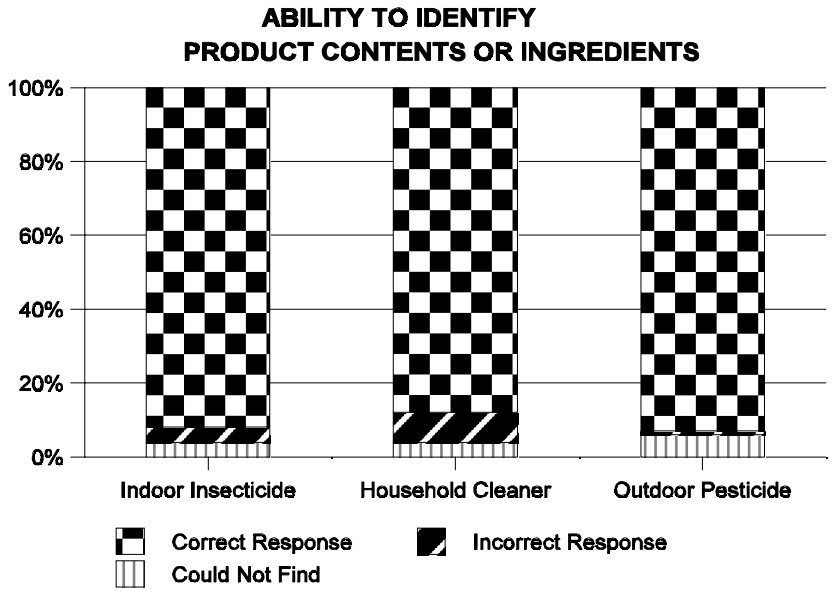


Table 2-8: Ability to Identify Product Contents or Ingredients (%)			
	Could Not Find	**Incorrect Response**	**Correct Response**
Outdoor Pesticide	6	1	93
Household Cleaner	4	8	88
Indoor Insecticide	4	4	92

(Base = All Respondents)

***Implications* Regarding Respondents' Comprehension of and Ease of Locating Information on Product Labels**

A. There is a need to make certain label sections easier to find quickly.

B. There are ways in which label sections can be made easier to find quickly, read and comprehend.

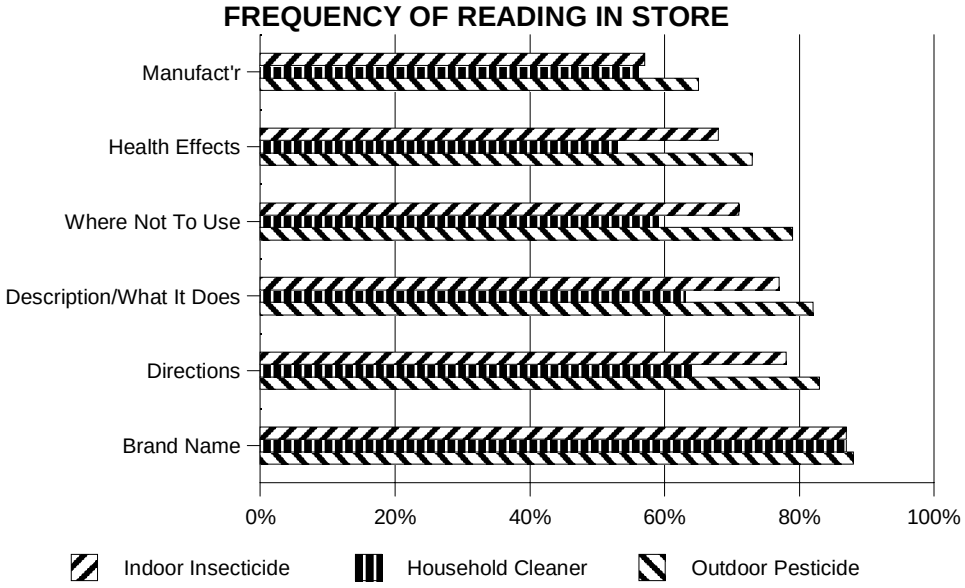
C. Most of the word and phrase revisions were preferred and would increase comprehension of the label.

***Findings* on Respondents' Hierarchy of Importance of Information on Product Labels (Chart 2-5, Chart 2-6, Table 2-9, Table 2-10, Table 2-11, Table 2-12, Table 2-13)**

13. For all three product categories, the label information that respondents read in the store and before use included: brand name, directions for use, a description of what the product does, a description of where not to use the product, and precautions for the effects on personal and children's health.

14. The frequencies of reading labels were significantly higher among outdoor pesticides users followed by indoor insecticides users followed by household cleaners users. This is true for nearly all sections of the label.

Chart 2-5



(Base = All Respondents)

Table 2-9: Frequency of Reading in Store (%)						
	Brand Name	**Directions**	**Description/ What It Does**	**Where Not To Use**	**Health Effects**	**Manufacturer**
Outdoor Pesticide	88	83	82	79	73	65
Household Cleaner	87	64	63	59	53	56
Indoor Insecticide	87	78	77	71	68	57

Base = All Respondents

15. For the three product categories, respondents indicated that the following information is important, and they would like to locate it easily:

- Directions for use,
- Description of what the product does,
- Description of where not to use the product,
- Information about effects on personal and children's health (except for cleaners users), and
- Emergency information.

Table 2-10: What Information Found on the Packaging of Products Is Most Important to You?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Directions on how to use the product **80%**	Directions on how to use the product **83%**	Directions on how to use the product **85%**
Description of what the product does **69%**	Description of what the product does **72%**	Description of what the product does **73%**
Information about effects on personal and children's health or safety **49%**	Information about where the product should not be used **52%**	Information about effects on personal and children's health or safety **48%**
Information on what to do in an emergency or in case of an accident **45%**	Brand Name **49%**	Information about where the product should not be used **46%**
Information about where the product should not be used **42%**	Information on what to do in an emergency or in case of an accident **48%**	Information on what to do in an emergency or in case of an accident **35%**

(Base = All Respondents)

16. In all three product categories, respondents always indicated that the least important information to them on current labels was the positive environmental claims statements (e.g., contains no CFCs, contains no phosphates) and the name of the manufacturer. In all three product categories, respondents ranked label information about disposal, storage, ingredients, and a consumer information phone number as the least important.

Chart 2-6

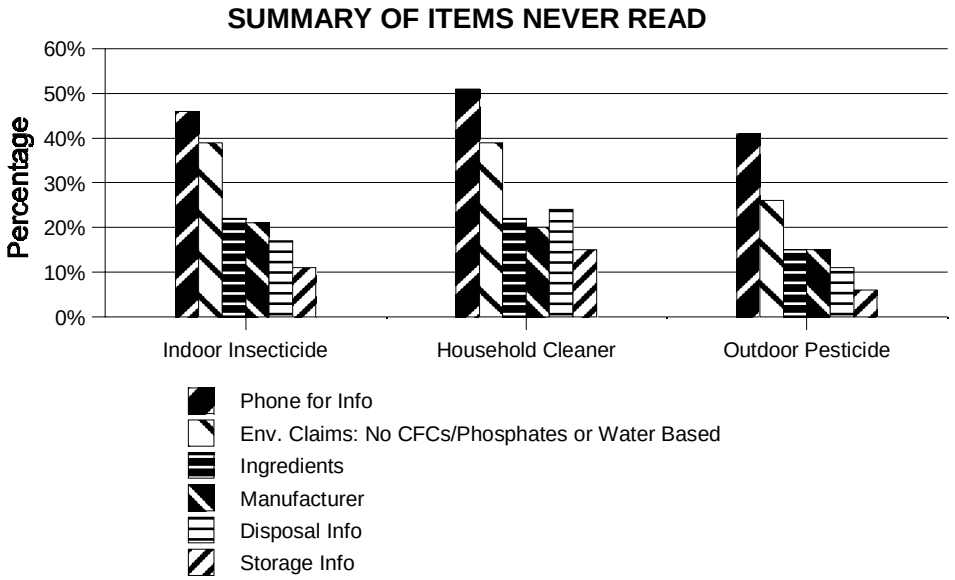


Table 2-11: Summary of Items Never Read (%)			
	Indoor Insecticide	**Household Cleaner**	**Outdoor Pesticide**
Phone for Info	46	51	41
Positive Environmental Claims: No CFCs/ Phosphates or Water Based	39	39	26
Ingredients	22	22	15
Manufacturer	21	20	15
Disposal Info	17	24	11
Storage Info	11	15	6

(Base = All Respondents)

17. For outdoor pesticides and indoor insecticides, respondents consistently indicated that they do not read or give importance to statements on environmental claims (e.g., contains no CFCs).

18. In all three product categories, there is a similarity between the label information perceived to be the most important and the information that respondents indicated that they wish to find most easily. The top three (in order of preference) are: (1) directions for use, (2) a description of what the product does, and (3) precautionary statements related to human health (please see Table 2-10).

Table 2-12: What Information Do You Want to Be Able to Find Most Easily?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Directions on how to use the product **69%**	Directions on how to use the product **72%**	Directions on how to use the product **76%**
Description of what the product does **57%**	Description of what the product does **61%**	Description of what the product does **63%**
Information on what to do in an emergency or in case of an accident **47%**	Information on what to do in an emergency or in case of an accident **49%**	Information about where the product should not be used **44%**
Information about effects on personal and children's health or safety **43%**	Information about where the product should not be used **44%**	Information about effects on personal and children's health or safety **43%**
Information about where the product should not be used **36%**	Information about effects on personal and children's health or safety **39%**	Information on what to do in an emergency or in case of an accident **41%**

(Base = All Respondents)

Table 2-13: When Deciding Which Product to Purchase, Which of the Following Types of Information, If Any, Do You Look for?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Product characteristics, such as non-staining, non-corrosive, won't scratch surface, low odor, etc. **63%**	Product characteristics, such as non-staining, non-corrosive, won't scratch surface, low odor, etc. **81%**	Will not harm wildlife, pets, fish **52%**
Will not harm wildlife, pets, fish **56%**	Non-flammable **44%**	Low potential for harming plants **49%**
Non-flammable **42%**	Container or packaging characteristics **23%**	Low potential for contaminating ground water **48%**
Low potential for harming plants **41%**	No phosphates **17%**	Packaging allows for reduced contact with the product **40%**
Packaging allows for reduced contact with the product **33%**	No CFCs **13%**	Non-flammable **36%**

(Base = All Respondents)

***Implications* Regarding Respondents' Hierarchy of Importance of Information on Product Labels**

A. Consumers regularly looked for the information that they regard as important: the product purpose and personal precautionary information.

B. People want to be able to find information they regard as important quickly. Any modifications of the label should allow this information to be easily identifiable.

C. Respondents were less concerned about label information relating to storage and environmental issues, including disposal information, environmental claims, and environmental effects.

***Findings* on Label Format (Chart 2-7, Table 2-14)**

19. After being given a description of different formats, respondents in all three product categories preferred a box format on the label, like the nutrition facts box, that presents information consistently among products in the same category.

Chart 2-7

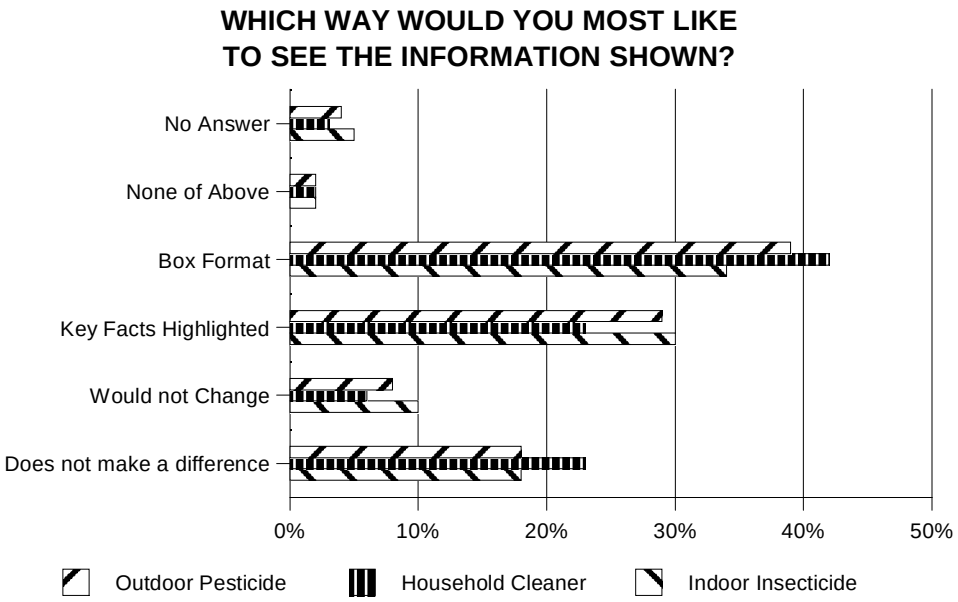


Table 2-14: Which Way Would You Most Like to See The Information Shown? (%)						
	Does not make a difference	**Would not Change**	**Key Facts High-lighted**	**Box Format**	**None of Above**	**No Answer**
Outdoor Pesticide n=846	18	8	29	39	2	4
Household Cleaner n=894	23	6	23	42	2	3
Indoor Insecticide n=889	18	10	30	34	2	5

(Base = All Respondents)

***Implications* Regarding Label Format**

A. Label comprehension can be improved by using standard formats.

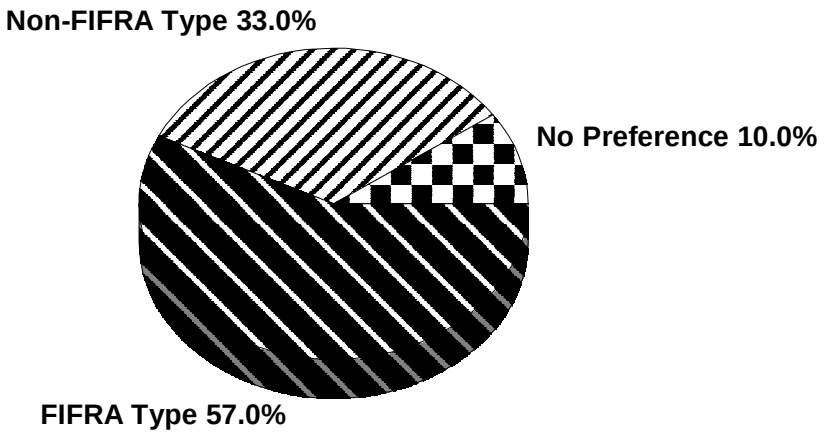
B. Ease of use encourages more frequent label reading.

Findings on Respondents' Preference for FIFRA versus Non-FIFRA Product Labels (Chart 2-8, Chart 2-9)[5]

20. Over half of the respondents in the household cleaner category preferred the FIFRA label (the type of label appearing on EPA registered products), including the overall label and the subparts on directions for use, where the product should not be used, effects on personal health, ingredients, storage, disposal, and emergency information, over the non-FIFRA label (labels appearing on non-registered, but similar, products).

Chart 2-8

WHICH OF THE TWO PRODUCT PACKAGES HAS THE TYPE OF INFORMATION YOU PREFER? (Household Cleaner)

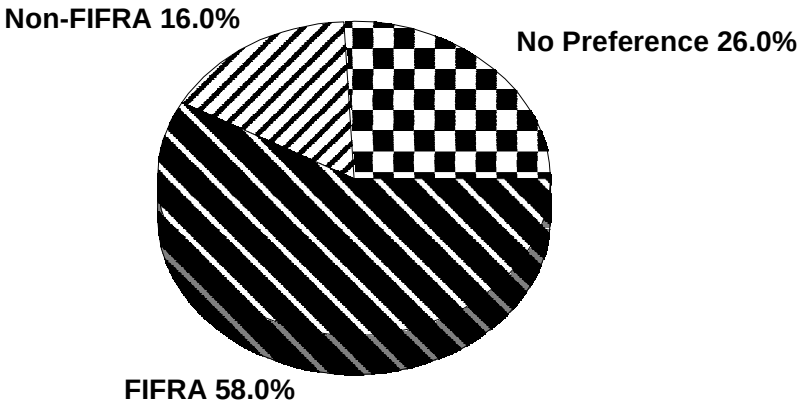


(Base = All Respondents)

[5] Non-FIFRA labels do not exist for the indoor insecticides and outdoor pesticides product categories.

Chart 2-9

FOR EACH TYPE OF INFORMATION, WHICH DO YOU PREFER REGARDING PRODUCT CONTENTS OR INGREDIENTS?



(Base = All Respondents)

<u>Implications</u> Regarding Respondents' Preferability for FIFRA versus Non-FIFRA Product Labels

A. Consumers desire specific types of information to appear on the product label.

<u>Findings</u> on Storage and Disposal Information (Chart 2-10, Chart 2-11, Chart 2-12, Table 2-15, Table 2-16, Table 2-17)

21. Outdoor pesticide and indoor insecticide users read the storage and disposal information significantly more than household cleaner respondents.

22. The most frequent reasons given for not reading storage and disposal information in the store was that it is "information they already know," followed by "just don't read it."

Chart 2-10

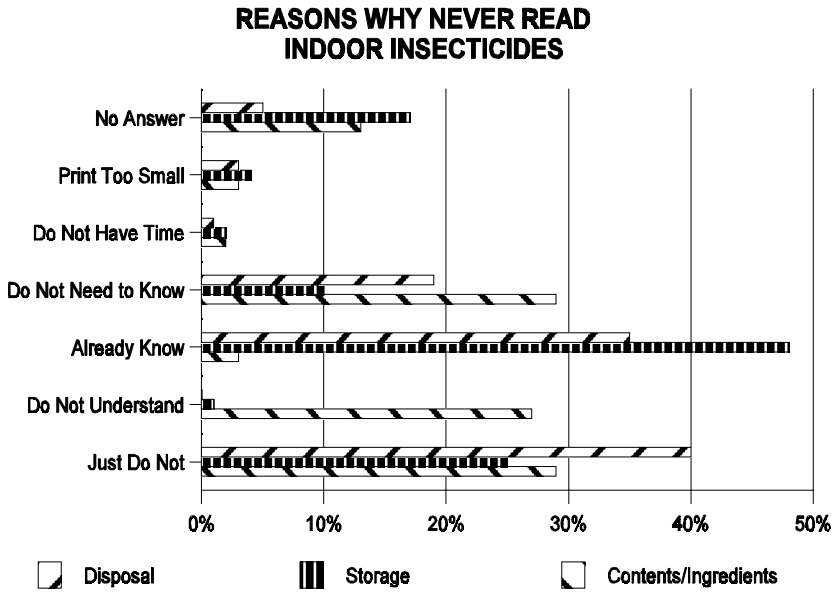


Table 2-15: Reasons Why Never Read Indoor Insecticides (%)							
	Just Do Not	**Do Not Understand**	**Already Know**	**Do Not Need to Know**	**Do Not Have Time**	**Print Too Small**	**No Answer**
Disposal (150)	40	0	35	19	1	3	5
Storage (102)	25	1	48	10	2	4	17
Contents/ Ingredients (200)	29	27	3	29	2	3	13

(Base = All Indoor Pesticide Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 889 Indoor Pesticide Respondents)

Chart 2-11

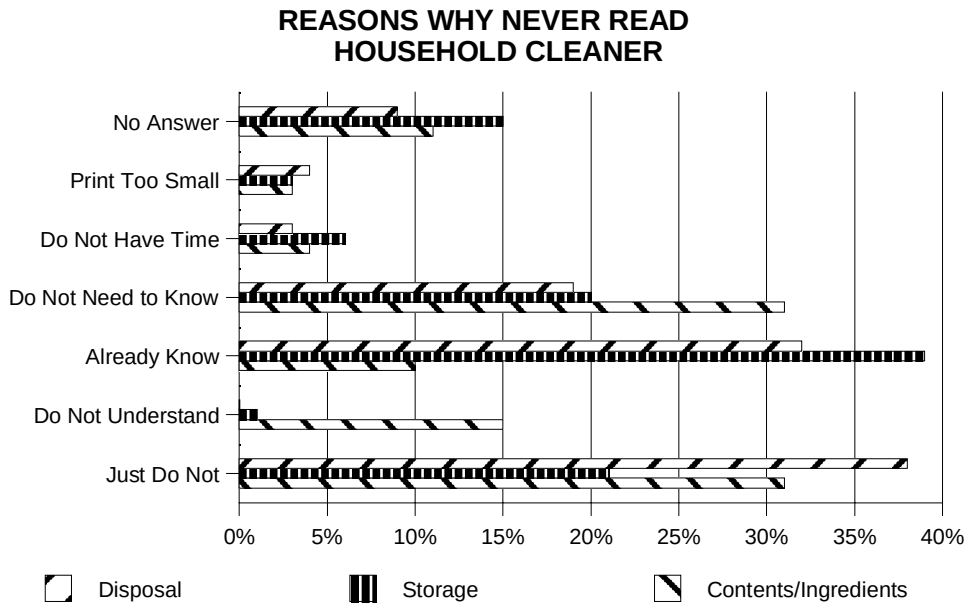


Table 2-16: Reasons Why Never Read Household Cleaner (%)							
	Just Do Not	**Do Not Understand**	**Already Know**	**Do Not Need to Know**	**Do Not Have Time**	**Print Too Small**	**No Answer**
Disposal (216)	38	0	32	19	3	4	9
Storage (131)	21	1	39	20	6	3	15
Contents/ Ingredients (201)	31	15	10	31	4	3	11

(Base = All Household Cleaner Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 894 Household Cleaner Respondents)

Chart 2-12

REASONS WHY NEVER READ OUTDOOR INSECTICIDES

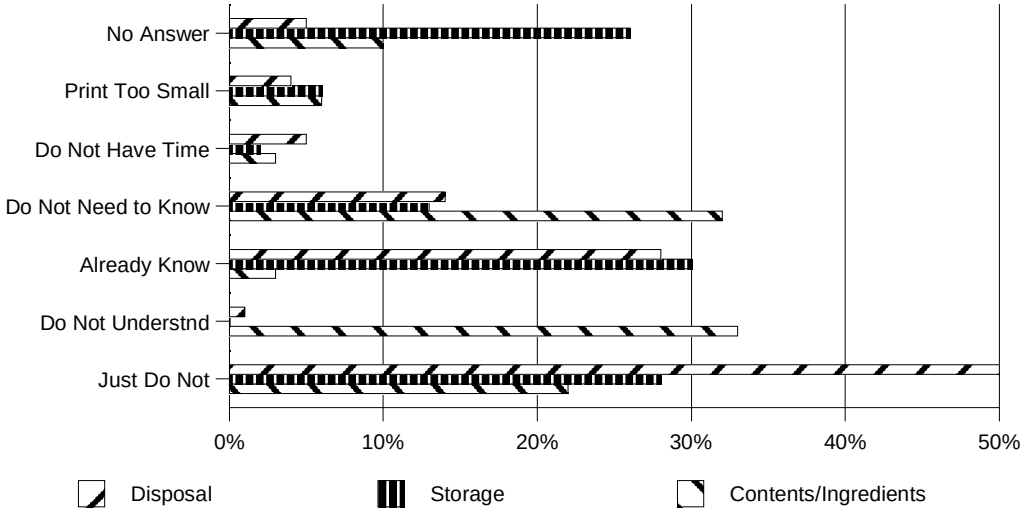


Table 2-17: Reasons Why Never Read Outdoor Insecticides (%)							
	Just Do Not	**Do Not Understand**	**Already Know**	**Do Not Need to Know**	**Do Not Have Time**	**Print Too Small**	**No Answer**
Disposal (93)	50	1	28	14	5	4	5
Storage (54)	28	0	30	13	2	6	26
Contents/ Ingredients (127)	22	33	3	32	3	6	10

(Base = All Outdoor Pesticide Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 846 Outdoor Pesticide Respondents)

23. The following represents the findings of an "open-ended" question regarding methods of disposal:[6]

- In all three categories, most respondents disposed of pesticides and cleaner products or packages in the trash;
- Household cleaner users recycled more frequently than those responding in the indoor and outdoor product categories;

[6]It is not known whether respondents were referring to the disposal of containers, unused product, or both.

- One in ten outdoor pesticide users disposed through special collections, which is more than users of indoor insecticides and cleaners;
- Less than 10% overall used special collections;
- Cleaner users found it acceptable to dispose of products/residues down the drain;
- Few users indicated that they disposed of products down the drain or diluted and used them up; and
- Virtually no consumers said they call the city or county for disposal advice;

24. There were no significant differences in responses from respondents in the states with strong household hazardous waste programs, versus those respondents from states that do not have strong household hazardous wastes programs.

Implications Regarding Storage and Disposal Information

A. Storage and disposal issues are of low priority and are not important to consumers.

Findings on Recycling Claims and Symbols (Chart 2-13, Table 2-18)

25. A high percentage of survey participants responded either "Not really sure" or gave an incorrect response for every question under each symbol. This was true even allowing for local recycling programs that might make some answers correct for panelists in those localities.

Chart 2-13

WHAT DO YOU THINK THIS ICON/PICTURE MEANS?
(Plastic Material Code)*

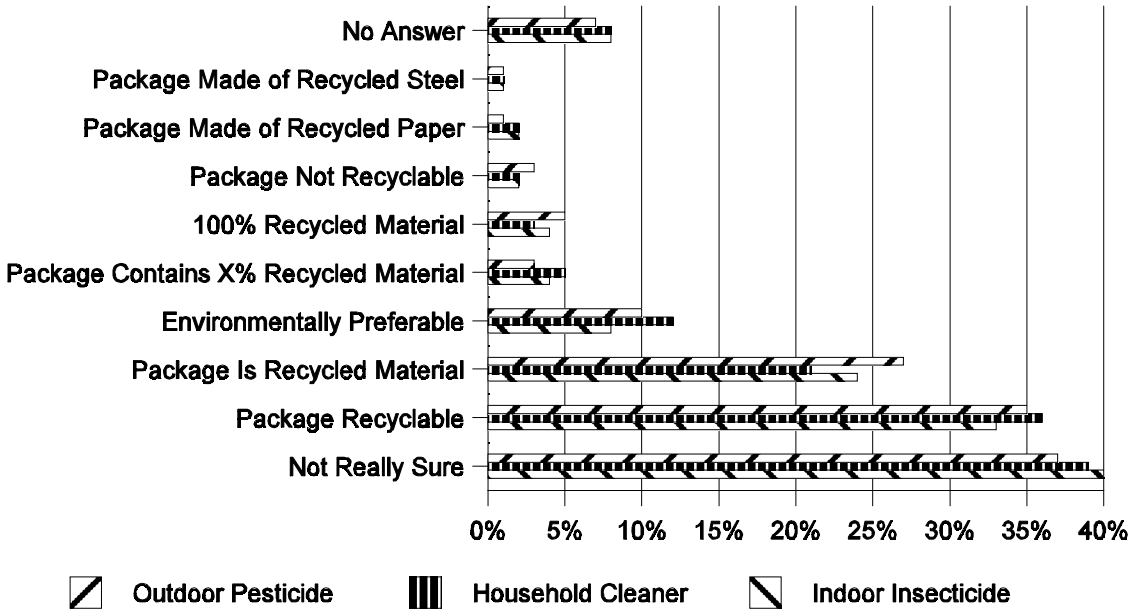


Table 2-18: What Do You Think This Icon/Picture Means?(%)*					
	Not Really Sure	**Package Recyclable**	**Package is Recycled Material**	**Environ-mentally Preferable**	**Package Contains X% Recycled Material**
Outdoor Pesticide	37	35	27	10	3
Household Cleaner	39	36	21	12	5
Indoor Pesticide	40	33	24	8	4
	100% Recycled Material	**Package Not Recyclable**	**Package Made of Recycled Paper**	**Package Made of Recycled Steel**	**No Answer**
Outdoor Pesticide	5	3	1	1	7
Household Cleaner	3	2	2	1	8
Indoor Pesticide	4	2	2	1	8

(Base = All Respondents)

* Please refer to Question 9 on the mail questionnaire, Appendix 2-4

26. The symbols with descriptive language (e.g., "100% Recycled Paperboard") did provide some improvement in response accuracy. However, the correct response rate was less than 75% in every case and usually less than 60%.

27. For the HDPE question, there was no answer selection for the type of plastic from which the package was made. This confounded the interpretation of responses to that question, since respondents may have felt compelled to provide some other answer.

28. The demographic groups and other subgroups that demonstrated more capability for reading and understanding labels identified the correct responses for these symbols more frequently. These same consumers also tended to view products bearing these symbols as environmentally preferable.

***Implications* Regarding Recycling Claims and Symbols**

A. The effectiveness of the tested symbols in communicating with the general public is not great. However, this seems to be related to the complexity of the messages carried and the lack of a compelling motivator to learn.

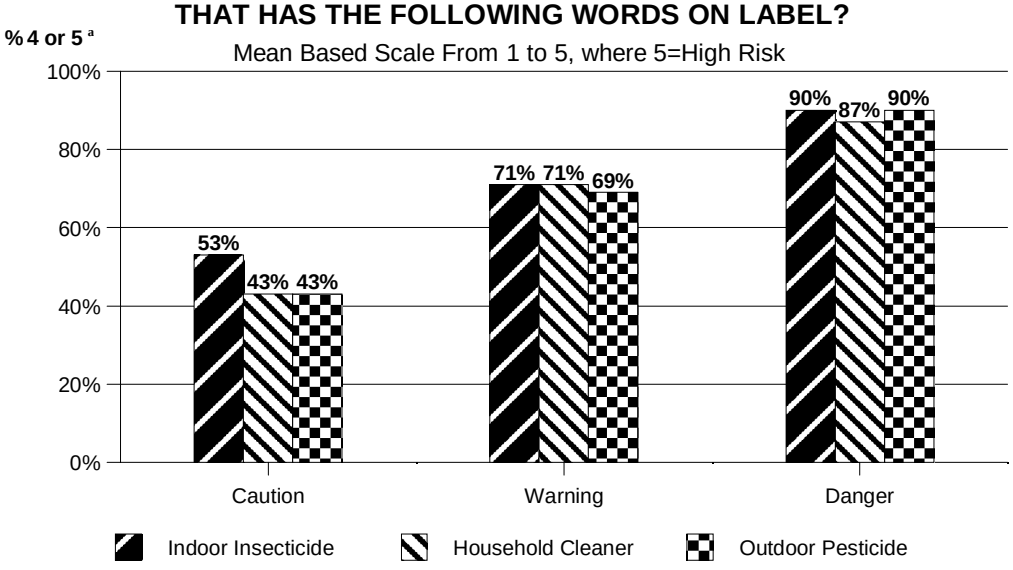
B. The positive correlation of comprehension with additional information in the symbol and inferred environmental benefit indicates that these are motivators for some consumers.

***Findings* on Product Label Signal Words (Chart 2-14, Chart 2-15, Chart 2-16)**

29. Respondents understood that the terms DANGER, WARNING, and CAUTION characterize a level of risk or personal hazard. They understood the three terms to be generally relative, with DANGER describing the highest risk, WARNING a medium risk, and CAUTION a lower risk. Respondents also perceived the range of risk described by the three words to start at a medium, rather than at a low, risk level. Even CAUTION was perceived by over half of the respondents to describe a lower to moderate level of risk, not a low risk.

Chart 2-14

WHAT LEVEL OF RISK DO YOU ASSOCIATE WITH A PRODUCT THAT HAS THE FOLLOWING WORDS ON LABEL?

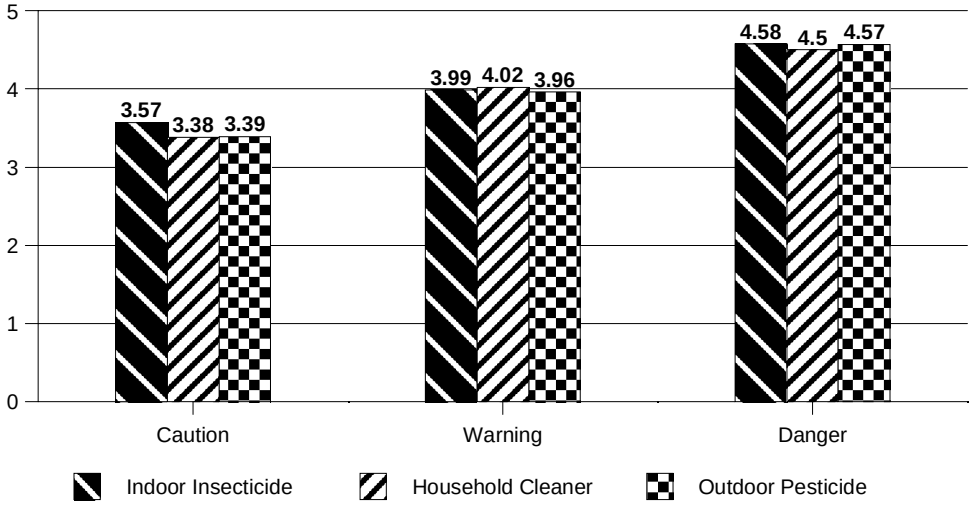


(Base = All Respondents)

a Percent of respondents who associated the signal words with a level of risk of four or five.

Chart 2-15

WHAT LEVEL OF RISK DO YOU ASSOCIATE WITH A PRODUCT THAT HAS THE FOLLOWING WORDS ON LABEL?
Mean Based Scale From 1 to 5, where 5=High Risk

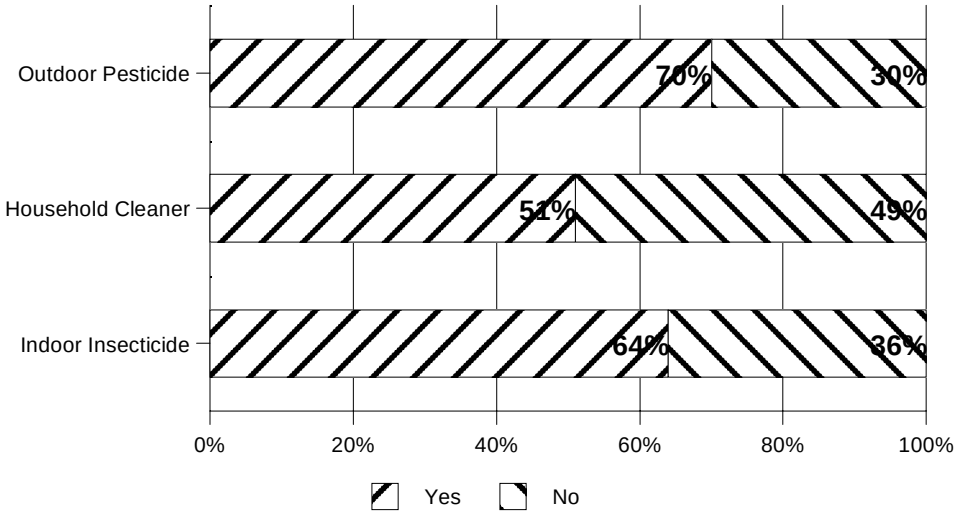


(Base = All Respondents)

30. None of the respondents mentioned the signal word as one of the things they use to determine the possible harmful effects of a product.

Chart 2-16

WHEN SHOPPING DO YOU LOOK ON PRODUCT PACKAGING FOR POSSIBLE HARMFUL EFFECTS?



(Base = All Respondents)

31. Just under half of respondents agreed either completely or somewhat that the words CAUTION, WARNING, and DANGER *on a product* mean the same thing to them.

***Implications* Regarding Signal Words on Product Labels**

A. Consumers do not understand the EPA's purpose for using signal words.

B. All three words convey some level of concern.

***Findings* on Respondents' Sources of Information and Education (Chart 2-17, Table 2-19)**

32. Besides the packaging, respondents identified the top sources to which they referred for product information to be (see Chart 2-17):

- Indoor insecticides — store displays, TV ads, friends/family/co-workers, product brochures, and magazine ads;
- Outdoor pesticides — store displays, product brochures, friends/family/co-workers, store salespersons, and TV ads; and
- Household cleaners — TV ads, friends/family/co-workers, store displays, magazine ads, product brochures;

33. One in five outdoor pesticide users would contact a university or county extension service for more information about a product.

Chart 2-17

BESIDES PACKAGING WHERE ELSE DO YOU GET INFORMATION ABOUT THE PRODUCTS YOU USE?

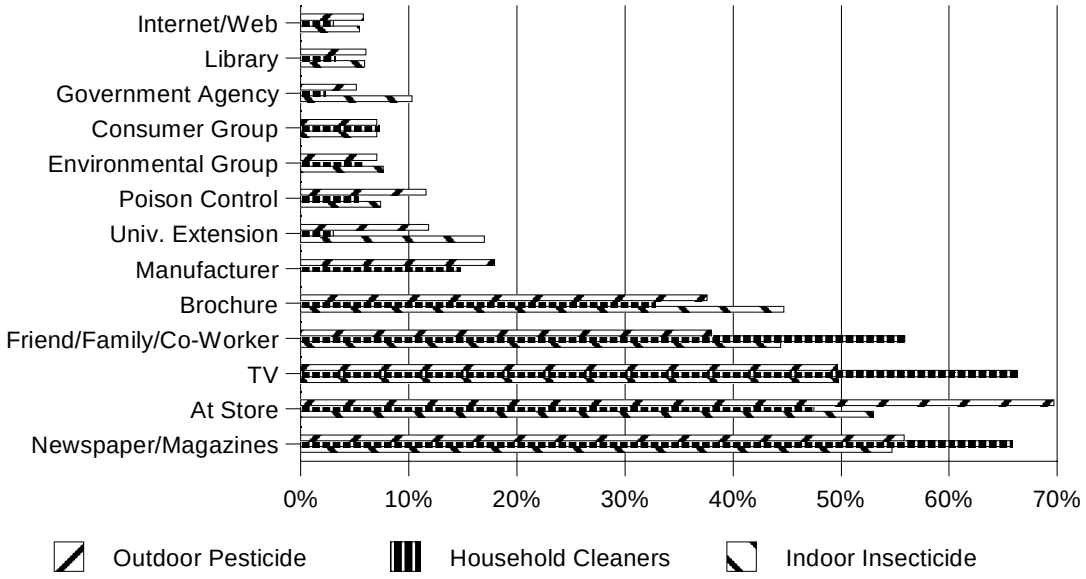


Table 2-19: Besides Packaging Where Else Do You Get Information About the Products You Use? (%)

	Newspapers/ Magazines	At Store	TV	Friend/ Family/ Coworker	Brochure	Manufacturer	University Extension
Outdoor Pesticide	54.7	69.7	49.1	44.4	44.7	16.8	17.0
Household Cleaner	65.8	47.5	66.3	55.9	32.7	14.7	3.0
Indoor Pesticide	55.8	53.0	49.6	38.0	37.6	17.9	11.8

	Poison Control	Environmental Group	Consumer Group	Govern-ment Agency	Library	Internet/ Web
Outdoor Pesticide	7.4	7.6	7.0	10.3	5.9	5.4
Household Cleaner	5.3	5.6	7.2	2.2	3.1	3.0
Indoor Pesticide	11.6	7.0	7.0	5.1	6.0	5.8

(Base = All Respondents)

***Implications* Regarding Respondents' Sources of Information and Education**

A. Consumer education and information efforts should design and deliver to the sources that people use.

B. Consumers expect to get information through traditional means, rather than seeking it through companies or the government.

C. Extension agents are also a target audience for the consumer education program.

***Findings* on Ingredients Information (Chart 2-18, Chart 2-19, Chart 2-20, Chart 2-21, Table 2-20)**

34. Approximately 90% of the telephone survey respondents were able to find and properly identify the ingredients/contents section of the label for all three product categories. The ability to find this section on the cleaners label, however, was significantly lower than on the other labels. Demographic subgroups did not show any surprising subgroup trends in their ability to find this label section.

35. After trying to find various sections during the phone survey, nearly 90% of the respondents stated that label information was positioned where they expected it to be. There were statistical differences among all categories, with satisfaction being greatest with outdoor pesticide and poorest with cleaners, although cleaners still received an 87.6% affirmative response. Of the specific requests for change, the highest was "ingredients should be on the back label." However, only 2 to 4% of all respondents voiced that request.

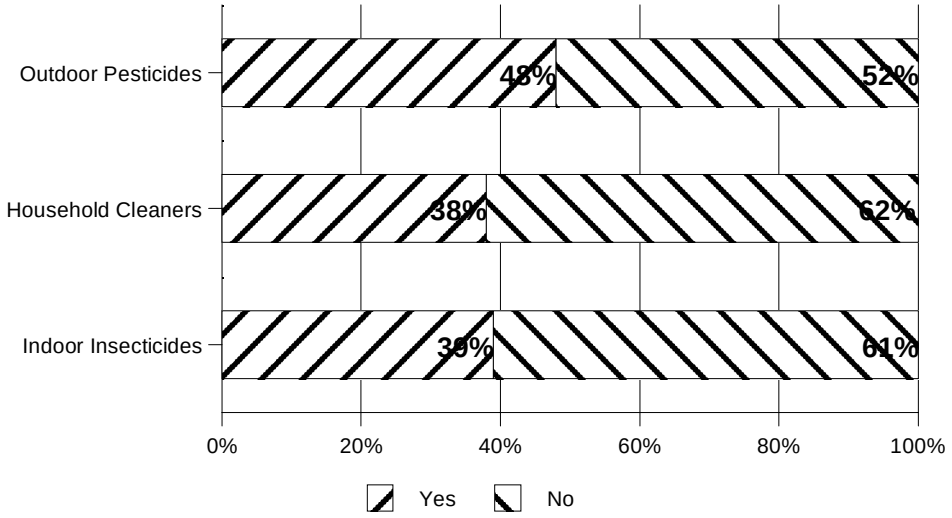
36. In all three product categories, of those respondents who never read the ingredients section (approximately 25% for all categories), an unusually high percentage of them did not read it because they did not understand the information in the section.

37. When asked if they look for ingredient information, approximately 40% responded affirmatively for the household cleaner and indoor insecticide product categories, but a statistically higher percentage (48%) answered "yes" in the outdoor pesticide category. The most prominent reason for reading this section was product comparison. However, approximately 15% claimed concern for health of a family member; this was higher (and the difference statistically significant) for indoor pesticide and household cleaners.

38. In all three product categories, few survey respondents specified a label change request, but the highest response (~3%) was "list all ingredients."

Chart 2-18

WHEN SHOPPING DO YOU LOOK FOR INFORMATION ABOUT THE INGREDIENTS?



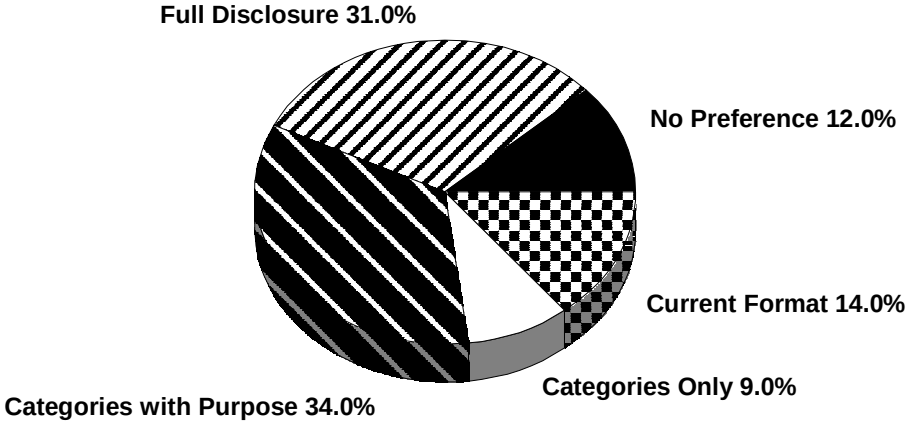
(Base = All Respondents)

Table 2-20: Why Do You Look for Information about Ingredients?		
Indoor Insecticide (n=343)	**Household Cleaner (n=338)**	**Outdoor Pesticide (n=408)**
I want to compare different products **66%**	I want to compare different products **64%**	I want to compare different products **57%**
I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **41%**	I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **47%**	I'm looking for the name of a specific ingredient **30%**
I'm looking for the name of a specific ingredient **38%**	I'm looking for the name of a specific ingredient **25%**	I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **27%**
I want to know the scientific names of the ingredients **22%**	I want to know the scientific names of the ingredients **16%**	I want to know the scientific names of the ingredients **14%**

(Base = All Respondents Who Said They Look for Ingredient Information While Shopping)

Chart 2-19[a]

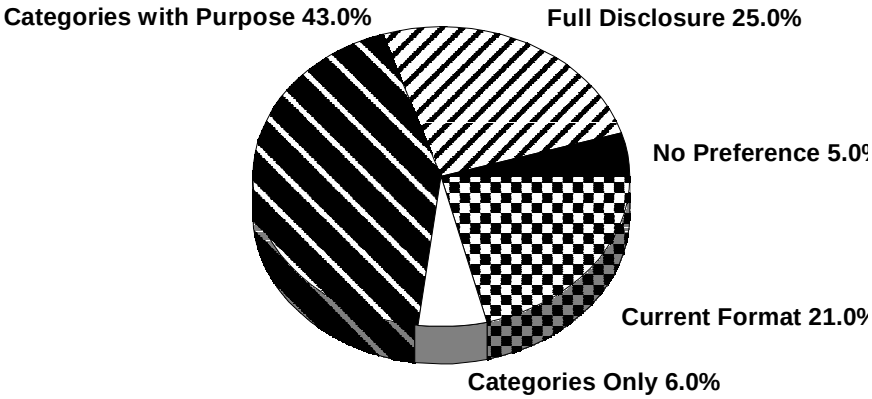
IF AN INDOOR INSECTICIDE LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

Chart 2-20[a]

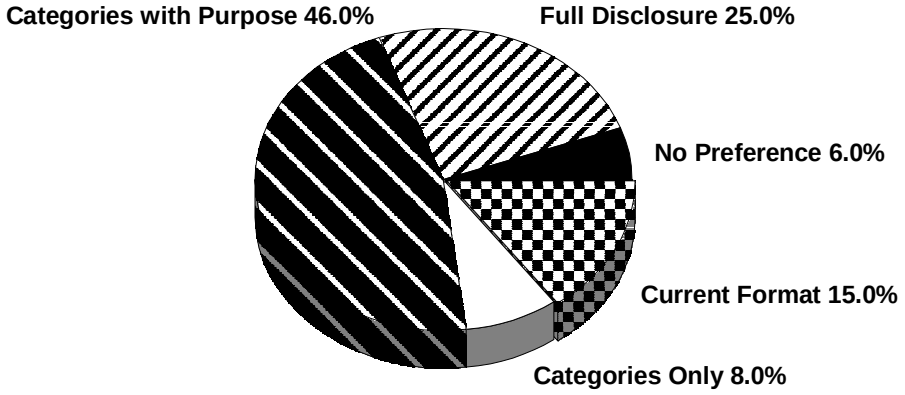
IF A HOUSEHOLD CLEANER LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

Chart 2-21[a]

IF AN OUTDOOR PESTICIDE LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

[a] (For charts 2-19, 2-20, and 2-21) Please refer to Question 4c in the mail questionnaires in Appendix 2-4.

39. When given a choice of "ingredients" formats, three out of four respondents chose less than full disclosure (providing names and % of all ingredients). Options listing categories of ingredients along with a description of the purpose of the ingredients were preferred.

40. One in eight respondents used the ingredient statement to determine possible harmful effects from the ingredients listed.

41. In each of the three product categories, the phrase "other ingredients" was not fully understood.

42. "Ingredients" was ranked seventh among sections for importance, but well below the top six in all three product categories. It was also infrequently cited as a section to be found most easily.

43. The label preference for the ingredients section of the FIFRA vs. non-FIFRA cleaners label was comparable to the overall preference (58% favoring FIFRA) and the highest preference for FIFRA labeling of the individual sections tested.

***Implications* Regarding Ingredients Information on Product Labels**

A. Characteristics of the cleaner label make it somewhat more difficult to find the contents statement on that label. Cleaners are perceived to be inherently different than pesticides.

B. Consumers are likely to be satisfied with current placement of ingredients if the format and purpose of this section are clear.

C. Consumers do not know how to use the ingredients statement as currently presented.

D. Ingredients are easier to find and read in tabular form on the front label panel.

E. While a small group of people have a strong desire for full ingredient disclosure on labels, full disclosure is not required to meet the needs most consumers cite for ingredient information.

F. Ingredients are sometimes relied upon as a surrogate for hazard information.

***Findings* on Respondents' Attitude Toward Product Categories**

The following table captures reactions to consumer values in the attitude battery for each of the three product categories. (Please refer to question 11 in the indoor insecticide and outdoor pesticide mail questionnaires and question 12 in the household cleaner mail questionnaire in Appendix 2-4.)

ATTITUDE BATTERY KEY

- Number on top left of each cell indicates percentage of respondents who said they "agree completely" with the statements given.
- Number on top right of each cell indicates percentage of respondents who said they either "agree completely" or "agree somewhat" with the statements given.
- Number in the middle center of each cell indicates the deviation from the mean. The higher the deviation, the more strongly the attitude is held.
- [Brackets] indicate a negative deviation from the mean.

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories

Statement	Indoor Insecticide	Household Cleaner	Outdoor Pesticide
It is important that the packaging tell me how soon I/my children/pet can re-enter the treated area	-	-	65.4 93.5 1.56
Labels should say whether the product should not be used by or around pregnant women	60.2 89.5 1.46	53.5 85.2 1.34	56.2 87.2 1.38
The level of harmful effects of a product plays a role in deciding which product I purchase	49.2 82.3 1.26	35.2 77.0 1.05	44.0 81.7 1.19
It is important to know the minimum time before I can safely re-apply the product	38.2 86.0 1.20	-	-
I know how to use so there is no need to read the label	1.6 12.1 [1.02]	1.6 12.8 [0.86]	0.6 4.7 [1.31]
Using product safely is common sense	40.2 83.2 1.10	40.8 84.3 1.14	32.9 78.3 0.91
The more product I use at a time, the more effective it will be	1.3 8.4 [1.03]	0.8 8.4 [0.93]	0.7 7.5 [1.05]
No need to worry about storage if CR closure is used	4.1 14.7 [1.00]	7.6 19.1 [0.79]	3.6 11.0 [1.18]
Unused product should be disposed down the drain	4.6 11.1 [1.08]	20.3 46.6 0.23	1.6 3.0 [1.54]
I know what to recycle so I don't need to read the label	3.1 10.9 [0.91]	2.5 16.7 [0.66]	1.3 7.0 [1.08]

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories			
Statement	**Indoor Insecticide**	**Household Cleaner**	**Outdoor Pesticide**
I don't worry about chemicals in products	5.0 17.9 [0.92]	4.0 22.4 [0.66]	3.2 16.5 [0.94]
Would like information on long term effects on label	32.6 71.9 0.95	25.1 58.6 0.66	30.1 67.5 0.87
I always purchase the least harmful product	32.1 67.2 0.86	25.4 57.7 0.65	34.3 68.4 0.89
It is more important to me to know which ingredients might be more harmful than how effective they are	31.6 68.5 0.81	-	27.6 63.7 0.69
Peel open label has more information than flat label	-	-	26.6 65.5 0.80
Repeat as necessary means reapply as soon as see bugs	26.9 69.1 0.76	-	-
Overall satisfaction with current label information	15.2 68.7 0.73	11.4 64.8 0.64	10.1 64.4 0.62
I feel more comfortable if all ingredients are listed	26.9 52.8 0.58	24.4 55.2 0.60	27.4 57.9 0.63
Need more information on how much or how long to apply for desired result	17.9 57.9 0.56	-	-
For disposal, I rely more on experience than the label	5.3 26.4 [0.45]	6.6 35.4 [0.19]	1.9 17.7 [0.84]
For use, I rely more on experience than label	5.7 29.8 [0.31]	7.2 43.0 0.05	1.5 14.7 [0.86]
It is necessary to wrap in paper before disposal	17.3 35.6 0.14	5.7 16.1 [0.51]	19.3 47.9 0.46
Easy to find product information I need	12.7 59 .5 0.52	11.6 57.1 0.50	10 7 53.8 0.40
Information on the label is hard to understand	10 8 49.2 0.24	8.2 44.7 0.20	13.0 57.5 0.46
The government insures the product is safe to use	7.4 36.3 [0.10]	5.7 27.0 [0.32]	3.8 25.8 [0.40]

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories			
Statement	**Indoor Insecticide**	**Household Cleaner**	**Outdoor Pesticide**
If I can buy in trusted store, the product must be safe to use	15.3 36.8 [0.08]	12.6 30.8 [0.22]	9.5 25.5 [0.40]
Fewer possible harmful effects means poorer performance	4.0 26.9 [0.24]	2.3 16.2 [0.48]	7.2 39.1 0.12
I read labels because a household member has allergy/ health problem	19.1 34.8 [0.15]	13.4 28.2 [0.34]	12.1 27.1 [0.35]
Disposal instructions on the label don't agree with my community	3.6 15.9 [0.29]	2.2 22.0 [0.12]	3.1 15.0 [0.31]
It's OK to open the peel open label in the store	-	-	23.7 48.4 0.29
The manufacturer assures product safety	11.6 38.4 0.03	10.2 38.3 [0.02]	6.3 29.8 [0.30]
I don't need complete listing of ingredient Information; I don't understand it anyway	12.4 41.7 [0.03]	8.3 37.3 [0.10]	8.4 34.9 [0.25]
Environmental or natural products often don't work well	6.0 40.0 0.08	3.5 29.6 [0.14]	6.0 36.2 0.03
CAUTION/ WARNING / DANGER all mean the same thing to me	16.2 48.4 0.07	15.9 49.0 0.11	13.9 44.0 [0.06]

<u>Findings</u> are as follows:

44. The highest response to attitude questions was for personal health and safety information and for instructions, especially those associated with safe use.

45. The consumer attitude toward household cleaners was different from attitudes toward the other two product categories. Significant differences were found from both indoor insecticides and outdoor pesticides in about 60% of the questions, and at least one other category in about 95% of the questions common to all categories.

46. In approximately two-thirds of the questions common to indoor insecticides and outdoor pesticides, there was a significant difference in attitudes between those two product categories.

47. The largest numerical differences in response were those for down the drain disposal, knowing what to recycle without label assistance, and greater reliance on experience than

label information for either disposal or use. In each case, respondents showed much less concern and/or greater familiarity for household cleaners.

48. Respondents understood that cleaners may be disposed of down the drain but indoor insecticides and outdoor pesticides should not be.

***Implications* Regarding Respondents' Attitudes Toward Product Categories**

A. Household cleaners are perceived to be lower risk than pesticides in both use and disposal. Consumers are much more familiar with these products and are less likely to read the label for information.

B. Indoor insecticides are more familiar to respondents than outdoor pesticides so the comfort level in using those products is greater. However, the indoor usage is associated with greater concern about health effects.

C. Consumers want specific information on use of these products so they can assure personal, family, and pet safety while getting the desired performance.

***Findings* on Germ Killing Potential Information**

49. Respondents were asked to rank, from high to low, the germ killing potential of each of the following terms: deodorizer, cleaner, sanitizer, anti-bacterial, and disinfectant. Respondents indicated the germ killing power of each individual term, and generally ranked all the terms in the correct order. The exception, however, was that respondents saw "anti-bacterial" as having more germ killing potential than either disinfectants or sanitizers, when, in fact, "anti-bacterial" refers to any product which kills bacteria.

50. When asked on the phone survey to define "disinfection," over 80% of respondents answered correctly.

***Findings* on Product Category Comparisons**

51. The labels of household cleaners are less completely read than those of indoor insecticides and outdoor pesticides. Fewer consumers routinely read any section of the label on cleaners except the brand name.

52. For household cleaners label readers:

- Brand name is of higher importance, and
- Health and safety information of lower importance.

53. For all sections of the label, the indoor insecticide product label was found to be more effective in communicating the right amount of information with a greater specificity.

- *Active and Other Ingredients* — indoor insecticide better than both household cleaner and outdoor pesticide,
- *Directions for Use* — indoor insecticide better than outdoor pesticide and much better than cleaner,
- *Storage and Disposal* — outdoor pesticide worse than either indoor insecticide or household cleaner,
- *Precautionary Statements* — both indoor insecticide and outdoor pesticide better than household cleaner, and
- *First Aid* — both indoor insecticide and household cleaners better than outdoor pesticide.

54. About twice as many consumers had purchased cleaning products as had purchased either indoor insecticides or outdoor pesticides.

55. Many more consumers disposed of unwanted household cleaning products and/or containers by rinsing out, pouring down the drain, throwing in the trash unwrapped, and recycling. The indoor insecticide and outdoor pesticide products and containers were wrapped before being placed in trash much more than household cleaners were.

***Implications* Regarding Product Category Comparisons**

A. Household cleaners have greater familiarity and lower perceived risk for consumers. This results in more purchasing by brand name and less label reading. The most effective labels are on indoor insecticides, possibly because these labels are routinely read by consumers with a higher level of concern.

CHAPTER 3

QUALITATIVE RESEARCH

The Qualitative Subgroup included EPA staff, the CLI Task Force, and the EPA Partners. (See Appendix 1-6 for the complete list of Qualitative Subgroup members.) The Qualitative Subgroup used the results from the Phase II quantitative research performed during the summer of 1998 (for details, see Chapter 2) to determine the content of the qualitative testing. This quantitative research performed during April and June 1998 found that consumers generally do not read environmental information on product labels for outdoor pesticides, household cleaners, and indoor insecticides. Survey respondents did indicate, however, that a standardized *format* would help them to understand label information.

The Qualitative Subgroup decided to perform qualitative consumer research, in the form of focus groups with consumers, to examine label format issues and consumer motivations and behavior in depth. (See the section that follows on "Research Design" for more information about the structure of focus groups.) The Qualitative Subgroup used several types of input to develop seven "key learning objectives," which were intended to guide the qualitative research. Inputs included the CLI Stakeholder comments gathered during Phase I research, the results of one-on-one qualitative interviews performed during Phase I, and the quantitative research completed in Phase II. The key learning objectives for the qualitative research, and the assumptions on which they were based, follow:

Qualitative Research Learning Objectives — Determine:

Consumer *preference* for a specific format for the presentation of standardized information. This is based on an assumption that a comparison is needed to test consumer preferences between a "box" format and other standardized designs of information grouped together, for example standard short phrases, with the same information content. This also assumes that it is possible to have more than one "box" or other standardized information presentation format on a given label.

Consumer *understanding* of the same information presented in different formats. This is based on an assumption that a comparison is needed to test whether one format does a better job than others of improving consumer comprehension of the information presented.

Consumer *preference* for which information should be presented in box(es) or other standardized formats of information groups together. This assumes that an interactive interview method will be used; for example, giving participants the opportunity to arrange information on a Velcro board. This also assumes that it is possible to have more than one "box" or standard format on a given label, because consumers may look for different information at different times or decision occasions.

Consumer *preference* for where particular groupings of information should be located on the product label. This is based on an assumption that certain information should be grouped together in a box or standard format(s) and that this grouping or groupings could be located on the label by decision occasion, that is, collecting information sought at the time of purchase, the time or use, or when storing or disposing of the product. This also assumes that it is possible to have more than one box or standard format on a given label.

Consumer *understanding* of the existence of a hazard hierarchy in the signal words CAUTION, WARNING, DANGER, when conveyed graphically, and of the point in the hierarchy on which a given product falls. This is based on the assumption that a graphical presentation of the hierarchy may improve consumer comprehension of the meaning of the signal words, and that different representations may have different degrees of success in conveying this information. Various graphical interpretations should be tested, including such things as a variegated color bar graph, thermometer, traffic light, etc., where the image includes a pointer or other device to indicate where on the progression the specific product fits.

Consumer *preference* for a particular graphical representation of the CAUTION, WARNING, DANGER hierarchy and product status information. This acknowledges that *preference* may or may not relate to the effectiveness of a particular design in correctly conveying *understanding* of the hierarchy information.

Consumer *understanding* of the association between the product ingredients, the hazard(s), and the relative hierarchy. This is based on an assumption that consumers will better understand the importance of the safe use of products if safety-related information, including environmental, hazard, and hierarchy information, is presented together.

The EPA sent out a Request for Proposal (an official document published in the *Commerce Business Daily* to identify qualified organizations that conduct qualitative research). The Newman Group, Ltd., was contracted to work with EPA. EPA funded the qualitative research.

Research Design

The strength of qualitative research is that it can be used to identify specific areas of investigation that may have not been considered previously, or issues of concern to specific populations. Qualitative research may also be used to "frame" issues — that is, investigate ways to approach issues — or explore ways to word survey questions. It can also be used to further explore quantitative data.

It is important to recognize that results obtained from qualitative research *cannot* be generalized to a larger population, because qualitative research does not produce statistically significant and projectable findings. It is important that qualitative data not be misinterpreted or misrepresented in quantitative terms. For example, the statement "9 of the 12 participants interviewed" should not be interpreted as meaning "75% of the population," because this would incorrectly indicate that the 12 participants who were interviewed represented a statistically accurate sample. Any findings from qualitative research should be validated if needed using quantitative methods.

Qualitative research methodologies share certain elements:

- a trained moderator;
- specific recruitment of study participants who qualify, based on detailed screening criteria; and
- a discussion guide designed to obtain the answers to the key research questions.

The qualitative research for Phase II of the CLI was designed to find out more about how consumers respond to various types of information and formats presented on the labels of outdoor pesticides, household cleaners, and indoor insecticides, and to probe in more depth some of the information received from the written surveys. The research design consisted of a series of "mini" focus groups with users of outdoor pesticides, household cleaners, and indoor insecticides. The mini focus group format (three to five participants) was thought to be the most useful for gaining a more in-depth understanding of consumers' reaction to a variety of label designs. The mini focus group environment allows for greater participation by each respondent than does a larger focus group (usually about eight to ten people). A small focus group also allows people to ask questions of each other and have more free-flowing discussions. The Qualitative Subgroup felt that the CLI could learn more from this type of discussion than from a question-and-answer or one-on-one interview format.

Recruitment Criteria

Only product users were included in this study, to ensure that group participants would have some baseline familiarity with product labels. This knowledge could be used as a benchmark to probe participants' understanding of and reaction to the labels presented during the groups. A decision to include non-users would have introduced too much variability into the study design.

Three cities were selected for the research: Ft. Lauderdale, FL; Dallas, TX; and Chicago, IL. These locations are known to have a large insect population that affects consumers, and therefore many consumers in these areas purchase and use indoor insecticides and outdoor pesticides. This large consumer base was expected to make selection of group participants easier.

Participants were recruited by telephone, using a recruitment screening questionnaire that clearly identified them as product users for one of the three selected product categories. (The recruitment screening questionnaires are reproduced in Appendix 3-1.) Recruiting specifications for each product category follow:

Mini Focus Groups to Discuss Outdoor House and Garden Pesticides

Men and women who were most responsible for the purchase and usage of outdoor house and garden pesticides were recruited for these groups. Qualified respondents had purchased an outdoor house and garden pesticide at least once in the past six months, and had used the purchased pesticide at least once. These people were treating a broad range of insect types (e.g., the Florida groups included some people who were treating fire ants). A few people who used weed-and-feed combination products (fertilizer and insecticide) were included. People were recruited to represent a variety of demographics (age, work status, home owner/renter, occupation, and gender, within each mini-group). All professional lawn service providers, exterminators, and farmers were excluded from these groups, so as not to bias the responses of the other participants, since these groups receive specific training on these types of products..

Mini Focus Groups to Discuss Indoor Insecticides

Men and women who were most responsible for the purchase of indoor insecticides for their household were recruited for the mini focus groups on indoor insecticides. Qualified respondents had seen ants, roaches, or fleas in their residence, had purchased an indoor insecticide at least once in the past six months, and had used the insecticide purchased at least once. People representing a variety of demographics (age, work status, home owner/renter, occupation, and gender, within each mini-group) were recruited. All professional exterminators were excluded from this research so as not to bias the responses of the other participants.

Mini Focus Groups to Discuss Household Cleaners

Men and women who were most responsible for the purchase and use of household cleaners were recruited for these groups. Qualified respondents had purchased a household hard surface cleaner at least once in the past six months, and had used the product at least once in the past month. People representing a variety of demographics (age, work status, home owner/renter, occupation, and gender, within each mini-group) were recruited. People who worked in professional cleaning services were excluded to prevent any professional bias, based on familiarity or training with the products.

All Groups

Additionally, the recruits for all three types of groups met the following criteria:

- they had not participated in another focus group within the past six months;
- they had not personally been employed, or had immediate family employed, in advertising, marketing research, manufacturing, sales, or distributing of indoor insecticides, outdoor pesticides, or household cleaners;
- they had passed a project articulateness check (see the last question on the recruitment screening questionnaire);

- they included a mix of responses to the question about whether or not they read labels for the product category discussed;
- they included a mix of families with and without children;
- they included a mix of families with and without pets;
- they included a mix of families who were light or heavy users of the product category; and
- they included a mix of urban and suburban dwellers.

Development of the Discussion Guides

The Qualitative Subgroup members and The Newman Group, Ltd. jointly developed discussion guides to be used in moderating the mini focus groups. The discussion guides were designed to obtain as much information as possible that would address the seven key learning objectives mentioned at the beginning of this chapter. The guides were designed to encourage relatively open-ended conversation, allowing consumers to discuss their actual experiences when reading and using labels. Copies of the discussion guides for each product category appear in Appendix 3-2.

Due to the fluid, qualitative nature of focus group research and to the fact that 27 groups were held, topics sometimes were approached in an order other than that described in Appendix 3-2, or were worded in a slightly different manner. Also, the discussion guides were refined throughout the course of the research, which enabled later groups to discuss new issues and view different ways of expressing concepts on product labels. Not all groups discussed every issue that is mentioned in this chapter.

Process of the Mini Focus Groups

A total of 27 mini focus groups were held, involving 112 participants. Each group included three to five people. All groups were moderated by The Newman Group, Ltd. Participants were encouraged to talk freely and initiate conversations with each other, as well as to respond to the questions posed by the moderator. Each group met for between 90 and 120 minutes. Verbatim written transcripts, videotapes, and summaries were made of all sessions for the express purpose of writing the findings report.

Table 3-1: Number of Mini Focus Groups for Each City and Product Category

Area	Ft. Lauderdale	Dallas	Chicago
Indoor Insecticides	3	3	3
Outdoor Pesticides	3	3	3
Household Cleaners	3	3	3

"Mock labels" were created for the focus groups, in order to show representative label features and concepts to guide and spark discussion (see Appendices 3-3 — 3-6). These mock labels gave consumers an opportunity to personally examine many variations of product label information and provide immediate feedback. None of these mock labels existed for use on any existing products. They were produced for the mini focus groups by manufacturers of the product categories being discussed. The mock labels underwent some changes throughout the course of the groups, as people made suggestions or expressed opinions related to the graphical representation or signal words and the use of boxes.

During each session, after some preliminary information on labeling was obtained, the moderator asked participants to refer to certain mock labels from their packet to coincide with a specific section of the discussion. By the end of the discussion, participants had viewed all of the mock labels for their product category. The order in which the different sections of labels were discussed was intentionally varied from group to group, so as not to encourage any particular "position bias." (For example, if the Ingredients section was discussed first in one group, it was discussed second in another group.) The participants were told that at any time they could say they preferred the "Control Label," which represented the typical way labels in the category were currently being designed. Also, during some of the later sessions, participants were asked to evaluate certain precautionary phrases that appear on labels (see Appendix 3-8).

At the end of each session, a short amount of time was devoted to obtaining participants' input on various draft logos (see Appendix 3-7) for a proposed "Read the Label *FIRST!*" Consumer Education Campaign. (Chapter 6 discusses the CLI Consumer Education Campaign in more detail.)

The topics that follow discuss the reactions of participants in the mini focus groups to different types of label information, including Signal Words, Directions for Use, and Precautionary Language. The participants also discussed alternative formats for label information. A list of the mock labels used for each topic appears at the end of that section. The actual mock labels that participants discussed can be found in Appendices 3-3 — 3-6. (Appendix 3-3=mock labels shown for signal words; Appendix 3-4=mock labels for outdoor pesticides; Appendix 3-5=mock labels for household cleaners; Appendix 3-6=mock labels for indoor insecticides.)

Findings from the Mini Focus Groups

This section summarizes the most notable overall findings from the mini focus groups, and includes selected illustrative quotations from participants. Text in [square brackets] was added by the moderator to clarify the comment. At the end of each quote readers will find the category of product being discussed, the time of the mini focus group, and the state in which it was held.

Past Experience and Product Selection

At the start of each mini focus group, and before any mock labels were introduced, the moderator asked the participants to talk in general about their past experience with reading labels. They discussed the following issues:

- why they did or did not tend to read product labels;
- in what situations they tended to read labels in general, and specifically when they tended to read labels on the category of products they had been recruited to discuss;
- what they looked for when they read these labels;
- how satisfied they were with the information that was currently available;
- whether the information was easy to understand;
- whether they would have liked to see any additional information on these product labels; and
- whether they could suggest any format or presentation improvements.

Reading Labels and Implications of Not Reading Labels

In general, the more familiar a participant was with a product, the less compelled s/he might feel to read the label. If someone had repeatedly used a product with success, s/he might not consult the label unless something about that product changed, the container was redesigned or looked different, copy on the label said "new and improved", or a problem had occurred with past use.

Some participants commented:

> *"Well, I know I only read them for the use. I'll usually do that at the store. I don't sit there and read every sentence or anything, but I will read them to see where to use them or whatever the product is for," (Household Cleaners, 5PM, TX).*
>
> *"At the store, I'd look to see that it was for the job I wanted. The next thing I would look for was to see how easy it was to use, was one more complicated than the other. I wouldn't look at ingredients at that point, but just to see how to use it," (Household Cleaners, 5PM, FL).*
>
> *"I've learned that I check out the ingredients. I have mixed bleach with ammonia by accident. Because I didn't read it I just thought I was making me a strong manly cleaner. It cleaned me*

right out of my apartment. So I'll [look at ingredients] and if it is not giving me what I need to know, then I'm not going to buy it," (Household Cleaners, 5PM, TX).

"I would read the label the first time I used it. Then probably wouldn't bother with reading the label again until possibly they've changed the format of the label and for some reason it appears to me that it's a new and improved product so then I might look at it again to see what they've done to change it," (Household Cleaners, 4PM, IL).

Users of outdoor pesticides and indoor insecticides appeared more likely than users of household cleaners to read the labels of these products. The moderator felt that this reaction might be in part related to the more complicated tasks of mixing or diluting many outdoor pesticides, or to the perception that pesticides and insecticides have stronger formulations than household cleaning products. People may also read the labels of outdoor pesticides and indoor insecticides more often because these products kill visible "live organisms" and thus may be perceived to be more dangerous than household cleaners.

Participants felt that not reading labels put product users at risk. They mentioned the following potential problems associated with not reading labels:

- using the wrong product for a specific purpose;
- not using the correct application process;
- losing money if the wrong product was purchased;
- using the improper dilution or mixture;
- not knowing if protective clothing, goggles etc. were necessary;
- not being aware of the need for proper ventilation;
- not knowing how to deal with a problem;
- causing possible damage to furniture, carpet, wood (inside), or other plants (outside);
- improperly disposing of a product or container;
- not knowing how dangerous a product was to use; and
- compromising the safety of children or pets.

Satisfaction with Current Labels for Products Discussed

Most participants indicated that they were satisfied with existing labels, and they initially offered few suggestions for improving them. When given options for changes, however, they agreed that certain changes might be useful. (These ideas are discussed later in this chapter, in the section "Label Standardization," and in other sections of the chapter, such as "Boxed Formats.")

Which Label Sections Participants Read

Some group participants said they read the entire label. Other participants said that they read specific information or sections of the label that were most important to them. The moderator felt that many, if not most participants, did not regularly read any of the product labels discussed unless they had encountered a problem, but that it was very difficult for participants to admit this, and that there is no direct evidence to support this opinion.

Participants were most likely to read the front of the label, to learn what the product was supposed to do. Participants said that the front label gave them a quick overview of the product, whereas the back contained directions or additional precautionary information, as the following quote shows:

> *"I just think the front of the product is going to attract the person's eye, to see if they want to buy that product. I know that when I buy something I'd rather see what it does. I really don't care what the ingredients are as long as it says that's what it is going to do. Then I'll look to the back and see what the instructions are and see what it does and how you do it."(Household Cleaners, 6:30PM, TX)*

Why and When Mini Focus Group Participants Read Product Labels

Participants tended to use product labels on an as-needed basis, as did the consumers interviewed in the Phase I qualitative research. The more familiar a participant was with a specific product, the less likely s/he was to read the label. Consumers discussing household cleaning products indicated that they read these labels infrequently. Indoor insecticide and outdoor pesticide users tended to read these labels more frequently because they did not use these products as regularly (and thus could be assumed to have less familiarity with the label information). Participants tended to read the labels for products that "kill something alive" (i.e., indoor insecticides and outdoor pesticides) more often than they read labels of household cleaners and disinfectants.

Most participants said they first read labels at the store when selecting products. They most often read about the function of the product (what it would do), directions for use, and/or precautionary statements for human health. Some participants also looked at the ingredient listing to ascertain the specific composition of the product, which helped them judge which product was a better buy (e.g., the higher the amount of active ingredients, the more you got for your money). A few participants read the ingredients because they stated that they were allergic to a specific ingredient; however, when asked, they could not name the ingredient to which they were allergic. These people said they would not knowingly buy products that would trigger an allergic reaction for anyone in their family.

Participants stated that, at home, they most often consulted the directions for use.

Locations for Types of Label Information

When discussing the best locations for specific information on a product label, participants said:

- the front of the product/label should focus on brand and product purpose;
- basic precautionary information should be on the front of the product, with in-depth information on the back;
- ingredients should appear on the back of the product (especially for household cleaners), unless this would require the elimination of other information that typically appears on the back. Only comparison shoppers (people who compared ingredients at the time of initial product selection) wanted ingredients on the front; and

- usage directions, tips, First Aid, and additional precautions should be listed on the back.

Signal Words

This section of the discussion focused on the hierarchy of "signal words" and graphical representations of the signal words. All mini focus group participants had trouble with the concept of a hierarchy of acute toxicity concerns. This hierarchy is intended to convey that CAUTION implies the lowest level of hazard, WARNING somewhat more hazard, and DANGER the greatest hazard. Manufacturers of pesticides, insecticides, fungicides, and rodenticides must list one of these words on the product label, under specific rules established by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Before the hierarchy was explained to them, however, most participants in the mini focus groups thought that the signal word printed on the label was chosen arbitrarily by the manufacturer. In general, participants thought initially that CAUTION, WARNING, and DANGER all meant "Take care and keep out of the reach of children."

When the concept was explained to them, participants responded positively, as shown in the following statements:

> *"This is very informational to me. I am amazed." (Household Cleaners, 8PM, TX)*

> *"I'm less ignorant tonight than I was when I came here because I thought that CAUTION, WARNING, and DANGER were basically semantic terms that people chose to describe something that you needed to look at. I didn't know that it was a government regulation. I thought they were interchangeable. But when you see them laid out like this you understand that there is actually a difference between the level of danger or safety that you're experiencing." (Outdoor Pesticides, 6:30, TX)*

Some participants subsequently expressed a preference for products labeled DANGER. This word indicated to them that these products would contain the strongest concentration available, that less would need to be used to get the job done, or that it could be used less often because it was stronger or more effective than a product labeled CAUTION. Other participants, however, stated that they would not use a product labeled DANGER out of fear for themselves, their children, or pets. Some comments about this issue follow:

> *"The way I see it, DANGER means that it is more potent, so I think it is going to work better. It could have more side effects problems and that is why you'd need to know what the DANGER [meant] or was for." (Indoor Insecticides 8PM, IL)*

> *"It would be different for me if I had small kids around the house. I know that all of it is dangerous to kids, but if it is color-coded say red, and is [labeled] dangerous, it would make me be more cautious at home. Although still in my mind it would make me think that this product [labeled DANGER] might work better on what I am trying to use it for." (Household Cleaners, 6:30, TX)*

> *"If you were looking for a safe product you would buy a CAUTION product. If you were looking for something that really cleaned and you were willing to take chances, you'd go for the DANGER product." (Household Cleaners, 8PM, TX)*

Graphical Representation of Signal Words

Several different graphical (visual) representations of the signal words were shown to the groups (Appendix 3-3). The initial representation, which was based on Stakeholder input, showed a horizontal or vertical bar divided into thirds, with the first third light, the second third darker, and the last third almost black. (The first groups saw black and white versions; later groups also saw color versions.) The mock labels were shown to participants in Ft. Lauderdale and Dallas. In addition, participants in the Chicago indoor insecticide groups also viewed graphics of a meter and a thermometer. These participants generally found the meter to be somewhat easier to understand than the bar graph. The meter seemed to be more intuitively obvious of a ranking scale, because it could clearly show the progression from a low to a high level of concern. One participant remarked:

> *"I like the meter. Because it makes me think of when you're driving a car and the speedometer. When you are going slower you are safer and when you speed up you get into the danger zone, so I guess I can relate to it in that way." (Indoor Insecticides, 8PM, IL)*

The color gradation of the graphical signal word representation (see Appendix 3-3) was not interpreted by participants as indicating a scale of concern (with light area indicating less concern, and dark areas indicating the most concern). Instead, the darkest shaded area, with the word DANGER in it, stood out for all participants, even when the arrow under the bar pointed to CAUTION or WARNING. Using numbers in conjunction with the signal words only added to participants' confusion, as the following comments illustrate:

> *"It is very confusing. I like the control [with one word] better." (Outdoor Pesticides, 5PM, TX)*

> *"Well, it just makes it like they're putting on an extra warning or something. Because everyone knows that cleaner, you need to be cautious with. But then you have the extra caution on there, then it makes it seem like maybe there's something else in there that you don't know about that might be worse." (Household Cleaners, 6:30, TX)*

Most participants preferred the version that lists only one signal word, with a bulleted precautionary statement below it (Appendices 3-3 — 3-6). Participants felt that this representation would ensure that all outdoor pesticides and indoor insecticides would be treated with the same level of care, no matter which signal word was used.

Some groups saw labels in which the medical concern associated with the signal word was listed below the signal word (Appendices 3-3 — 3-6). Participants who saw this version liked it because they thought it would help them to further identify possible areas of concern regarding improper product use, as this person said:

> *"Plus it saves you from turning the can around and looking to find out why. Here it just tells you the deal right there." (Indoor Insecticides, 8PM, IL)*

Most participants felt that indoor insecticide and outdoor pesticide labels would benefit most from including medical concerns below the signal word. Household cleaning products were not generally viewed as being as "potentially dangerous" as indoor insecticides and outdoor pesticides. One person put it this way:

> *"I may apply outdoor pesticides in the same way, but I would have more respect for the application [seeing the signal graph]. I might treat them differently." (Outdoor Pesticides, 6:30, TX)*

Participants in the later sessions (held in Chicago and Dallas) suggested that "color coding" be used for the signal words, which they felt would be superior to black print. They specified the following colors:

- Yellow for CAUTION;
- Orange for WARNING; and
- Red for DANGER.

Education and Outreach about the Signal Word Hierarchy

Overall, participants felt that an extensive educational program would be needed to promote consumers' understanding of the current signal words:

> *"Be nice if they spent some commercial money on informing us of the difference between CAUTION, WARNING, and DANGER." (Indoor Insecticides, 6 PM, TX)*

> *"Now that you've explained it that way, I mean I could see why you do this. If that became the norm for everything, I think it would be great. I would look to see the different warnings." (Household Cleaners, 6:00, IL)*

Participants suggested considering the following in developing such a campaign:

- make sure that labels of product types are consistent (like food labeling information); and
- use color rather than a black and white representation.

Participants also suggested that manufacturers of these products should include a "scale" on their labels showing the hazard level of the product (such as the graphical representations of the signal words discussed previously). Participants generally felt that manufacturers that do this would be viewed as being more honest. One person said:

> *"I think if some manufacturer is putting this on there, that corporation has in mind to give as much information that they think people who use it want to know." (Household Cleaners, 4PM, IL)*

Mock Labels Used in Discussions of Signal Words (see Appendices 3-3 — 3-6):
Appendix 3-3: Signal Meter (presented to participants in color)
Appendix 3-4: Outdoor Pesticides — Front 4, Front 5, Front 6, Front 7, Control Front
Appendix 3-5: Household Cleaners — Front 6, Front 7, Front 8, Front 9, Control Front
Appendix 3-6: Indoor Insecticides — Front 8, Front 9, Front 10, Front 11, Front 12, Control Front
Signal Graph Samples

Understanding Directions for Use

Group participants generally preferred that the *Directions for Use* section of the label have the following characteristics:

- a numbered sequence for directions (when appropriate), because the numbers would suggest the proper order of steps to take in using a product, and because it would be easier for users to find their place again if temporarily interrupted while reading the directions for use;
- all text for a step kept to one line, instead continuing ("wrapping") onto multiple lines;
- more "white space;" and
- avoidance of unnecessary words and descriptions.

Participants in the Outdoor Pesticides groups talked about the sample heading "Responsible Use" (Appendix 3-4 — Label sample 10 Back). Many participants thought this language was intimidating and "talked down" to consumers, as the following person stated:

> *"To me 'Responsible Use' makes it a little scarier, a little insulting. Responsible use implies that maybe you are irresponsible, maybe you shouldn't be messing with this stuff." (Outdoor Pesticides, 5PM, TX)*

Group participants were also asked to provide feedback about possible alternate wording for precautionary statements. One statement in each pair is typical of current label language, and the other statement is a possible alternative to the current statement. Participants generally preferred usage directions that included a specific time frame linked with a directional step. The statement that was preferred by more participants is shown in italics, with "X" indicating a placeholder for a number.

Statements tested:

> Repeat as needed.
>
> *Preferred: Apply no more than "X" treatments per week.*
>
> Do not allow children or pets to contact treated areas.
>
> *Preferred: Keep children or pets out of treatment area for "X" minutes.*

Participants thought it was appropriate to put directions for use on the back label, as currently done. They preferred the front label to be as uncluttered as possible, for aesthetic reasons.

Mock Labels Used in Discussions of Directions for Use (see Appendices 3-4 — 3-6):
Appendix 3-4: Outdoor Pesticides — Back 9, Back 10, Back 11, and Control Back
Appendix 3-5: Household Cleaners — Back 10, Back 11, and Control Back
Appendix 3-6: Indoor Insecticides — Back 6, Back 7, and Control Back

Precautionary and Other Label Statements

As in the discussion of the label section on Directions for Use, group participants preferred to have precautionary statements presented in bullet points, each limited to one line of text. They found one-line statements to be easier to read than statements that continue onto more than one line. Similarly, participants preferred to have all language for the precautionary statements in the same column of text on the label. They found it difficult to follow text that wrapped from the bottom of the left-hand column to the top of the right hand column.

Participants were also asked to provide feedback to different pairs of precautionary language statements. One statement in each pair is typical of current label language, and the other statement is a possible alternative to the current statement. In general, participants preferred statements that used "simple" and specific language.

Statement tested:

> `It is a violation of Federal law to use this product in a manner inconsistent with its labeling.`
>
> *`Preferred: For safe and effective use read the label first.`*

Some participants commented:

> *"It [second statement above] sounds friendlier, it doesn't intimidate me, and gets to the point." (Indoor Insecticides, 8PM, IL)*
>
> *"Is there really an insect police? It says it's a violation of Federal law to use this product in a manner inconsistent with——. Are the police going to come to your door and say you sprayed it from fourteen inches, and you're going to jail." (Indoor Insecticides, 4PM, IL)*
>
> *"It [first statement above] is like pushing me around. Right away I am intimidated." (Outdoor Pesticides, 8PM, IL)*

Statement tested:

> `Hazards to humans and domestic animals.`
>
> *`Preferred: Hazards to humans and animals.`*

One person commented:

> *"I would say domestic is just a word that doesn't need to be there." (Household Cleaners, 6:30, TX)*

Statement tested:

> `This product is toxic to aquatic invertebrates`
>
> *`Preferred: This product can kill aquatic insects, shrimp, crabs, and crayfish.`*

Statement tested:

> `This pesticide is toxic to wildlife.`
>
> *`Preferred: This product can kill wildlife.`*

Statement tested:

> `This pesticide is toxic to wildlife and domestic animals`
>
> *`Preferred: This pesticide may harm pets and wildlife.`*

One comment follows:

> *"I think laymen's terms are easier to understand for most people as opposed to words like toxic which may be confusing." (Outdoor Pesticides, 8PM, IL)*

Statement tested:

> `Do not apply where runoff can occur.`
>
> *`Preferred: Do not use on sloped areas when heavy rain is expected.`*

Mock Labels Used in Discussions of Precautionary Statements (see Appendices 3-4 — 3-6):

Appendix 3-4: Outdoor Pesticides — Back 8, Back 9, back 10, and Control Back
Appendix 3-5: Household Cleaners — Back 4, Back 5, and Control Back
Appendix 3-6: Indoor Insecticides — Back 4, back 5, Control Back

Listing Ingredients

Many participants said that they never read the ingredients on outdoor pesticides, household cleaners, or indoor insecticides because they had no idea what this information means. They agreed that adding concise and simple language explanations of ingredients (to describe the role of specific ingredients) would be beneficial. Explanations would give the average consumer a better understanding of the need for specific ingredients in a product's formulation. One participant commented:

> *"Maybe I guess that is why some people don't even care about reading the ingredients because you don't know half of the stuff they list on there. So if they have something like this [simple language explanations] then maybe I could say 'okay, well then they're going to tell me what this or that means.' Then I could actually say I am going to actually read what is there. But if I don't know what it means, then I'm not going to bother with reading it." (Indoor Insecticides, 8PM, IL)*

> *"Some of these ingredients are like $50 words that only a scientist knows what it means, and then right next to it they give you the percentage and like what does that mean to me? In other words, it would be nice if they could put it in plain and simple terms that an ordinary person could understand." (Household Cleaners, 4PM, IL)*

Even though most participants did not know the purpose of the ingredients in outdoor pesticides and indoor insecticides, they wanted full disclosure of ingredients in case of an emergency. By having this information on the label they felt that they would be able to quickly obtain the correct medical advice for dealing with a possible problem. They seemed to feel that outdoor pesticides and indoor insecticides are "stronger" because they often list specific directions for use, special clothing, tools, or timing of application, and because they kill "visible" organisms. Although household cleaners also may kill bacteria, participants did not consider these products to be as strong or potentially "dangerous" as outdoor pesticides or indoor insecticides.

Participants liked the idea of manufacturers giving Poison Control Centers a list of ingredients for specific products. They thought this would be more efficient than having a person read the contents to Poison Control. They also indicted, however, that this would not eliminate the need for ingredients to be listed on the label.

Location of Ingredients Information

Participants who discussed household cleaning products thought it was quite acceptable for manufacturers to list ingredients on the back label. They felt that the front label of these products should focus on selling the brand. One participant stated:

> *"I didn't realize there was nothing on the front. But I like the clean look of the front of this package. I like all of this [ingredients] on the back. I do like that you have the other ingredients [listed] so that if somebody on a poison hotline were to say 'What else is in the product?' I have them [the ingredients] all here. I really don't care what percentage [are used for the ingredients]. (Household Cleaners, 5PM, TX)*

On the other hand, participants for the outdoor pesticides and indoor insecticides categories were divided about whether the front or back label would be a better location for ingredients. Participants who compared ingredients when choosing products particularly liked seeing ingredients on the front label.

Mock Labels for Discussions of Ingredients (see Appendices 3-4 — 3-6):
Appendix 3-4: Outdoor Pesticides — Front 1, Front 2, Back 3, and Control Front
Appendix 3-5: Household Cleaners — Front 1, Front 2, Back 3, and Control Front
Appendix 3-6: Indoor Insecticides — Front 1, Back 2, Front 3, and Control Front

Boxed Formats

Boxing information (i.e., putting a box border around the text) was perceived by mini focus group participants to be a very positive change to current label design. Participants said that a box would have a visual impact because it would draw one's eye to that area on a container. Participants felt that consumers would interpret boxed information as being the most important, such as directions for use, precautions for human health, or First Aid. Boxes that were stacked vertically seemed to work better than side-by-side boxes. Representative comments follow:

> *"It's the way all the nutrition information was suddenly put on food bags and boxes. When that happened I was glad to see it because it did make me read it more often because it was so much clearer. It was more distinctive and that's what this makes me think of. I'm likely to read this because it's more distinctive. Somebody took the time to lay it out clearly because they felt it was important for me to read." (Household Cleaners, 4PM, IL)*

> *"You know, even though you're supposed to read the whole label, if you cheat and don't [read the whole label] you'd better read the box." (Outdoor Pesticides, 5PM, TX)*

> *"Boxing shows me that for some reason it needs some prominence, or the manufacturer has given it prominence for some reason and I need to pay particular attention to the things in those boxes." (Outdoor Pesticides, 5PM, TX)*

Participants also pointed out that too many boxes on a label might dilute the visual impact. They felt that only the most important information on a product should be boxed. Participants thought that boxing First Aid information was a particularly good idea because:

- it was easy to read,
- it identified a problem and gave a simple answer,
- it stood out from the other important information on the label,
- it was boldly presented, and
- it had more white space around the text.

Some focus groups were shown an "integrated" or "combined" label (Appendices 3-4 — 3-6), which used a variety of formats for different sections of the label. By incorporating bullets, boxes, white space, etc., the label became more interesting visually. One participant commented:

> *"I like the mixing of information so that things can be located more easily. Especially if they were consistently done between products. [For example] if the hazardous information is boxed always, and the usage directions are bulleted you would have a better idea of how to find it [this information]. But even if it were not consistent I think by having white space and having areas*

of information in different formats that it would be easier to read. It's just easier to read." (Household Cleaners, 4PM, IL)

Mock Labels for Discussions of Boxed Formats (see Appendices 3-4 — 3-6):

Appendix 3-4: Outdoor Pesticides — Back 12
Appendix 3-5: Household Cleaners — Front 12, Back 13, Front and Back of Control
Appendix 3-6: Indoor Insecticides — Back 13, Back 14, Back 15, Integrated Label

Separate Pamphlet

The idea of using a removable pamphlet to provide product information, such as the pamphlets that are included with some outdoor pesticide products, was not favored. Most participants preferred to see all the information presented on the container itself. Their reasons included the following:

- the sample pamphlet had too much information and tended to inhibit reading;
- since these products are generally kept outside, the pamphlet could easily be lost or damaged; and
- because many of these products need to be mixed with water, the pamphlet could be damaged by contact with water.

Participants generally liked the highlighted heading that was used on the outdoor pesticide pamphlet. This design feature seemed to help participants locate a specific topic area on the product, and also made the label look clean and organized.

Label Standardization

Many participants thought that a standardized label format (e.g., each product having the same kind of layout, putting specific sections in the same place on all labels, using the same typeface) would be helpful for the categories of products addressed in this research, because this might encourage consumers to read labels more often or to read more of the label. Participants put it this way:

> *"I would think [it could possibly have an effect on using the product more safely and effectively] because you know where to find all your information real quick. Since you know where to find it you don't have to worry so hard about looking for it. When you look hard for it, it will discourage you from reading it. It's something that is simple, easy, right there. If you know where it is you're going to read it." (Household Cleaners, 8PM, FL)*

> *"You know what would really be wonderful, just kind of pie in the sky. You know how they do on the nutritional labels, they're all the same for all food products. Wouldn't that be great to have something like that on cleaning product labels. [They could include] toxicity levels, and maybe strength levels." (Household Cleaners, 8PM, TX)*

Participants were very consistent in their desire to have labels that are easier to read, and were especially interested in changes that would decrease clutter and increase readability. The most frequent suggestion for all categories of labels was to use larger type that is easier to read. Many participants had difficulty reading the small print on labels and felt this change would save time and encourage label reading. Some people felt that the size of the print suggested the relative importance of the information, with larger type indicating more importance than smaller type.

Participants suggested the following specific format changes:

- use a larger type size (font);
- use bold lettering or an easy to read font style;
- use bullet points for text, and keep sentences short and all on one line;
- use numbers for directions when appropriate;
- use simple language. Be direct, brief, and to the point;
- include more white space;
- box important information for quick and easy reference;
- provide a rationale for using a product in a particular manner. (For example, say "For safe and effective use read the label first" instead of "It is a violation of Federal law to use this product in a manner inconsistent with its labeling");
- give specific time references, such as "Apply no more than 'X' treatments per week" or "Keep children or pets out of treatment area for 'X' minutes;"
- list a Poison Control 800 (toll-free) number. (Prior to the mini focus groups, many participants had not been aware that they should call Poison Control first rather than their doctor or a hospital);[7]
- highlight topic or section headings; and
- print the caution hierarchy in color.

Some relevant comments made by participants follow:

> *"I think the [printing on the label] should be made a little larger. Sometimes you just look at it and you don't see it because it is so small print." (Household Cleaners, 5PM, FL)*

> *"Something that just caught my eye, having little ones, is maybe put that number [for Poison Control] right on the can." (Household Cleaners, 5PM, FL)*

[7]At the time this report was written, no single national or central toll-free number existed for Poison Control.

"If you have the text wrapped, you are more likely to miss something important. When you are shopping you're certainly going to take the one that is clearer [looking] that you can understand. With the other one you are going to get frustrated and you're just going to put it right down and say I haven't got time to go through this." (Household Cleaners, 5PM, FL)

"It looks like it [the Control Label] is more complicated because it looks like there is so much more in there. It looks like it is more dangerous than it needs to be. Whereas if it is set up in a simple and concise format that you can read and understand, it does not look as bad." (Household Cleaners, 5PM, FL)

"If it is neater and laid out better, I'd be more prone to read the whole thing." (Household Cleaners, 5PM, FL)

"I like bolded key words and I like bullets under each bolded word. It kind of separates things." (Household Cleaners, 4PM, IL)

Many participants said that if the design/format changes discussed above were implemented, they thought that consumers might read these product labels more often, might read more parts of labels, and would be able to find information on labels more easily and quickly.

Participants also suggested that making such changes might improve the public image of manufacturers, who would be perceived as being more honest with consumers by presenting their products in a forthright manner.

Logos for the "Read the Label *FIRST!*" Campaign

Various drafts of possible logos to support a "Read the Label *FIRST!*" Campaign (see Appendix 3-7) were presented to the mini focus groups to obtain feedback from consumers about the logo designs and about effective ways to reach consumers and motivate them to read the labels of these types of products. (Most participants said that they thought such a consumer campaign would be a good idea in general, but that it might not really be meant for *them* because they already read labels.)

The groups were asked whether any of these logos would be "more compelling" for them on the label of an outdoor pesticide/household cleaner/indoor insecticide. They also were asked whether they had any emotional ties to any of the logos, and what other factors besides the logo and the "Read the Label *FIRST!*" slogan would motivate them to read labels on these products. They were also asked if they would be significantly more motivated to read the directions for use and the precautionary statements if they understood that doing so would allow them to use the product more safely and effectively. To place the discussions in context for participants, the moderator talked about another public service campaign, the "Buckle Up for Safety" Seat Belt campaign, and asked people some questions about their memories of and reactions to this campaign.

Participants said that child safety, pet safety, personal safety, and correct product use were the main reasons they would read the label on an outdoor pesticide, household cleaner, or indoor insecticide. They also said that they might be *fearful* that the following things could happen if they did not read a label:

- they might use the product improperly if they did not read directions for use;
- they might use the product for the wrong reason;
- someone (the user or a family member) might have an allergic reaction to a specific ingredient(s);
- the environment might be harmed; and
- personal property might be damaged.

Participants indicated that for a logo to be compelling, it would need to reinforce some of these emotional reason(s) for reading labels. Participants felt that none of the logos presented truly communicated such an association. Of the drafts they reviewed, they preferred the octagonal shape (Appendix 3-7) because of its association with the meaning of a stop sign: "*Stop. Look and listen.*" Nevertheless, they said that this logo did not arouse any empathy or emotional drive directed toward children and/or pets.

Participants were also asked for outreach suggestions to educate consumers about the "Read the Label *FIRST!*" Campaign. Their ideas included a variety of media: a sticker on the product, school education programs, TV public service spots, and grocery aisle promotions.

CHAPTER 4

QUANTITATIVE AND QUALITATIVE RESEARCH CONCLUSIONS

In July 1998 the research Core Group and The Newman Group, Ltd., met in a face-to-face meeting in Alexandria, VA to finalize the quantitative findings and implications, to discuss what was learned from the qualitative mini focus group research, and to discuss the overall conclusions for Phase II of the CLI.

As mentioned in Chapters 2 and 3, the *findings* result directly from the quantitative survey results and are supported by the quantitative data. *Implications* show connections among the various findings related to a topic or learning objective, and are derived from the quantitative findings. The formulation of *implications* involved a certain element of interpretation of the quantitative data, but they can be traced directly to the data. The *overall conclusions* of the Phase II research draw from findings and implications of the quantitative research, the information obtained during the qualitative mini focus group research, and all of the other Phase II activities (e.g., subgroup meetings, Stakeholder comments, First Aid qualitative research). *Conclusions* are broad statements, which the research Core Group developed as they interpreted these various sources of information and data, about product labels and consumers' comprehension, satisfaction, and preference for labels.

The conclusions from the Phase II quantitative and qualitative research are as follows:

1. There is no strong motivator that suggests fundamental label changes, but language and format can be improved. Consumers are generally satisfied with current labels and are able to find the information they want on the label. However, the data indicate that improvements would encourage more reading and use of product labels.

2. Labels for each of the product categories should not be treated in the same way since consumers perceive the products differently and have different label reading habits for each category, as follows —

   - *Household cleaner labels* should be simpler, with exceptional information (i.e., very important or different than anticipated) highlighted. There is a lower motivation to carefully read these labels because of the perceived familiarity with cleaning products.

   - *Indoor insecticide labels* are quite effective now. Incremental changes to simplify labels and make them easier to understand should be tested.

   - *Outdoor pesticide labels* are confusing because they are more complex and less frequently used, and therefore less familiar to consumers. They should be simplified and arranged for easier reading.

3. Consumers want clear, concise, easy-to-read information that connects consequences with actions. Instructions on labels should say ‘why’ and jargon should be avoided.

4. Consumers look to all traditional media to gain information. Therefore, outreach to consumers should incorporate traditional media, and should also include education efforts directed toward store personnel and other "influencers."

5. Ingredient information can be communicated by name, type or category of ingredient, and purpose of ingredient, not just by a list of chemical names. Ingredients should be presented in tabular form, with flexibility as to where in the label they are located (e.g., front vs. back panel of the label).

6. Additional information is needed to better understand how to answer the need some consumers expressed for useful ingredient information. A full disclosure list of names does not further consumer understanding.

These conclusions are supported by detailed research findings.

CHAPTER 5:

FIRST AID — QUALITATIVE RESEARCH

This chapter reviews the findings and activities concerning First Aid from Phase I and presents the activities and findings from Phase II.

First Aid Phase I Findings

During Phase I of the CLI, qualitative research, one-on-one interviews, and literature searches of existing studies were performed in order to assess consumer behavior and preferences regarding First Aid statements. The research indicated, among other things, that most consumers only read First Aid information after accidental exposure to a product. Additionally, consumer perception of a product's hazards was found to be the most significant indicator of whether or not a consumer would read the First Aid information. Phase I results indicated that many consumers liked having precautionary information on product labels, and view precautionary and warning statements positively (Kraus and Slovic, 1998. *Consumer Risk Perception of Household Chemicals*, p. 49). The results also showed that precautionary statements have little impact on purchasing behavior.

Phase I research on label clarity concluded that consumers had a difficult time understanding the phrase "Statement of Practical Treatment" and consistently misinterpreted the EPA-mandated labeling, "Hazards to humans and animals," to mean that a product was automatically hazardous. As a result, the CLI made the interim recommendation for manufacturers to voluntarily replace the phrase "Statement of Practical Treatment" with "First Aid." EPA Assistant Administrator Lynn Goldman formally announced this recommendation at a press briefing in September 1997.

A wide range of CLI Stakeholders made many varied comments concerning precautionary and First Aid information during Phase I. Commenters recommended listing a product's health effects (both acute and chronic), whether the product contained any known carcinogens or mutagens, and health hazards and environmental hazards associated with each ingredient. Some Stakeholders suggested that the label state how the product would affect pregnant women and children, and indicate what health testing had been performed. Stakeholders also requested that First Aid information be technically accurate, relevant to how the product is used, misused or disposed, and based on sound toxicological and environmental risk assessment. They also suggested that labels include information concerning exposure factors and the types of personal protective equipment needed when handling these products.

Given the comments received in Phase I of the project, and CLI's goal of making labels more comprehensible to consumers, it was decided that testing of revised First Aid statements with consumers take place during Phase II.

First Aid Phase II Goals and Objectives

In Phase II, EPA's Office of Pesticide Programs (OPP) tapped into the CLI to gather information they needed to update and improve First Aid statements. Specifically, consumers were interviewed about their comprehension of a series of proposed First Aid statements in order to assess the potential for changing, simplifying and clarifying these statements.

First Aid Phase II Activities

Based on input from the qualitative research conducted in Phase I of the project, EPA's Office of Pesticide Programs (OPP) made several revisions to the First Aid statements on product labels in March 1996. These revised statements underwent additional changes based on input from States and CLI industry Partners, academics, and poison control centers. In July 1997, the CLI tested these revised statements in a series of one-on-one interviews with consumers. The purpose of the interviews was to gain an understanding of consumers' comprehension of First Aid instructions.

Based on initial reactions and input from the interviews with consumers, the First Aid statements were further revised. From August to October 1997, these statements were distributed for comment to the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders. The revised First Aid statements were the ones that were used and tested on the mail questionnaire and the mini focus groups of the Phase II quantitative and qualitative research. (For details of the quantitative research please refer to Chapter 2. For details of the qualitative research please refer to Chapter 3). Since the completion of quantitative and qualitative research in Summer 1998, EPA's OPP has made some additional minor revisions as a result of internal OPP review and comments from the International Poison Control Center. The final First Aid statements will be released in an Office of Pesticide Programs *Pesticide Registration (PR)* notice in Fall/Winter 1999.

The First Aid statements corresponded with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which, among other things, regulates what types of information, wording and format of labels must appear on pesticide products (40 CFR 156.10). Under FIFRA, the type of text that must be placed on a pesticide label is determined by the toxicity category of the product. Each product is assigned a toxicity category on a scale of one to four. A toxicity rating of one represents the highest toxicity level for any of the different ways that a person can be exposed to the product. These routes of exposure include exposure through the mouth (oral ingestion), the skin (dermal absorption and irritation), the eyes, and the lungs (inhalation). (For more information on FIFRA refer to Appendix 5-1.)

First Aid statements were proposed for each toxicity category, excluding category four, for which there are no specific First Aid statements required by regulation. Alternative statements were also proposed for the phrase on the label regarding the decision to seek medical advice, as well as for the note instructing people to bring the product label with them when seeking medical advice. Before the interviews began, the CLI team made a decision, based on Phase I research, to replace the word "physician" with "doctor" and "area of contact" with "skin."

Methodology of One-on-One Interviews

A total of 23 one-on-one interviews were conducted by Macro International, a research consulting firm hired by the EPA, to evaluate consumer comprehension of and preferences for alternate wording of first-aid statements. The interviews were conducted on July 7 and 8, 1997, in Calverton, MD, by one of the three moderators who had conducted the original CLI Phase I qualitative research in 1996. Respondents were recruited using a screening instrument that determined whether they used household cleaners, outdoor pesticides, and/or indoor insecticides (see Appendix 5-2). Interviewees were paid for their participation. Participants were shown variations of specific First Aid instructions. The moderator used a structured set of questions, but the order was varied from one respondent to the next. Additionally, questions were sometimes modified (e.g., in the situation when participants were asked what they would do if a product came into contact with their eyes), when it became evident that there was confusion or variation among consumers' interpretation and/or understanding of the question. Each interview lasted approximately 30 minutes and was observed by several representatives of CLI Partners and EPA staff. A debriefing session with observers and the moderator was held after completion of the first 17 interviews, and again after the completion of all 23 interviews.

Strengths and Limitations of Qualitative Research

The primary strength of qualitative research is that it can identify issues of concern to specific populations, and it also can be used to frame questions that can be developed further to derive quantitative data about a topic. As the results of this study will indicate, one-on-one interviews often identify issues that researchers may not have considered previously, or they may suggest framing questions differently to gather more accurate information.

It is important to note that results from one-on-one interviews, focus groups, and other qualitative research methods cannot be generalized to a larger population. A focus group or interview pool is not a statistical representation of the population. It is also important that the interpretation of qualitative data not be misrepresented in quantitative terms. For example, a statement that "nine of the twelve respondents" who participated in a study agreed on a particular point should not be interpreted as "75 percent of the population agreed that____," because qualitative data cannot be extrapolated to describe the population as a whole.

Findings from First Aid Qualitative Interviews

The consumer interviews on the wording of First Aid statements generated many findings. The researchers identified a number of findings regarding precautionary and first-aid statements based on the 23 one-on-one interviews. This section first summarizes general results applicable to all First Aid statements, and then examines specific results for each statement tested.

General Findings

1. Confirming Phase I results, consumers in these interviews indicated that they did not regularly read the product labels.

2. Interviewees responded best to simple, very specific first-aid statements that explained what they actually could do themselves. They also seemed more inclined to do what was called for when it was most specifically stated ("Rinse skin for 10-15 minutes," rather than, "Rinse skin thoroughly").

3. On label format, the interviewees preferred short, bulleted sentences that did not wrap around onto the following line.

4. Interviewees also responded well to instructions for something concrete to do in a panic situation (e.g., "First give water, then call a doctor"). Giving an instruction that the person could follow and feel that they were taking a practical action seemed to have a calming effect. As one interviewee said, "Don't make me think in an emergency, tell me specifics — if the most appropriate action is to call a Poison Control Center, then say that rather than 'Get medical advice.'"

5. The consumers interviewed followed advice they learned in the past. Even when they were in a situation where the First Aid information on the label would have been helpful, their instinct was to follow instructions they had heard before ("induce vomiting," for example), rather than look at the label of the product for First Aid information.

6. The qualitative research found that interviewees did not look on the label for the Poison Control Center number. Most of the consumers interviewed seemed to know that the number is in the telephone book under emergency numbers. People with children had the number more handy than people without.

7. Interviewees' interpretations of the term "rinsing" varied widely. The consumers interviewed indicated that they stop "rinsing" as soon as the irritation stops.

8. Virtually all of the people interviewed believed that injuries to the skin were much less serious than injuries to the eyes.

9. Interviewees had no perception of dermal absorption (that a substance can be absorbed through the skin, causing harm). They believed that if the product was harmful, they would feel it or see the effects on their skin (the irritation concept).

Findings Specific to Particular First Aid Statements

Specific findings are presented according to the type of First Aid statement tested. The First Aid statements give instructions on what to do in case of exposure to a potentially harmful product. As described earlier, First Aid instructions are tailored to the exposure scenario and toxicity category (defined by FIFRA) of the particular product. First Aid statements related to particular exposure scenarios are lettered arbitrarily for ease of reference. The revised format of each proposed First Aid statement reflects interview results, and comments from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders. As mentioned above final versions of the First Aid label statements are expected to be released in Fall/Winter 1999, and will take into consideration all of these comments and revisions, as well as results from the Phase II quantitative and qualitative research.

Results Relating to the Initial Medical Phrase on a Product Label

Interview participants viewed the following three versions of the message to seek medical treatment:

> *Get medical advice.*
>
> *Get medical attention.*
>
> *Call a doctor or poison control center for further treatment advice.*

The first interviews did not reveal much information. This may have been due to the fact that the statements were vague and were not placed in context for the participants. Although participants frequently considered all three statements to mean the same thing, they appeared to prefer the phrase, "Call doctor or poison control center for further treatment advice."

In interviews 18-23, participants instead were questioned on the wording of the phrase within the context of other statements. In the context of other First Aid statements, people seemed to prefer, "Call doctor or poison control center for further treatment advice," to the other versions.

First Aid Statement Relating to Ingestion

<u>For Acute Oral Contact with a Product in Toxicity Category 1, 2, or 3</u>

The following versions of the First Aid instruction for ingestion of a product in toxicity category 1, 2 or 3, were shown to each interviewee:

> *If person is able to swallow, give sips of milk or water. Call a doctor or poison control center for further treatment advice.*
>
> *If swallowed, immediately call a Poison Control Center or doctor and follow their advice. Drink a glassful of water.*
>
> *If the person is alert and able to swallow, give sips of milk or water. Call a doctor or poison control center for further treatment advice.*

Most interviewees were confused by the meaning of some of these words and phrases. They interpreted the phrase "drink a glassful" to mean "all at once" and thought that the word "sips"meant "drink only a small quantity, not a glassful." Several respondents noted that having the "give sips" direction located before the "call poison control center" had a calming effect on them and would enable them to take control of the situation better. The phrase "alert and able" was unclear to respondents because some people did not understand the word "alert," while the phrase "able to swallow" seemed clearer. The "milk or water" phrase also caused confusion. Some people thought that milk would neutralize the negative effects of the product or coat the throat and digestive system. One woman suggested that milk would induce vomiting, while several respondents felt that people might "react to milk," and so water should be used.

Furthermore, many respondents had read First Aid statements at some time in the past instructing them to induce vomiting, so even though these tested directions did not mention inducing vomiting, some of them said that they would do so anyway. Many of them said they would induce vomiting by syrup of ipecac. Within a larger context, several observers mentioned that if certain common behaviors should not be followed, labels should provide specific information advising it. No one mentioned sticking fingers down the throat to induce vomiting. It therefore seemed that this instruction was not frequently read, and would not be missed if it was removed.

Based on the consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the suggested statement on ingestion for category 1, 2, or 3 products reads as follows:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by poison control center or doctor.

First Aid Statements Relating to Skin Exposure

For Acute Dermal Contact with a Product in Toxicity Category 1 or 2

(There Is No Category 3 for Dermal Contact)

Participants read the following versions of the First Aid statement:

> *Rinse area of contact thoroughly with running water. Call a physician or poison control center for further treatment advice.*
>
> *Rinse skin thoroughly with running water. Call a doctor or poison control center for further treatment advice.*
>
> *Remove contaminated clothing. Rinse skin immediately with plenty of water. Obtain immediate medical advice.*

There were many different interpretations of the phrase "rinse skin thoroughly." Some people interpreted it as requiring them to scrub their skin. Others felt that this instruction implied rinsing should occur for a long time; when asked how long was "long," they replied, "Oh, two or three minutes." Still others thought that to rinse skin thoroughly one would have to use soap or some other cleansing agent. Interviewees perceived the message containing the phrase "rinse

skin thoroughly" to be giving the same instructions as the messages for skin irritation (see section C and D, below).

None of the participants for this study were familiar with the concept of dermal toxicity (i.e., something being toxic if it is absorbed through the skin). "Even when the moderator mentioned that some products can be absorbed into the skin and cause damage, the respondents indicated that they could tell that things were okay if they had no burning or tingling sensation on the affected area."[8]

There was a marked difference in perception between the statement, "Remove contaminated clothing. Rinse skin immediately with plenty of water. Obtain immediate medical advice," and the others. The phrase "Remove contaminated clothing" implied a much more serious circumstance to all of the respondents. The combination of the words "remove clothes," "contaminated," and "immediately" contributed to the potency of the message.

As a way of determining what consumers would do in a given situation, and to ascertain if they need specific directions for emergency situations, participants were asked what they would do if they spilled a pesticide on themselves. Some participants mentioned removing contaminated clothes; others did not. Some of the participants who did not mention clothing removal claimed later that "of course" they would take the clothes off; they just had not said so earlier.

Based on the consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the suggested statement on skin exposure for an acute dermal exposure to a product in toxicity category 1 or 2 was suggested as follows:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

For Skin Irritation from a Product in Toxicity Category 1 or 2

Since language for this category is very similar to that for other skin categories, statements regarding this category were not specifically tested. As a result of the finding that interviewees did not recognize the difference between "skin irritation" and "dermal absorption," it was suggested that the First Aid language defined above, in section B, for acute dermal could be used instead.

[8] *Draft Summary Report, Consumer Interviews on First Aid Label Information*, September 3, 1997. (A copy of this report can be found in the EPA Public Docket, Administrative Record, AR-139.)

For Skin Irritation from a Product in Toxicity Category 3

Participants were presented the following two versions of the instruction of what to do if skin were exposed to a product identified in toxicity category number 3:

> *Rinse skin thoroughly. Call a doctor or poison control center for further treatment advice if irritation persists.*
>
> *Rinse skin for 10-15 minutes. Call a doctor or poison control center for further treatment advice.*

Most of the participants said that they preferred the statement that gave specific instructions about how long to rinse, rather than the statement to "rinse thoroughly." Some even said that the specific instructions had a calming effect on them because it told them exactly what to do, so they did not have to worry about whether or not they were "doing it right."

Although participants appeared to understand what was meant by the term "irritation" (i.e., redness, itching, burning, tingling, rash, welts), Most people were unable to distinguish between the relative severity of dermal toxicity and the less severe skin irritation. Participants also seemed to have more concern about the risk of potential eye damage than skin damage.

Based on consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the statement on skin irritation for a category 3 product was revised by EPA's Office of Pesticide Programs. The suggested First Aid statement is now the same as for toxicity categories 1 and 2.

First Aid Statement Relating to Inhalation

For Acute Inhalation of a Product in Toxicity Category 1, 2 or 3

The following versions of the First Aid statement on inhalation of a category 1, 2 or 3 product were presented to interviewees:

> *If breathing is affected, get fresh air immediately. Get medical attention. If not breathing, give artificial respiration.*
>
> *Move person to fresh air. If not breathing, give artificial respiration and call an ambulance. Call a doctor or poison control center for further treatment advice.*
>
> *Remove victim to fresh air. If not breathing, give artificial respiration and call an ambulance. Call a doctor or poison control center for further treatment advice* (This statement was presented for the first 17 interviews.)
>
> *Move person to fresh air. If breathing is affected, call doctor or poison control center. If person is not breathing, call ambulance and give artificial respiration*. (This statement was added for the last 6 interviews)

Most participants during the first 17 interviews did not like the word "victim," so the statement containing the phrase, "Remove victim to fresh air," was not shown during the last six interviews and a new statement was added in its place.

Interview results suggested that if the "Call an ambulance" advice was given first in order to solicit help right away, then people would feel that they were doing something constructive. Interview results indicated that most people did not know how to perform artificial respiration. Some found it scary if that was the only advice given. Although only one or two participants knew how to perform artificial respiration, most said that they would try to do it if no one else were around to give help.

Most of the participants preferred, "Call a doctor or poison control center," to the phrase, "Get medical attention." Interestingly, the phrase, "Get fresh air," was sometimes interpreted as bringing fresh air to the person, such as getting a fan or bringing oxygen to the person.

None of the statements was understood by all. For the last six interviews, the following wording was tested:

> *Move person to fresh air. If breathing is affected, call doctor or poison control center. If person is not breathing, call ambulance and give artificial respiration.*

This revised statement appeared to be better understood.

Based on consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the statement was revised by EPA's Office of Pesticide Programs. The suggested First Aid statement on inhalation of a product in toxicity category 1, 2 or 3 is:

- Move person to fresh air.
- If a person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor for further treatment advice.

First Aid Statements Relating to the Eyes

For Eye Irritation from a Product in Toxicity Category 1 or 2

Each person was asked to first read aloud the following statements about what to do in the case of eye exposure to a product in toxicity category 1 or 2, and then to demonstrate to the interviewer how he/she would accomplish the task:

> *In case of eye contact, immediately flush eye thoroughly with water for 10-15 minutes. Call a poison control center or doctor if irritation persists.*
>
> *Open eyelid and rinse eye slowly and gently with water. Continue to rinse eye for 10-15 minutes. Call a doctor or poison control center for further treatment advice if irritation persists.*

Virtually all of the interviewees indicated that they considered eye injuries to be among the most serious. "My eyes are very important to me" was a typical statement.

Participants had a wide variety of techniques for rinsing the eye. Some demonstrated holding their heads over a washbasin and cupping water with their hands to "rinse" the eye, or holding their head tilted under a faucet and letting water run over it. Others said they would tilt their head back, hold the eye open, and pour water from a glass. Still others said they would dab at the eye with a wet rag, use an eyedropper to drip water into the eye, or use an eye wash. (At least two of the respondents said they had eye wash devices in their homes.)

When it became evident that the phrase "open eyelid" was confusing to participants, the moderator tried several other phrases such as "hold eye open," "hold eyes open," and "hold eyelids open." The phrase "hold eyes open" elicited a number of responses. Some participants said that they would use their hands to physically hold the eye open, while others said they would "hold it open with the muscle" in the eye. "Hold eyelids open" was interpreted by some the same as "hold eye open," while others said that it meant to turn the eyelids out and away from the eye. Overall, the term "hold eye open" appeared to work better.

The word "flush" was sometimes misunderstood to imply volume and speed, despite the fact that the rest of the direction specified that the action be undertaken "slowly and gently." Some people thought that "slowly and gently" implied that faster flushing would cause damage to the eye.

Several participants said that they appreciated the directions in one message to use lukewarm water because, "I wouldn’t have known that."

The singular word "eye" was clearer than "eyes" or "eyelids." The original messages included "eyes" in the plural. Once the phrases were changed to the singular, people had an easier time interpreting the message, as a few participants said, "How am I going to hold my eyes open and then flush water on them?" implying that their hands would be full just holding the eyes open.

Based on consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the suggested statement for eye irritation from a product in toxicity category 1 or 2 read as follows:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call poison control center or doctor for treatment advice.

For Eye Irritation from a Product in Toxicity Category 3

Participants looked at the following First Aid instruction regarding eye exposure to a product ranked in category 3:

> *Hold eye open and rinse with lukewarm water for 10-15 minutes. Call a doctor or poison control center if irritation persists.*

Findings were very similar to those of eye irritation categories 1 and 2 (see Section F, above).

Based on consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the

suggested statement was the same as the instructions for eye irritation from a product in toxicity category 1 or 2, but the phrase "if irritation persists" was added to the end. The suggested statement for eye exposure to a toxicity category 3 product reads the same as that for toxicity categories 1 and 2.

The Notes Section of the First Aid Label

Respondents were shown two versions of a note that instructs people to bring the product with them if seeking medical assistance.

> *NOTE: When calling poison control center, have product label accessible. If advised to seek treatment in an emergency room or doctor's office, bring the product label to show medical personnel.*
>
> *NOTE : When calling for treatment advice, have product label available. If advised to seek treatment, bring product and label with you.*

Part of the wording on the note was misunderstood. Some participants misunderstood the word "accessible," while others did not interpret "available" to mean "right at hand." A few of the people interviewed thought that the note was directing them to call the poison control center.

Based on consumer interviews and input from the American Red Cross, the Consumer Product Safety Commission, the American Poison Control Centers, the Communications Task Force of the Pesticide Program Dialogue Committee, and other CLI Partners and Stakeholders, the suggested text for the note reads as follows:

- When calling the doctor or poison control center, have product label available.
- When going to the emergency room or doctor's office, take the product and label with you.

First Aid Statements as a Result of Phase II

Since the completion of the Phase II quantitative and qualitative survey research, EPA's Office of Pesticide Programs has proposed draft guidelines for First Aid statements on FIFRA products (this includes indoor insecticides, outdoor pesticides, and household cleaner products which are subject to FIFRA regulations). These draft guidelines are based on the findings from the one-on-one interviews described above, the numerous comments received from participating CLI Partners, and the findings from the Phase II quantitative and qualitative research. As EPA continues to finalize these statements, it will continue to work closely with the organizations that have been involved in this process thus far. These guidelines are expected to be announced by OPP in a *Pesticide Registration (PR)* notice in Fall/Winter 1999.

The guidelines are as follows:

Table 5-1: Proposed Guidance for Standard First Aid Statements

Route of Exposure and Toxicity Category	First Aid Statement
Ingestion/acute oral toxicity categories 1,2, and 3	If swallowed: -Call a poison control center or doctor immediately for treatment advice. -Have person sip a glass of water if able to swallow. -Do not induce vomiting unless told to by a poison control center or doctor.
Acute oral toxicity category 4	Statement is not required. Registrants may use toxicity category 1-3 statements if they choose.
Skin exposure/acute dermal toxicity, and irritation categories 1,2, and 3	If on skin: -Take off contaminated clothing. -Rinse skin immediately with plenty of water for 15-20 minutes. -Call a poison control center or doctor for treatment advice.
Dermal and skin irritation toxicity category 4	Statement is not required. Registrants may use category 1-3 statements if they choose
Inhalation acute toxicity categories 1,2, and 3	If inhaled: -Move person to fresh air. -If a person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. -Call a poison control center or doctor for further treatment advice.
Inhalation toxicity category 4	Statement is not required. Registrants may use category 1-3 statements if they choose

Table 5-1: Proposed Guidance for Standard First Aid Statements	
Eye irritation categories 1,2, and 3	If in eyes: -Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. -Call a poison control center or doctor for treatment advice.
Eye irritation toxicity category 4	Statement is not required. Registrants may use toxicity category 1-3 statements if they choose.
General information to include either near the First Aid statement or emergency phone number	-Have the product container or label with you when calling a poison control center or doctor or going for treatment.

CHAPTER 6:

PHASE II SUB-GROUPS

SUB-SECTION 1: Standardized Environmental Information on Product Labels Subgroup

At the end of Phase I, the CLI recommended that the EPA determine the effects of standardizing environmental messages on product labels.

During Phase II of the CLI, a subgroup was formed to address the issue of standardized environmental information on product labels. The subgroup was created to investigate the possibility of standardizing environmental information and displaying it on product labels in a box format, analogous to the food nutrition label. Appendix 1-7 lists the members of the Standardized Environmental Information Subgroup.

The subgroup was formed at the CLI Partner and Task Force Meeting held in February 1998 (See Chapter 7 for more information on this meeting). During this meeting, two presentations were given on standardizing environmental information on product labels, in order to engage Stakeholders in framing the debate. Andrew Stoeckle of Abt Associates presented a paper that he had written with Julie Winters of the EPA, that explored issues related to standardizing environmental information on product labels. Julie Spagnoli of Bayer Corp gave the second presentation. See Appendix 7-1, the February 1998 Partner and Task Force meeting notes, for a copy of the presentation.

The group initially met regularly, but merged its meetings with those of the quantitative core research group as the scope of the issue changed. The following issues were raised during subgroup discussions:

- standardized environmental information may be difficult to compile for pesticide products because product life cycle information can be complex;
- the information that people may want varies among different product categories;
- there may be insufficient data for some of the products;
- displaying comparative information on product labels may entail releasing company proprietary information; and
- thoroughly testing the kind of information interviewees want, and that the EPA would be able to supply, would take much longer than the time frame of Phase II of the CLI.

Input from the subgroup, combined with the desire of the Agency to advance the development of the box concept and frame the debate, led to the decision to do research on standardizing environmental labels during the Phase II quantitative research. This research focused on the box

format, as well as interviewee demand for environmental information. More specifically, during the quantitative research, interviewees were asked which type of label information was the most important to them, and to identify what types of label information they looked for in different situations.

The results of the quantitative research supported the idea of standardizing general label information. The research found that many interviewees think that a standardized format for the label would help them to locate the information that they consider to be important. Regarding what types of information interviewees consider to be important, the quantitative research indicated that interviewees in general do not consider environmental information to be one of the more important sections of product labels. For more detailed information on the results of the quantitative consumer research relating to standardized environmental information, refer to Chapter 2.

After the results from the quantitative consumer research indicated that interviewees did not view environmental information as the most important on product labels, the focus regarding standardization of environmental information on product labels shifted from determining what type of information should be standardized to concentrating on finding a comprehendible label format for information already existing on product labels. During the qualitative focus groups that followed the quantitative research, interviewees were questioned about their preference for specific labeling formats, whether the formats made a difference in their understanding of the information presented, and whether they had a preference for which information should be presented in standardized or box formats. To read the results of the qualitative research regarding standardized environmental information on labels, please refer to Chapter 3.

SUB-SECTION 2: Storage and Disposal Subgroup

Through its Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the EPA is the only federal agency involved with labeling that mandates disposal instructions on product labels. This mandate creates a problem, since the research found that most residential consumers are not interested in the disposal information. Other agencies involved with labeling, for example, the Federal Trade Commission (FTC), do not have such mandates. FIFRA disposal statements may conflict, however, with state and local requirements and practices. These types of conflicts prompted the need for further investigation into storage and disposal issues during Phase II of the CLI. Additionally, storage and disposal instructions on product labels are frequently not read by consumers; this has, in some cases, lead to improper storage and disposal of products and containers.

Findings from Phase I

Phase I of the CLI found that consumers do not read storage and disposal information on product labels. The majority of consumers interviewed during the Phase I qualitative research indicated that the storage and disposal section of product labels contains information that they perceive as "common sense," and they feel they have a fairly good understanding of the instructions already. Phase I research found, however, that consumers sometimes dispose of product containers improperly, either because of poor comprehension of the instructions, or because the instructions themselves (e.g., wrap in paper and dispose of in the trash) may conflict with state and local disposal laws or practices.

Goals and Objectives for Phase II

Phase II of the CLI addressed issues relating to storage and disposal of unused pesticide, insecticide, and household cleaner products, as well as disposal of empty containers of these products. Upon recommendation from Phase I of the CLI, a subgroup of CLI Partner and Task Force members interested in storage and disposal issues was formed to gain a better understanding of why interviewees do not read this information, and to investigate ways to increase interviewee comprehension and utilization of this information. One of the objectives for the group was to research what, if any, state and local storage and disposal regulations, policies, and practices exist for the three product categories and product containers. The Subgroup was charged with making recommendations for changes to storage and disposal language on product labels, as needed, so that consumers are not inadvertently instructed to store and dispose of unused product and containers in ways that violate their state and local laws and practices. The group also collaborated with the CLI Consumer Education Subgroup to find ways to increase consumers' reading and comprehension of the storage and disposal sections of product labels.

Storage and Disposal Activities in Phase II

To address storage and disposal issues, several activities took place during Phase II of the CLI, including:

- primary research and data analysis of the quantitative survey with regard to storage and disposal issues,
- mini focus group research in the qualitative study of Phase II,
- information requests and literature reviews on storage and disposal issues,
- independent studies and research,
- information exchanges through the CLI Storage and Disposal Subgroup, and
- data gathering regarding household hazardous waste (HHW) management programs.

A brief description of each of these activities is provided below. Learnings from each of these activities are presented separately following the summary of storage and disposal activities.

North American Hazardous Materials Management Association (NAHMMA) Annual Meeting

The EPA held a session on storage and disposal during the North American Hazardous Materials Management Association (NAHMMA) annual meeting in San Diego on November 19, 1997[9]. Approximately 20 to 30 people attended the session. The EPA gave a brief overview of the CLI and the issues surrounding storage and disposal information on product labels in particular. The session was opened to the audience, which consisted primarily of individuals concerned with product (as opposed to container) disposal, to gather participants' opinions on how storage and disposal issues may be addressed on product labels.

North American Hazardous Materials Management Association (NAHMMA) Mailing

An information request was distributed by the NAHMMA to its 300 members. The request contained six questions regarding:

- requirements, policies, and programs for disposing of pesticide and hard surface cleaner containers and unused product;
- requirements, policies, and programs for recycling pesticide and hard surface cleaner containers;

[9] NAHMMA is a non-profit association of individuals, businesses, governmental, and non-profit officials, dedicated to pollution prevention and reducing hazardous components entering municipal waste streams from households, small businesses, and other entities.

- recycling of aerosol cans;
- interviewee participation in local hazardous waste pick-up days or amnesties for pesticide and hard surface cleaners containers and unused product;
- interviewee participation in recycling programs for empty aerosol and plastic containers; and
- common practices for storage of pesticides and hard surface cleaners.

Appendix 6-1 contains a copy of the questions mailed to NAHMMA members.

Chemical Specialties Manufacturers Association (CSMA) and Household and Institutional Products Information Council (HIPIC) Members' Presentations

Member companies of the Chemical Specialties Manufacturers Association (CSMA) and the Household and Institutional Products Information Council (HIPIC) presented findings on research on disposal of products manufactured by CSMA and HIPIC companies, to the EPA in May 1998.[10,11] The presentations included results of:

- environmental risk assessments on disposal of consumer products, such as "down the drain" products, to publicly owned treatment works (POTWs), municipal solid waste landfills (MSWL), and septic systems;
- aerosol recycling; and
- trends in household insecticide technology, and how this pertains to safety and HHW considerations.

For copies of the CSMA and HIPIC presentations, please refer to EPA's Public Docket Administrative Record AR-139.

The Waste Watch Center (WWC) Report on Household Hazardous Waste (HHW) Management Programs

The Waste Watch Center (WWC) compiled information on a number of HHW programs in the United States for the EPA. WWC is a non-profit organization that has been collecting information on HHW collection programs since 1988. Three main sets of data were provided by the WWC:

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[10] CSMA is a voluntary nonprofit trade association of some 400 companies engaged in the manufacture, formulation, distribution, and sale of non-agricultural pesticides, antimicrobials, detergents and cleaning compounds, industrial and automotive specialty chemicals and polishes, and floor maintenance products for household, institutional, and industrial uses.

[11] HIPIC, formed in 1994, was established to provide fact-based information on the proper use, storage, disposal, and recycling of household and institutional products. Its membership includes many suppliers and manufacturers of household and institutional products.

- a comprehensive listing of HHW programs in the United States as of 1997;
- a summary of state regulations that prevent HHWs from being placed in the trash; and
- a listing of non-regulatory measures by state, local, and regional governments to encourage HHWs to either be re-used, recycled, or managed as hazardous waste.

For a copy of the WWC report, please refer to the EPA Public Docket Administrative Record AR-139.

Discussion Paper Evolving from the 1995 Cleaning Products Summit

Representatives from state and local organizations in the CLI Subgroup provided a previously prepared paper entitled "Concerns with Household Cleaning Products — A White Paper," to the CLI Subgroup for discussion and information. (The Subgroup was never able to discuss the paper in detail, however.) The paper outlines health and environmental concerns regarding household hazardous products, including household cleaning products. The paper addressed concerns regarding methods of disposal for household hazardous products: in particular, how disposal practices have adversely affected HHW management programs.

For a copy of the discussion paper, please refer to the EPA Public Docket Administrative Record AR-139.

Telephone Conversations

In addition, the EPA spoke by telephone with several professionals in the hazardous waste management and recycling fields, and the EPA's Regional offices, including the following:

- officials in state or regional hazardous waste departments;
- waste materials handlers (e.g., people working in recycling or material recovery companies);
- individuals at trade associations (e.g., the Steel Recycling Institute (SRI) and the American Association for Plastic Container Recovery (AAPR); and
- EPA Regional office personnel.

The primary goal of these calls was to gain a variety of perspectives about storage and disposal requirements or problem areas surrounding these issues.

For a listing of individual and/or organizations contacted by telephone, and/or copies of some of the transcripts from the telephone conversations, please refer to the EPA Public Docket Administrative Record AR-139.

Learnings from Phase II Research

Learnings from the NAHMMA Annual Meeting

During the NAHMMA annual meeting, the EPA held a session that gave an overview of the CLI and the storage and disposal issues involved in the Initiative. The session was opened to receive feedback from participants on storage and disposal labeling issues. The majority of people attending the session were already aware of many of the storage and disposal issues, and were, therefore, able to provide the EPA with well informed discussion and suggestions. Many of the people attending the session were more focused on the disposal of unused product than on disposal of containers. Attendees made several points:

- many states do not have statutes specifically addressing disposal of household pesticides, insecticides, and hard surface cleaners, and programs that do exist for these products vary widely across states and localities;
- instructions on labels such as "wrap in newspaper and throw in trash" are not appropriate. Commentators preferred language that instructs consumers to "use it up," such as, "Only buy what you need," then "Give what you have left over to someone else who will use it" and finally, "Bring any unused product to a HHW collection facility or event"; and
- for consumers to obtain correct disposal information for HHWs, it is not enough to simply have language on a label instructing them to "call your local waste management agency," because many people would not know whom to call. Instead, several people suggested that a national toll-free number giving consumers information about disposal requirements in their local communities may be a better option.

Information from NAHMMA Mailing

The mailing to NAHMMA members had a low response rate. Of the 300 members who received the mailing, only 13 states and localities, representing 12 states, responded. The organizations that responded were:

- West Central Indiana Solid Waste District (Indiana);
- State of New Mexico Environment Department, Solid Waste Bureau (New Mexico);
- Minnesota Pollution Control Agency, Hazardous Waste Division (Minnesota);
- Minnesota Department of Agriculture (Minnesota);
- Walla Walla County Regional Planning Department, Recycling and Waste Management Division (Washington);
- Oregon Department of Environmental Quality, Household Hazardous Waste, Solid Waste Policy and Program Development Section (Oregon);
- Wisconsin Department of Agriculture, Trade and Consumer Protection Department (Wisconsin);

- Texas Natural Resources Conservation Commission, Clean Texas 2000/Household Hazardous Waste Management (Texas);
- City of Lawrence, Waste Reduction and Recycling Division (Kansas);
- Sonoma County, Household Hazardous Waste Program and Sonoma County Waste Management Agency (California);
- Michigan Department of Environmental Quality, Waste Management Division (Michigan);
- New York Department of Environmental Conservation, Division of Solid and Hazardous Materials (New York); and
- Vermont Department of Environmental Conservation, Agency for Natural Resources (Vermont).

Regulations, policies, and programs pertaining to disposal of household pesticides, insecticides, and hard surface cleaners vary greatly, both among *and within* the states and localities that responded to the mailing. Most of the states and local authorities that responded classify the three product categories as HHW. According to respondents, in most states it is up to local governments to regulate disposal of these types of wastes. It is important to note, however, that many respondents did not distinguish between disposal of *unused product* and disposal of *empty containers*.

State and Local Requirements, Policies, and Programs for Disposal of Unused Pesticide and Hard Surface Cleaner Product and Containers

In many of the states that responded to the mailing, consumers are generally encouraged, but not required, to bring their unused pesticide or hard surface cleaner products and containers to local HHW collection events or facilities. Some states that responded, however, have either statewide and/or local HHW management programs as part of their *state* hazardous waste management plans[12]. (HHWs are exempt from federal hazardous waste regulations under Subtitle C of the Resource Conservation and Recovery Act (RCRA)). Minnesota, for example, has a statewide hazardous waste management plan that includes a mandatory HHW management program, and requires every region in the state (a region may contain anywhere from two to ten counties) to have a permanent HHW collection facility. Consumers are encouraged to participate in the state's HHW programs but are not required to; they do not face any penalties if they do not participate. Minnesota has some of the most established and extensive regulations regarding disposal of unused pesticides and hard surface cleaners, as well as empty containers. Currently, there are 41 permanent HHW collection facilities in the state (Waste Watch Center, 1998). Consumers are urged to buy products only in quantities they think they will need and to use up as much of the product as possible, or give it away to someone else who can use it. In the case of unused pesticides, consumers are then encouraged to take them to a local HHW collection facility or event. As part of the state HHW program, Minnesota has an extensive consumer education program, which provides detailed information for consumers on the best ways to store and dispose of their unused pesticide and household cleaner products and containers.

[12] For a complete list of all states with HHW programs, refer to discussion of the WWC report.

The West Central Indiana Solid Waste District was one of the few states that made a distinction between how they handle empty containers and unused product. For example, Indiana's State Chemist's office has a program for recycling empty pesticide containers into plastic lumber. Unused pesticide and hard surface cleaner product can be taken to collection centers operated by solid waste districts, which either have permanent collection facilities or one-day collection events.

Vermont handles pesticides and hard surface cleaners somewhat differently than the other states that responded to the NAHMMA mailing. Vermont's pesticide regulations distinguish between household, agricultural, and commercial pesticides on the basis of the materials themselves, rather than on the basis of who uses them. All pesticides are subject to the Vermont Department of Agriculture, Food and Markets (DAF&M) regulations. These regulations state that "obsolete, excess, and mixtures of pesticides" have to be disposed of in accordance with Vermont's Hazardous Waste Management Regulations (which follow RCRA Subtitle C regulations). The DAF&M regulations for pesticide containers state that "disposal of pesticide containers shall comply with instructions on the labeling and with other state and federal regulations."

Finally, some states, including Texas and Wisconsin, which have statewide collection programs for *agricultural* pesticides, will accept HHWs in their collections if the agricultural collection program has funds remaining. Alternatively, remaining funds and/or grants may be made available to local governments to help them establish HHW collection programs or annual collection events.

State and Local Requirements, Policies, and Programs for Recycling of Pesticide and Hard Surface Cleaner Containers

The majority of the thirteen organizations that responded to the mailing said that they did not have specific statewide regulations pertaining to recycling of pesticide and hard surface cleaner containers. Because the vast majority of recycling programs are operated by municipal governments that must coordinate with local waste hauling companies, it is up to the company and the local government to decide what materials can and cannot be recycled. Market forces primarily determine what materials end up being recycled. If a recycling company can cost-effectively recycle a specific material, they will be more willing to collect it. For example, in most states, certain "clean" plastics (i.e., plastics #1 and #2) are accepted for recycling; hard surface cleaner containers made of these types of plastics are usually accepted by recycling programs. Acceptance of aerosol containers containing hard surface cleaners for recycling, however, is uneven. It is usually left up to the discretion of the waste haulers to decide if it is economical for them to collect these containers.

According to respondents, since pesticide containers (plastic and aerosol) may contain some residual chemicals, they may be considered to be hazardous wastes in some localities. Consequently, these containers may not be permitted in the local recycling stream or may not be collected by the local waste hauler. According to respondents, this exclusion occurs primarily because residual chemicals may increase the likelihood of contamination of other recyclable materials. Respondents noted that in some cases, waste haulers in their areas are reluctant to collect pesticide containers, because the cost of decontaminating their collection bailer far outweighs the benefits of collecting these types of containers. In most of the states that responded to the mailing, consumers are instructed to follow the directions on the product label for disposal instructions.

State and Local Requirements, Policies, and Programs for the Recycling of Aerosol Containers

Recycling of aerosol containers (usually cans) varies from state to state and from locality to locality. In all 12 states that responded to the NAHMMA mailing, consumers are asked to empty their aerosol cans prior to recycling or disposing. (Containers can be emptied either at a local HHW collection facility or event, or by making sure that all of the product is used up.) Acceptability of aerosol cans, either at recycling centers or through curbside programs, largely depends on the recycler's locality and whether the local recycling company will accept the material. Some waste haulers are reluctant to collect aerosol cans because they say that it is difficult to determine if the can is completely empty or completely de-pressurized, and waste haulers say that this can lead to contamination and/or fire hazards for other recyclable materials. Acceptability of aerosol cans for recycling often also depends on the contents of the can. In most states, aerosol cans that contained pesticides are usually not accepted for recycling (because of potential contamination and fire hazards). It should be noted, however, that the EPA's PR notice 94-2 authorizes recycling of empty aerosol pesticide containers. In terms of aerosol cans that contained hard surface cleaners, however, it is up to the local recycling program to decide whether it will accept these cans.

The CSMA and HIPIC countered the argument that there are risks associated with aerosol recycling, as many waste haulers stated, with data showing the growth in aerosol recycling in the U.S. The presentation was given to the EPA in conjunction with other presentations made by members of CSMA and HIPIC in May 1998. (See discussion below).

Consumer Participation or Reaction to Local Hazardous Waste Pick-up Days or Amnesty Programs

Many of the respondents did not distinguish between participation rates for pesticides or hard surface cleaners and all other hazardous wastes, most likely because this information is not tracked separately by product type. In some states, information on overall consumer participation in pick-up/amnesty days is not tracked at all. In most of the states that responded to the NAHMMA mailing, consumer participation in hazardous waste pick-up days or amnesty programs was reported to be "quite high." Most states reported an average participation rate of between 3% and 5% of the population (i.e., local population). Although the percent of the total population participating in these programs may seem low, HHW program managers say that participation is "quite high" because the need for pick-up days and/or amnesty programs may not be continuous; i.e., when an event such as this occurs the participation rate is high, but may seem low when averaged over the entire population.

Consumer Participation or Reaction to Recycling Programs for Empty Aerosol or Plastic Containers

Consumer participation in recycling programs for aerosol and plastic containers is mixed. Many states do not break down data on consumer participation or reaction to recycling programs according to the materials recycled. A few states indicated that participation/reaction to recycling programs for plastic containers tends to be higher and more positive than that for aerosol cans. According to these respondents, this difference occurs primarily because consumers are familiar with recycling plastics, whereas recycling of aerosol cans is still a relatively new idea in many communities.

Common Practices for Storage of Pesticide and Hard Surface Cleaners

Most of the 12 states that responded to the mailing indicated that they do not have specific requirements or policies for storage of household pesticides, insecticides, and hard surface cleaners, aside from the label instruction that says to "Keep out of reach of children." Minnesota does, however, provide consumers with a flier on storage and use of general household chemicals. In states that have established regulations for agricultural pesticides, there are stringent regulations for the storage of these types of pesticides. For example, in Vermont, no distinction is made between household and agricultural pesticides, and, therefore, household pesticides must be stored in accordance with agricultural pesticide regulations. The regulations state that these products must be stored so as to avoid leakage, and to make sure that pesticide containers are resistant to corrosion, leakage, puncture, or cracking.

Chemical Specialties Manufacturers Association (CSMA) and Household and Institutional Products Information Council (HIPIC) Members' Presentations

The CSMA and HIPIC members' presentations began with a discussion of several risk assessment studies. Risk assessment estimates the potential for toxicity of chemicals to humans or harm to the environment. Conducting a risk assessment includes: hazard identification, dose-response assessments, exposure assessments, and risk or outcome characterization. In most cases, toxicity risk to humans or harm to the environment is determined by hazard identification and an evaluation of dose-response relationships; determining whether there is a *hazard* to humans is often dependent on whether a dose-response relationship exists (Kimmel et al., 1990). A dose-response relationship compares the actual concentration of toxic materials in the environment with either the no-observed-effect-level (NOEL) and/or the lowest-observed-effect-level (LOEL). The NOEL is the highest dose that can be given without any effects being observed. The no-observed-effect-concentration (NOEC) is the highest concentration of toxic material in the environment that does not cause an adverse effect to the environment and the surrounding communities. The actual concentration of materials, sometimes referred to as the predicted environmental concentration (PEC), is then compared to the NOEC to determine if the concentration of materials in the environment may be potentially harmful.

Several methodologies may be used to assess the environmental fate of a chemical. The most common is mathematical modeling of the fate and transport of the chemical in the environment. Other methods include chemical analysis, either through laboratory simulations of "real-world" situations, or through representative environmental samples (RES) (long-term monitoring of the environment). These last two methods are used less frequently due to the immense costs involved.

Several factors are taken into consideration to determine the PEC. First, characterization of the chemicals themselves and information on potential emissions is made. Additionally, a pathway analysis (i.e., the most likely pathway, either air, water, or soil,) for the emissions is determined. Finally, assessment of the endpoint for the chemicals is conducted. Emissions estimates and physical and chemical data feed into an assessment of the fate of the chemical(s) in the environment. This is what is used to determine the PEC. If the ratio between the PEC and the NOEC is less than or equal to one, then it is safe to dispose of the chemical in the environment in the quantities estimated. Generally, for acute effects a safety factor is included. If the ratio is

greater than or equal to one, then the concentration of chemical in the environment may cause potential harm to the environment.

Environmental Risk Assessment of Consumer Products: Introduction and Evaluation of Publicly Owned Treatment Works (POTWs)

The Procter and Gamble Company (P&G) presented the findings from an environmental risk assessment of disposing consumer products (such as household cleaning products) to publicly owned treatment works (POTWs). P&G's risk assessment study utilized a mathematical model and laboratory data. The model looked at the disposal of household products typically designed for "down the drain" use, for the entire U.S. population that is connected to POTWs (about 75%). P&G pointed out that products are formulations of different chemicals (e.g., active ingredients, carriers, and additives), and each of these components has a particular fate in the environment. P&G's model assumed both a typical disposal of the product consisting of release of the product to the sewage system during normal use of the product, as well as a worst-case scenario in which the entire product is dumped down the drain.

The model examined what the effects to a POTW's functionality would be if excess amounts of major domestic detergent surfactants used in household products, perborate (bleach), or quaternary ammonium chloride compounds were put down the drain. To determine the effects on a POTW, the efficiency of aerobic and anaerobic functions of the microbes responsible for waste removal in POTWs was studied. From these studies P&G determined that none of the products, in the amounts tested, would have a negative effect on the functionality of a POTW. Thus, P&G concluded that POTWs are capable of handling household consumer products, even in worst-case situations.

Septic Systems — Product Use and Disposal

The second presentation was made by The Clorox Company (Clorox), a leading manufacturer of household cleaning products. Clorox described why studying septic systems is important (approximately 25% of the U.S. population uses septic systems to treat their wastewater), and how down-the-drain products are tested and evaluated to determine the products' impact on septic systems.

The presentation began with a brief overview of how septic systems operate and a description of the test procedures used to measure the impact of down-the-drain products on a septic system. Septic tank compatibility of down-the-drain products is determined by evaluating microbial toxicity, sludge setting, and the biodegradation/removal potential. In addition, there are laboratory mini-septic systems that monitor coliform count, pH, chemical and biological oxygen demand and wastewater flow rates. The results of these tests are used to develop no-observed-effect-concentrations (NOEC). Information on consumer use habits and packaging size allows for developing a Predicted Environmental Concentration (PEC). The NOEC is compared to the PEC. The greater the NOEC/PEC ratio, the greater the safety margin. As the safety margin increases, the risk associated with adverse effects decreases.

Clorox presented a hypothetical example of consumer normal use (1/4 cup/gallon; 1-5 times per week), heavy use (½ cup/gallon; 8 times per week), and worst-case misuse (1 gallon; largest container) of a down-the-drain product. Based on the above consumer use patterns, the PEC is: normal use — 21 to 105 milligrams per liter (mg/liter); heavy use — 335 mg/liter; and worst case — 1,335 mg/liter. Assume that test results indicate a NOEC of 2500 mg/liter. Then, even under

the worst case scenario (consumer disposing entire content of largest container directly into septic tank), no adverse effects would be expected.

Clorox also presented screen test results that examined the effects of disposing copious amounts (i.e., 10-300 times normal use) of household ingredients into a septic system.

Environmental Risk Assessment: Municipal Solid Waste Landfills (MSWL)

The final presentation of risk assessment models was given by the Amway Corporation (Amway). Amway presented the findings of a risk assessment model that examined the effects of disposing household products to municipal solid waste landfills (MSWL). Amway presented a comprehensive model of the various stages of conducting a risk assessment of disposing household products to MSWL.

The first step is identifying the hazards and the risks of this type of disposal by determining the exposure compartments (e.g., hazards of raw material components, hazards of using the products, hazards during storage and disposal of the product) and the hazard identification (i.e., the toxicity, reactivity, flammability, and corrosivity of the products). Toxicity was chosen as the primary hazard because it is not necessarily mitigated by landfill dilution, as are the other hazard characteristics usually cited for municipal solid wastes. Also, toxicity could potentially aggregate in the leachate and should be accounted for using a rigorous risk assessment model as the one presented by Amway.

The second step assesses risk by identifying the various routes of product disposal (e.g., down the drain, through MSWL, recycling, composting, or special collections), and the various routes of exposure of the product (i.e., surface water, ground water, air, and direct contact).

The model tested the potential effects of disposal of household hazardous products on a RCRA "Subtitle D" MSWL, assuming a worst-case scenario (i.e., 100% emission to leachate and 100% emission to air). RCRA Subtitle D landfills have to comply with regulations concerning specified soil types, and be sited to avoid sensitive areas and seismic activities; the landfill must be equipped for venting of gases, and must meet specific liner requirements (usually double-lined). Finally, leachate from these landfills must be monitored, and there must be continuous monitoring of the landfill liner to detect any failures.

Amway also presented several case studies, utilizing risk assessment models, in which the typical concentrations of household products such as, toilet bowl cleaners, glass cleaners, and bleach, disposed of to MSWL, were compared to the NOEC for these products in landfills. In almost all of the cases, it was found that these types of household products do not pose an adverse threat to the functionality of MSWL; RCRA Subtitle D landfills are capable of handling the concentrations of household products that consumers dispose into them.

Aerosol Containers Handled Through the Recycling and Solid Waste Streams

The CSMA and HIPIC made a presentation on the advantages of recycling empty aerosol containers. They pointed out that the majority of aerosol cans are made of recyclable steel, and that the majority of them are made with 25% or more recycled content. Steel is the most recycled commodity. It was pointed out that steel manufacturers have use for the high-quality steel from which aerosol cans are made. Recycling of empty aerosol cans benefits the environment and is economical. The CSMA and HIPIC pointed out that if all empty aerosol

cans manufactured in the United States per year were recycled, there would be enough empty household residential aerosols to manufacture 160,000 cars. They also emphasized that steel recycling is energy efficient, stating that every pound of steel recycled saves 5,450 BTUs of energy, and that every ton of recycled steel saves 2,500 pounds of iron ore, 1,000 pounds of coal, and 40 pounds of limestone.

Data were also presented demonstrating the growth in empty household residential aerosol recycling. In the early 1990s, only one community recycled empty household residential aerosols, compared to 5,000 communities today that include aerosols in their recycling programs. Additionally, several states have issued statewide endorsements stating that they support and encourage the recycling of empty aerosol containers in their recycling programs. These states include Michigan, Wisconsin, Illinois, New Jersey, Ohio, Florida, North Carolina, Pennsylvania, Texas, and California. (The CSMA and HIPIC provided supporting letters from each of these states, highlighting their support for aerosol recycling in their state recycling programs.)

Finally, the CSMA and HIPIC presented data from a risk assessment study that was sponsored by the CSMA and conducted by the Factory Mutual Research Corporation (an independent fire engineering research group), which studied the risks of aerosol containers in Material Recycling Facilities (MRF). The study focused on the potential for release of container contents, the potential for ignition, and the potential for fire or explosion during the pre-bailing, bailing, and post-bailing stages. It was found that because of the operating conditions in MRFs, and in the bailers in particular (e.g., there is not much air circulation within the bailer itself, and therefore little likelihood of materials in the bailer igniting), the risks of these types of accidents were minimal and comparable to other risks in the facilities. The CSMA and HIPIC concluded their presentation with a brief overview of ways in which risks at MRFs that handle aerosol containers may be minimized. For example, one of the primary ways to reduce risk is through consumer education efforts that inform consumers to use up all of the product in the container and to place only empty aerosol containers in the recycling bin. Similarly, education of employees working at MRFs can help to minimize risks as they become more adept at handling loads that include some of these containers. Finally, adding magnetic separation (so that only the empty cans are picked up) or ventilation to bailer operations can further decrease the chances of explosions or fires.

Trends in Household Insecticide Technology Relevant to Product Safety and Household Hazardous Waste (HHW) Considerations

S.C. Johnson and Son, Inc. (S.C. Johnson) presented data on recent trends in the household insecticide products (HIP) industry, as well as information regarding whether these products should be categorized as HHW. For purposes of this discussion, the focus was on insecticides used indoors (HIP); lawn and garden products were not considered. S.C. Johnson began by presenting summary data on the different types of products that make up the household insecticide product category.

Information on the trends in the active ingredients used in indoor insecticide spray products was presented. The data demonstrated that, over the past six decades, the trend in the types of active ingredients used in these products has been to eliminate the use of chemicals, such as chlorinated hydrocarbons (DDT and chlordane), and increase the use of synthetic pyrethroids and natural pyrethroids. Additionally, these "newer" active ingredients are more efficient, and are therefore

typically used at significantly lower concentrations than their predecessors. Similarly, another trend in indoor insecticides has been to substitute water for organic solvents as the diluent in ready-to-use sprays. As an example, Raid™ Ant and Roach Killer, the leading product in this category, now has 60% water in its product formulation, whereas before 1995, this same product had no water in its formulation. This trend is consistent among other Raid™ products, with some products (Raid™ trigger products) containing as much as 97% water.

Additionally, natural and synthetic pyrethroids have much lower leachability potentials, and therefore less potential to contaminate groundwater sources. (Indoor insecticides may have potential for groundwater contamination through leaching of active ingredients through soil layers in and around landfills.) S.C. Johnson's research showed that the most commonly used active ingredients in household insecticides today (i.e., synthetic pyrethroids and certain active ingredients used in bait forms) are either too insoluble in water, or they tend to be too tightly bound to soil particles, to have any significant leaching potential to groundwater sources The exceptions to this are active ingredients such as diazinon and propoxur (Baygon), which are not often used in HIP these days, can be found in residual quantities in soils, and have some slight capacity to partition to soil water and move with the water.

To support these findings, S.C. Johnson presented data on certain physical/chemical parameters relevant to environmental fate for active ingredients used in HIP, and data from the EPA's Pesticide in Groundwater Database on detection of active ingredients used in insecticides in groundwater. These data are based on monitoring studies conducted between 1971 and 1991 throughout the U.S. The data showed that, with the exception of detections of insecticides in agricultural areas, concentrations of insecticide active ingredients typically did not exceed allowable maximum contaminant levels (MCL) set by the EPA.

Finally, S.C. Johnson pointed out that there have been recent shifts in the types of insecticides being used by consumers. Traditional sprays and foggers have been joined by, and to some degree replaced by, insecticides in forms such as baits that are sold in child-resistant plastic stations and non-chemical devices such as sticky tapes that trap insects. Additionally, research is being conducted on the possibilities of efficient use and marketing of "bio-pesticides," though this category has not achieved significant marketplace success among HIP to date.

Given the data presented and the fact that household insecticide products as discussed have not always been considered to be "toxic" or "acutely toxic" under either RCRA or FIFRA regulations, S.C. Johnson offered the opinion that these types of pesticides should not be considered "household hazardous wastes," and they do not need to be diverted from municipal solid waste streams.

Waste Watch Center (WWC) Report on Household Hazardous Waste (HHW) Programs

The WWC provided the EPA with a listing of HHW programs in the United States, as of 1997. The data include both permanent and non-permanent HHW programs; farm and conditionally exempt small quantity generator waste; specialized programs, such as those that collect only paints, only farm pesticides, or only dry cell batteries; and curbside or special used oil collection programs. Waste Watch Center defined a HHW program as being permanent if the program had "at least monthly collections held at either a fixed site or at a dedicated mobile facility" (WWC, 1998). Since no central directory of HHW programs currently exists, WWC complied the data

from various sources, including state and municipal information, project sponsor materials, personal contacts, and reporting forms.

In discussions regarding the data provided by WWC, the CLI Storage and Disposal Subgroup pointed out several limitations. For example, although the data provided comprehensive information on the number of HHW programs in the country, it did not provide population information, such as the number of people using these programs, or how many people are being served by each HHW program. Additionally, members of the Subgroup pointed out that participation in HHW programs is likely to be more erratic than, for example, a recycling program. This implies that participation in an HHW program may therefore not be as extensive as the WWC data suggest. One member of the Subgroup mentioned that in his locality, HHW collection events occur quite infrequently. Therefore, if a consumer missed a collection date, they would be more likely to place the HHW in the trash.

WWC's Data on HHW Programs

The WWC's data provided some key findings, presented below, broken down by the data on HHWs and information on policies, regulations, and programs at the state and local level:

- the number of HHW programs in the U.S. has steadily increased since 1980;
- the total number of HHW programs in the U.S., as of 1997, was 14,591;
- the total number of permanent HHW programs in the U.S., as of 1997, was 442 programs;
- every state in the U.S. has some type of HHW program;
- items that are collected by HHW programs include, but are not limited to: used paints, used motor oils, pesticide, cleaning products, household batteries, fluorescent light bulbs, explosives, photochemicals, solvents, automotive parts, etc.;
- California, Florida, Massachusetts, New Jersey, Minnesota, and Washington have the largest number of HHW programs — each of these states has over 500 HHW programs throughout the state; and
- almost every state (except North Dakota, South Dakota, Nebraska, Louisiana, Mississippi, Georgia, West Virginia, and Maine) has at least one permanent HHW program, as defined by WWC.

The WWC compiled information from official records and documentation, as well as from conversations with experts in the field, about existing state and local official and un-official rules, regulations, policies, and practices that govern the disposal of HHWs. Some of the types of state, local, or regional regulations include the following:

- defining as hazardous wastes all household wastes that contain hazardous substances. Some states, such as California, do not allow these types of wastes into the solid waste stream;

- defining some products of wastes, which are solid wastes under RCRA, as hazardous;
- having land bans that exclude certain hazardous products from landfills;
- prohibiting certain hazardous wastes from being placed in the trash or brought to some solid waste companies or municipal solid waste (MSW) facilities (i.e., composting facilities and incinerators);
- requiring that products containing certain hazardous substances be labeled to inform consumers that these products should not be placed in the trash;
- requiring manufacturers to take back discarded products from consumers, so that local governments are relieved of paying for their disposal and/or recycling costs (e.g., in New Jersey); and
- mandating that local recycling programs be established, and that these programs meet specific recycling targets. Collection of household hazardous products by these recycling programs may help communities meet these recycling goals.

In addition to the mandatory programs described above, several states and localities have established non-regulatory approaches for managing HHWs — or, at the very least, to prevent them from being placed in the trash or being dumped down the drain. Examples of these include:

- establishing state funded and operated HHW collections at local and regional levels;
- designating responsibility, often to the regional (rather than state) level government, to keep HHW and conditionally exempt small quantity generator (CESQG) wastes out of the solid waste stream;
- providing funding (e.g., in California, Vermont, Washington, Minnesota) to regional governments to develop a plan to manage HHW and CESQG wastes at the regional level;
- providing funding to local and regional governments to operate HHW collection days;
- providing funding to local and regional governments to establish permanent HHW collection facilities;
- establishing education programs in coordination with state, local, and regional HHW management programs;
- adopting the EPA's Universal Waste Rule;
- developing manuals and training courses for consumers on the best ways to dispose of their HHWs as part of HHW management plans;

- establishing product labeling requirements to help consumers identify products that contain hazardous substances; and
- providing consumers with information on alternative products that do not contain hazardous substances. Local governments have an interest in providing this information because they are the ones that bear the costs of managing HHWs in their waste streams.

Discussion Paper Evolving from the 1995 Cleaning Products Summit

Representatives from state and local organizations in the Storage and Disposal Subgroup provided a paper entitled "Concerns with Household Cleaning Products — A White Paper" to the Storage and Disposal Subgroup for its information and discussion. The Subgroup was never able to discuss the paper in detail, however. The paper was written in 1996 by Philip Dickey of the Washington Toxics Coalition (WTC) in collaboration with Dana Duxbury of the Waste Watch Center (WWC), David Galvin of the King County Local Hazardous Waste Management Program, Brian Johnson of the City of Santa Monica Environmental Programs Division, and Arthur Weissman of Green Seal. The paper discusses several issues relating to HHWs and to household cleaning products. The paper was provided to the Storage and Disposal Subgroup as a discussion paper to inform the Subgroup about:

- state and local agencies' concerns with current storage and disposal instructions on product labels, and to explain why state and local agencies advocate that labels instruct consumers to contact their local agencies for proper disposal instructions;
- to provide background on HHW programs; and
- to initiate discussion regarding the potential harmful effects of household cleaning products to the environment and to human health and safety.

The paper evolved from a meeting called the "Cleaning Products Summit" held in March 1995. The paper addresses concerns raised by both those who work with HHW programs and manufacturers of household cleaning products. In particular, it discusses the debate between these two groups about the definition of HHW and the types of products that should and should not be included in the definition. Manufacturers of household cleaning products argue that their products should not be included in HHW programs because they contain only "small concentrations of active ingredients" (Dickey et al., 1996, available in Administrative Record). Those who manage HHW programs argue that household cleaning products should be included in HHW programs because, even though concentrations of these ingredients may be low, the active and/or inert ingredients contained in these products may be hazardous.

The discussion below highlights some of the topics covered in the paper.

Purposes of Household Hazardous Waste Facilities and Programs

The paper begins with a discussion of the purposes of HHW programs. Manufacturers have argued that HHW programs have traditionally handled only HHWs as defined under the Resource Conservation and Recovery Act (RCRA). Consequently, these programs may not be as useful as they once were, because so few of today's household products end up as hazardous wastes as defined under RCRA. According to the authors, however, HHW programs continue to

be useful and necessary because they do not simply collect wastes from households, but often are the main waste collectors for conditionally exempt small quantity generators (CESQG). As a result they often collect products, for example, janitorial cleaning agents, which are hazardous. Additionally, HHW programs collect wastes that have a hazardous component to them, regardless of the volume and concentration of these hazardous components, because the cumulative impacts of these chemicals may in fact have a significant impact on the environment and to human health and safety.

Dickey et al. also point out that HHW programs have increased their function beyond that of waste collection facilities. Many HHW programs have extensive consumer education programs that try to educate the public about issues other than disposal of products alone, including the proper storage and use of products, and their misuse, as well as pollution prevention and source reduction in general. In addition, the authors point out that the materials brought into a HHW facility (including household cleaning products, used motor oil, paints, pesticides, etc.), are not always seen as "waste." These products can often be used for other purposes; many HHW facilities are beginning to find ways to reuse and recycle the products brought into their facilities.

Definition of Household Hazardous Waste

There is a clear difference in how both HHW managers and manufacturers of household cleaning products define HHW. Household hazardous waste managers generally define HHWs as waste from residential sources that exhibits characteristics of hazardous wastes, such as: toxicity, corrosivity, ignitability, or reactivity. Manufacturers of household cleaning products, as represented by the Chemical Specialities Manufacturers Association (CSMA), define HHW as any "discarded household material which creates by itself or in conjunction with other household materials a verifiable level of toxicity that adversely affects health or the environment."

Dickey et al. point out that there is a clear distinction between the two definitions. First, the CSMA definition only considers the toxicity of a product and not any of the other characteristics that hazardous wastes may exhibit. Also, they point out that unlike the CSMA definition, the definition used by HHW managers does not simply consider the adverse effects of HHW, but considers the *potential* dangers and/or risks of these wastes. Because of this difference in definitions, household cleaning products are considered HHWs by most HHW program managers, even though they may not be as hazardous as other materials collected by HHW programs (e.g., paints or used motor oil).

Effects of Household Cleaning Products

The paper also provides details about the health and environmental effects of ingredients found in cleaning products. In particular, the paper discusses information and data on the health effects of certain ingredients found in some cleaning products, such as skin/eye/lung irritation, inhalation problems, and carcinogenic effects. Dickey et al. also provide information and supporting data on the environmental effects that these ingredients can have when disposed of down the drain or in the trash. Examples include eutrophication of lakes, rivers, and estuaries; biodegradability and bioconcentration of the ingredients; the effects of heavy metals and organic compounds in household wastewaters; and the effects of volatile organic compound (VOC) emissions from these products.

Concerns Regarding Household Hazardous Wastes

The paper specifically addresses several concerns about HHWs, particularly cleaning products considered by managers of HHW programs to be HHWs. Occasionally, localities will perform "sorts" of their solid waste stream to assess what types of products are in the waste stream. According to several solid waste sorts, the average volume of HHW in the solid waste stream is between 0.3% and 0.5% by weight (from Systems, 1985 and Rathje, Wilson et al., 1987, in Dickey et al., 1996). Dickey et al. stress that even though these percentages are relatively small, they can amount to significant quantities when converted to actual volumes of waste. Additionally, even though these HHWs represent relatively small percentages of the total municipal solid waste stream, they contribute to the majority of the toxicity, corrosivity, and reactivity of the wastestream.

Hazardous chemicals found in household cleaning products can pose other real risks to the facilities and workers who handle these wastes. Hazardous wastes may leak out of trucks, loaders, and landfills. Chemicals may also react with other materials in the solid waste stream and cause acid or alkaline releases, as well as increase the risk of flammability. Workers who pick up household trash may be exposed to HHW chemicals that are mixed in with the municipal waste stream. Dickey et al. cite a California study done in 1982 which found that "3 percent of refuse collection workers in the state were injured due to contact with HHW" (California Solid Waste Board, 1984, in Dickey et al., 1996). Though national statistics for these types of incidents are rare, many local agencies are beginning to keep these types of statistics for their municipalities. They are also tracking the medical costs to localities arising from these kinds of injuries. In addition, many localities also state that the mitigation costs of chemical spills and exposures can be quite significant.

Managers of HHW programs have expressed serious concerns about the potential for explosions and damage to waste handling equipment that may result from reactions between HHW chemicals or liquids and solid wastes. For this reason, HHWs are banned from the municipal solid waste stream in many localities.

Dickey et al. refute the household cleaning product and household pesticide manufacturers' conclusion that disposal of their products in the trash or down the drain does not present any significant adverse effects to municipal landfills. Dickey et al. contend that these conclusions are based on studies of RCRA Subtitle D landfills, which are required to have a double lining at their base to prevent leachate from leaking into groundwater (See CSMA and HIPIC discussion above). The authors add, however, that a large proportion of landfills in the U.S. were built prior to this requirement, and may therefore pose a risk of leaching into nearby groundwater. According to the paper, studies have shown that, in some cases, HHW chemicals have been found in these leachates and can be quite harmful (e.g., lead or mercury). Municipalities are now finding themselves in the position of having to pay for huge clean-up of these older landfill sites. The authors also cite studies that show that the lining in current landfills may eventually wear down and increase the chances of landfill leachates seeping into groundwater systems (LaPage and Winton, 1994, in Dickey et al., 1996).

The paper concludes by recognizing that all products have environmental impacts. Dickey et al. encourage product manufacturers to take these impacts, however minor, into consideration. They suggest that manufacturers can do this by practicing resource conservation and pollution prevention, and by eliminating the use of chemicals (e.g., dioxin and its precursors) in their products that are known to be harmful to human health and the environment.

Findings from Telephone Conversations

Several phone calls were made to individuals knowledgeable about HHW management. Calls were placed to trade associations such as the Steel Recycling Institute, the National Association for Plastic Container Recovery, the Solid Waste Association of North America, and the American Plastics Council. Calls were also placed to a few HHW management programs, including those in Missouri, Nebraska, and Washington state.

Many of the people contacted had information on regulations, policies, and programs regarding *disposal of containers*, but were less able to provide detailed information on regulations, policies, and programs regarding *storage and disposal* of *unused product*. Many thought that, in general, consumers would likely have to dispose of unused product at permanent or mobile collection facilities or events. Several people stated that California and Minnesota were the only states, to their knowledge, that mandated that unused HHW products be disposed of at local collection facilities.

The Steel Recycling Institute provided information about the recycling of aerosol cans. According to SRI, there are 4,500 municipal locations, serving over one hundred million people, that include aerosols in their recycling programs. SRI often works with local governments on their recycling programs and provides guidance on how steel recycling can be incorporated into their recycling stream. In many localities recycling of aerosol cans is a relatively new concept. Through its brochures and other literature, SRI provides guidance for proper disposal of aerosol cans and their contents. Consumers are instructed to make sure that aerosol cans are completely empty before they can be recycled (either at the curbside or through a recycling center) in areas where cans are accepted into the recycling stream. Additionally, SRI instructs customers to take aerosol cans, which are either not empty or too old and rusty for the contents to be used up, to special collection centers or events in their local communities, rather than recycling the can.

CLI Storage and Disposal Subgroup Activities

Storage and disposal labeling issues were discussed during regular conference calls among members of the Storage and Disposal subgroup. (For a complete list of Subgroup members please see Appendix 1-8.) The Storage and Disposal Subgroup met weekly or bi-weekly, via conference call, between February and September 1998. The Storage and Disposal Subgroup was formed to make recommendations for improving storage and disposal information on product labels, as well as to discuss potential problems and next steps in addressing storage and disposal language changes on product labels. A challenge facing the group was to discover how to provide universal language on a label that does not conflict with state and local regulations, policies, and programs, but which informs consumers of proper storage and disposal procedures. The Subgroup concluded that because product labeling is mandated on a federal level, label language cannot address every variation in storage and disposal requirements, policies, and programs across the nation.

Several suggestions were made by Subgroup members for changes to the current language on product labels, but it was difficult for the group to come to a consensus on a statement best suited for each product category. It was also difficult for the Subgroup to reach a consensus on many of the recommendations suggested by Subgroup members, due to differing views and concerns.

The Subgroup convened in a face-to-face meeting on September 22, 1998, prior to the CLI Partner and Task Force meeting. The purpose of the meeting was to come to an agreement over issues that the group was unable to resolve or address over conference calls, as well as to make recommendations to CLI Partner and Task Force members. The day was spent deliberating over several issues, including the different viewpoints among industry and state and local agency Partners, regarding the type of instructions that should be placed on product labels. At the end of the day, a consensus was reached regarding label language for empty containers, but not on the appropriate language for partially-filled household pesticide containers or household cleaner containers.

Areas of Agreement for Storage and Disposal Label Language

The Storage and Disposal Subgroup agreed on label language changes for empty pesticide and household cleaner containers. The group recommended that the language on these containers read:

> *"Place in trash. Recycle where available."*

The group suggested that the recycling statement be optional for manufacturers. The group also recommended that manufacturers be allowed to use an optional statement that reads:

> *"Do not re-use container."*

Finally, the group agreed to have the storage instructions on product labels remain as they currently appear.

Areas of Disagreement for Label Language

The Storage and Disposal Subgroup debated over several months about the appropriate language for partially-filled pesticide and household cleaner containers. They never reached a consensus. The group suggested that the decision for any change to label language (i.e., for language on empty cleaner and pesticide containers) be delayed until the EPA makes a policy decision about how to handle partially-filled containers.

Representatives from state and local organizations suggested changing current label disposal language to instruct consumers to first call their local waste authority to get proper disposal instructions for their localities, and, if not told otherwise, to dispose of the product in the trash. They argued that current disposal language is often in conflict with their own laws, practices, or programs, which ban HHWs from municipal landfills. Label language should therefore instruct consumers to contact their local authorities to get the correct disposal instruction for their area. Representatives from state and local organizations in the Storage and Disposal Subgroup issued the following statement at the CLI Partner and Task Force meeting (September 1998):

> *"The CLI Subgroup representatives from state and local organizations have agreed that the status quo disposal instructions are unacceptable to some state and local programs. Existing label instructions result in unfair CERCLA liability for local agencies as well as sanitation worker injuries due to HHW releases from the solid waste system. Additionally, local HHW programs attempt to be consistent with the EPA-endorsed waste management hierarchy or reuse and recycling before disposal. For partially-filled containers, the statement "call your local environmental, health, or waste department for disposal instructions" is appropriate."*

The suggestion to place a statement to contact local authorities was rejected by most of the industry Stakeholders in the Subgroup, who argued that instructing consumers to contact their local authorities or HHW programs to get proper disposal instructions would give consumers the impression that their products are harmful. They also argued that many of these programs often misrepresent and give consumers wrong information about their products. Industry Stakeholders in the Subgroup argued that their products are safe to dispose of in the trash or down the drain, and should not be classified as HHW. They provided evidence in support of this (see CSMA and HIPIC discussion, above). They said that state and local organizations did not provide scientific evidence for their conclusions. Additionally, industry representatives argued that putting a statement such as "call your local authority..." would be confusing for consumers, because it is difficult for consumers to know which agency is the proper one for them to contact. Furthermore, industry representatives cite data that found that the majority of people usually use up all of the product in a container before disposing of it. The representatives argue that the disposal of partially-filled containers is not as significant as state and local organizations claim. The industry representatives from the household cleaner and indoor insecticide industry, as represented by CSMA and HIPIC, issued the following statement at the CLI Partner and Task Force meeting (September 1998):

> *"The majority of industry participants believe there is a substantial body of scientific support for making the recommendation to dispose of CLI-covered products through the normal waste systems, either in the trash or down the drain, depending on the product type. No such scientific support for directing consumers to call their local authorities for alternate disposal methods has been presented to the Subgroup. Therefore, making such a change to the label is unjustified. We are also concerned about referring consumers to local authorities that are disseminating inaccurate information. Many products are mis-characterized as hazardous by local agencies*

and inappropriate information on 'alternatives' is also provided as well. Furthermore, consumers may not have easy access to their 'local authorities' and may not even know which agency to call."

State and local authorities believe the industry data that supports the above statement are limited and based on limited risk assessments (e.g., considering only the effects to RCRA Subtitle D landfills without studying the effects of HHW leakage in older, unlined landfills). Additionally, they state that industry studies are based on limited products and formulations and do not take into account the cumulative effects of all of the ingredients in these products, many of which may be considered hazardous.

Some industry representatives in the Storage and Disposal Subgroup from the outdoor pesticide industry do, however, view some of their products differently. These representatives stated that they do not have evidence to show that their products are safe to dispose of down the drain, and they are not opposed to directing consumers to contact their local waste handling agency for disposal instructions. It should be noted, however, that this is not the view shared by the entire outdoor pesticide industry.

Other general recommendations and suggestions were made to the CLI Partner and Task Force members at the September meeting. These are discussed in the recommendations chapter (Chapter 9).

Suggestions for Label Language for Partially-filled Containers

Although no consensus was reached at the September 22, 1998, face-to-face meeting on the issue of partially-filled containers, the Subgroup did make several suggestions over the course of the conference calls, for label language for different types of products (e.g., pesticides, household cleaners, liquids, solids, etc.) presented below. The arguments for and against these statements are also presented wherever possible.

Disposal of Partially-filled Liquid Cleaner Containers

Several suggestions were made for label language for partially-filled liquid cleaner containers:

1. Representatives from state and local organizations in the Subgroup suggested that these containers say, *"Call your local environmental, health or waste department for specific disposal instructions. If no restrictions, pour down the drain while running water. Do not mix with other products during disposal."*

2. Industry representatives suggested, *"Pour product down the drain while running water [Do not mix with other products],"* with the latter part of the statement being optional.

Both of these suggestions have associated tradeoffs. Both options allow for disposal of the liquid cleaner down the drain. The first option, however, is too long to fit on a product label. Some members of the Subgroup pointed that the second option conflicts with some state and local laws, polices, and practices.

Disposal of Partially-filled Liquid Pesticide Containers

Three suggestions were made by members of the Subgroup for label language for partially-filled liquid pesticide containers:

1. Option 1 read, *"Call your local waste disposal service. If local laws permit, put partially full container in trash. [Never pour product down any drain],"* with the latter part of the statement as optional.

2. Another option read, *"Call your local environmental, health or waste department for specific disposal instructions."*

3. The third statement suggestion was for the label to say, *"Place in trash."*

Both the first and the second options were seen by state and local organizations representatives as viable, since they did not contradict state and local laws or practices. Also, the first option gave consumers an alternative if they found that there was no local guidance for disposal of liquid pesticide containers. The third option was seen as contradicting some state and local laws, practices, and regulations.

Disposal of Partially-filled Aerosol Containers

There was disagreement from both the representatives from state and local organizations and the industry representatives on suggestions for disposal instructions for partially-filled aerosol containers. The following three suggestions were made, but no consensus was reached for reasons outlined above.

1. *"Call your local environmental, health or waste department for specific disposal instructions."*

2. *"Place in trash."*

3. *"Call your local waste disposal service. If local laws permit, place partially full container in trash."*

Except for the second suggestion, all of the above options would allow consumers to be in compliance with any state or local practices concerning the disposal of partially-filled aerosol cans. The third option also gives consumers alternatives if there are no specific guidelines for these containers. As with liquid cleaner and pesticide containers, the option to place the container in the trash is not an ideal one for state and local organizations, as this instruction can contradict state and local laws and practices.

Disposal of Partially-filled Solid Cleaner Containers

As with liquid and aerosol containers, industry representatives suggested that the text on labels of partially-filled solid cleaner containers read, *"Place in trash,"* whereas representatives from state and local organizations wanted it to read, *"Call your local environmental, health or waste department for specific disposal instructions."* Arguments similar to those above were made for both of these statements. Agency representatives felt that instructions to call a local waste department for disposal instructions has the added benefit that if specific instructions are not available, then the agency would likely encourage the consumer to use up the product or give it

to someone who can use it up. This direction would allow consumers to practice source reduction, which is preferred over disposal for managing wastes.

Disposal of Partially-filled Solid Pesticide Containers

Similar suggestions were made for partially-filled solid pesticide containers:

1. Industry representatives favored the statement, *"Place in trash."*

2. Representatives from state and local organizations wanted label language to be changed to read, *"Call your local environmental, health or waste department for specific disposal instructions."*

Similar arguments for and against each of these statements were offered by both groups of Stakeholders in the Subgroup.

As mentioned above, no consensus was reached on an appropriate statement for partially-filled containers, and it was decided that any change of this sort would have to be a decision of the EPA.

Finally, CSMA and HIPIC representatives suggested to the Subgroup that a committee be formed to develop risk-based criteria for directing particular consumer pesticides that may warrant special handling to waste collection programs, such as household hazardous waste programs. They suggested that the committee be composed of experts from the field of risk-assessment, EPA, consumer pesticide manufacturers, the solid waste management industry, state and local HHW programs, and other appropriate experts. The suggestion was rejected, however, by members of the Subgroup from state and local agencies who argued that the decision to divert some of these products to HHW programs should not be based *solely* on risk assessment studies.

Storage and disposal issues were addressed again at a CLI Partner and Task Force meeting in April 1999. Jean Frane, of the Office of Pesticide Programs (OPP), briefly summarized recent OPP activities relating to storage and disposal issues, specifically addressing the impasse reached by the Storage and Disposal Subgroup (i.e., the conflict between storage and disposal instructions on some product labels and local/state regulations, policies, or practices). At this meeting, it was pointed out that states are reluctant to advance the "Read the Label *FIRST!"* campaign while there are still outstanding unresolved issues concerning the storage and disposal section of the label. Although no new language has currently been proposed, OPP met with representatives of state and local organizations, as well as representatives from industry, and expects to have a proposal on storage and disposal language by Fall/Winter 1999.

SUB-SECTION 3: Consumer Education Subgroup

In Phase I of the CLI, research findings, literature review summaries, and Stakeholder comments indicated that many consumers do not consistently or thoroughly read or use the labels of indoor insecticides, outdoor pesticides, and household cleaning products. For this reason, changes to label information or design will not lead to significant benefits to consumer knowledge, understanding, or health and safety—unless consumers first *read* the labels.

Consumers have also stated in a variety of research arenas that they do not understand much of the content of many of these product labels. In addition—and more importantly from the point of consumer education—they have expressed that they often do not feel motivated to read the labels, because they see little personal benefit in doing so.

Overview and Goals of the Consumer Education Campaign

A primary goal of the Consumer Education Campaign is to increase consumer awareness of label information on a national level. Reaching consumers nationwide can represent a major commitment of time and resources. The CLI benefits greatly from equal involvement of a variety of participants, many of whom have the ability and willingness to help produce and disseminate consumer education materials. The campaign thus involves and encourages the participation of many organizations that represent avenues for reaching consumers directly, such as:

- CLI Partners' organizations;
- state and local government agencies;
- non-profit organizations;
- schools, libraries, and civic groups; and
- local media, such as newspapers, magazines, radio, and cable channels.

Such broad participation by many organizations greatly increases the possibilities for exposing consumers to repeated messages, and thus increases the success of the campaign.

The CLI's goals included:

- improving product labels so that they would be easier for consumers to understand;
- helping consumers to become more aware of product labels and the information they contain;
- helping consumers to feel more motivated to read and understand label information;
- giving consumers better tools for understanding label information; and

- encouraging consumers to more consistently and more thoroughly read labels of these products, prior to purchase, use, storage, and disposal.

To address these goals, the CLI established a Consumer Education Subgroup in Phase II, to encourage safe and environmentally responsible behavior by consumers regarding indoor insecticides, outdoor pesticides, and household cleaning products. This group included more than 20 participants, representing organizations that have an interest in consumer education issues related to product labeling. Various businesses, state agencies, non-profit organizations, other organizations, and EPA staff members are represented. The group was expanded according to the recommendation presented by the Phase II research, to include marketing, brand, outreach, education, and public relations experts. The complete list of participants can be found in Appendix 1-9.

The CLI was initiated to identify ways to:

- increase reading and use of labels;
- decrease the misuse of products;
- decrease the incidence of accidents involving products; and
- decrease environmental impacts caused by improper storage and disposal.

CLI Consumer Education Subgroup Activities

During Phase II, meetings of the subgroup occurred approximately every two or three weeks, mainly through conference calls. All members of the subgroup received advance notice of the calls, and future meetings were tentatively scheduled during these calls. An average of more than a dozen participants attended these calls. Participants discussed the concept and need for an education campaign logo, slogan, materials to be used for consumer education, media venues, and strategic plans. Feedback from all participants was always encouraged; whenever possible, Stakeholder opinions were weighed heavily in making decisions. After the September 1998 Partner and Task Force meeting, the Subgroup was divided up into smaller groups targeting message development for consumer education materials, the placement of the consumer education materials, and the development of a consumer education campaign logo. Based on recommendations from the meeting, Partners were asked to encourage the participation of key marketing personnel from their organizations.

The Consumer Education Subgroup conceptualized, developed, and began implementing a broad-based, long-range consumer education plan intended to help people to read, understand, interpret, and use label information. The Subgroup developed an easily understood message—"Read the Label *FIRST!*"—and, at the time this report went to press, was in the process of developing a unique, memorable, consumer-friendly logo. The Subgroup also drafted text for outreach brochures targeting gardeners, children's health, pet protection, and household products, that was presented at a Partner and Task Force meeting in April 1999. The various components of the campaign will be designed to work with and reinforce each other.

Components of the Consumer Education Plan

The EPA and its CLI Partner and Task Force members intend to begin implementing the consumer education effort in Spring 2000 with the public launch of the nationwide "Read the Label *FIRST!*" campaign. This launch is timed to coincide with the appearance of newly redesigned labels on store shelves and with the consumers' general interest in seasonal gardening and cleaning activities. Eventually, the Consumer Education Subgroup intends to finalize and make available to the public a variety of materials, possibly including but not necessarily limited to the following:

- brochures or flyers for a general consumer audience, pet owners, parents, and gardeners;
- posters;
- a fact sheet on label changes resulting from the CLI;
- camera-ready logos; and
- a publicity guidance document outlining a variety of cost-effective ways to use the Campaign's logo, slogans, taglines, brochures, and other materials.

To make the Campaign materials useful to as many organizations as possible, the Consumer Education Subgroup hopes to make the materials available in easy-to-use formats. Restrictions on how organizations may use the materials will be minimized.

At this point in time, the Consumer Education Subgroup expects to use a variety of methods to announce and distribute materials for the Campaign, potentially including the following:

- sending camera-ready materials to all CLI Partners, Task Force Members, and Consumer Education Subgroup members, via regular mail and e-mail;
- distributing materials to trade associations for certain audiences (e.g., the national Parent-Teacher Association);
- distributing materials through product manufacturers (who often provide information at point of purchase, via mailings, etc.);
- posting of materials on the CLI website, available for downloading; and
- mailing press releases and information packets to appropriate organizations.

To be effective, consumer education needs to be directed toward identified needs. Therefore, the work to be implemented by the Consumer Education Subgroup depends on decisions and recommendations made by other CLI subgroups. Findings from other components of the CLI have and will continue to feed into the work of the Consumer Education Subgroup.

The intent of the Campaign is to have consistent, mutually reinforcing messages targeting specific consumer audiences and originating from all CLI participants and interested groups. The "Read the Label *FIRST!*" message will thus come from government, industry, health, environmental, and consumer groups alike. The slogan and logo are designed to be accompanied by reasons why reading the label is important, addressing the main motivating factors for label reading that were identified in the quantitative and qualitative research. Child and pet safety, environmental benefits, and gaining the best value for money spent will feature among the top reasons to read labels and follow label directions.

Following its initial emphasis on getting consumers to notice and read labels, the intent of the CLI is to expand the Campaign to help people better understand the information that appears on labels. This would include education in the meaning and use of signal words (CAUTION, WARNING, DANGER), as well as information designed to teach people why environmental information and storage and disposal information — which research shows are among the least often read sections on the label — are important to the consumer.

The Consumer Education Subgroup has proposed a long-range Campaign designed to unfold, expand, and develop over a number of years, including nationally televised ads and educational curricula.

CHAPTER 7:

PARTNER AND TASK FORCE MEETINGS

CLI Partner and Task Force members met four times during Phase II of the CLI. These meetings were used to provide updates on the progress of the project, as well as to obtain consensus on decisions that needed to be made during Phase II of CLI. During these meetings, sub-groups presented their findings to the CLI Partner and Task Force members and other interested Stakeholders. Future CLI activities were also discussed and planned.

March 20, 1997 CLI Phase II "Kick-off" Meeting

In March 1997, CLI Partner and Task Force members met to begin work on the second phase of the CLI. The meeting began with a review of the key points coming out of Phase I of the CLI as a setting for the initiation of Phase II.

At this meeting, EPA announced that budgetary and Paperwork Reduction Act constraints would make it impossible for the Agency to fund quantitative research of the type and magnitude that had been recommended by Phase I of the CLI. The Agency indicated that it would neither require nor request that such research be done, although it conceded that quantitative research would be extremely valuable. Several of the CLI industry and trade association partners decided that the research was too important to be eliminated from the program, and volunteered to fund and direct it, with input from all of the CLI participants. The EPA's role in connection with the quantitative research has thus been one of a facilitator, consultant, and recipient.

Three of these industry partners presented a research plan for the Phase II quantitative research at this meeting. The Bayer Corporation, Procter and Gamble, and S.C. Johnson and Son, Inc. gave this presentation. Discussion on the research plan included, but was not limited to: making sure that the questions be clear in asking consumers what they understand about labels and not what they preferred; providing a 'mock-label' to consumers; collecting data on consumer attitudes toward products; collecting information on standardized environmental information.

The EPA also announced that there would be a meeting between the EPA and environmental and public interest groups in April 1997, and invited CLI Partner and Task Force members to attend. The purpose of the April meeting was to update these groups on the progress of the CLI, and to obtain their input and participation for its development.

The meeting was also a forum to re-cap the immediate and longer term label changes that could be made as a result of Phase I of CLI. Immediate label changes included: 1) inclusion of a toll-free number on product labels, so that consumers have someone to call in case of emergencies; 2) using the common names of ingredients instead of their chemical names; 3) using the word "other ingredients" instead of "inert ingredients; and 4) using a clear heading for the first aid section of the label, which is to read "First Aid," instead of "Statement of Practical Treatment."

Longer-term changes would be addressed by Subgroups and included: 1) further investigation of First Aid statements; 2) further investigation of the ingredients issues (i.e., right-to-know issues regarding full disclosure of ingredients); and 3) further investigation of the storage and disposal

issues, and how to address the conflict between label language and state and local policies, regulations, and practices.

During this meeting, the EPA announced that they are interested in investigating the idea of a standardized "eco-facts box" on product labels (like the nutrition box). The EPA suggested investigating this through the quantitative research.

Finally, the Minnesota Pollution Control Agency presented details of its Consumer Label Education Program as a stepping stone for the CLI consumer education effort. It was decided that any consumer education campaign for CLI should focus on "reading the label," rather than on infrequent but real risks of the products themselves.

For details on the discussion that took place during this meeting, refer to Appendix 7-1.

February 1998 Partner and Task Force Meeting

The second meeting took place February 17-18, 1998, in Alexandria, VA. The meeting was announced one to two months prior to the meeting. All Partner and Task Force members and other interested parties were invited to attend. Forty CLI Partner and Task Force members were in attendance. (For a list of meeting participants, please refer to Appendix 7-1.) The meeting served as a forum for subgroups to update Partner and Task Force members on their activities.

On the first day of the meeting, members of the Quantitative Research subgroup updated meeting attendees on the progress of the quantitative research and the subgroup's plans for implementing the quantitative survey. The group affirmed that the survey would address the learning objectives defined in Phase I, and outlined a schedule for completing the research.

The concept of standardizing environmental information on product labels was introduced and an outline for discussion was proposed. To engage Stakeholders in framing the debate, Andrew Stoeckle of Abt Associates presented a paper written with Julie Winters of the EPA, that explored issues relating to standardizing environmental information on product labels**.** Julie Spagnoli of Bayer Corporation also did a presentation on the topic**.** A core subgroup of CLI members was identified to work on the issue.

Members from the subgroups on Ingredient Identification and First Aid gave presentations on the status of their work. In addition, sessions were held to discuss other issues not covered by a specific sub-group. These issues included multi-lingual consumers and literacy level of consumers, the use of icons or signal words on product labels, label format, and environmental claims of a product.

On the second day of the meeting, Susan Wayland, Deputy Assistant Administrator for the Office of Prevention, Pesticides and Toxic Substances, spoke to CLI Partner and Task Force members. She encouraged the group to find out what environmental information consumers wanted to know, and how they wanted that information presented.

The subgroups on Consumer Education, and Storage and Disposal, presented updates of their activities to meeting attendees. A session was also held to update Partner and Task Force members and CLI Stakeholders on EPA efforts to involve Stakeholders in the CLI.

At the end of the meeting, items for future action were compiled from the two days of presentations and discussion. CLI project management and time lines were also discussed. For more detailed information on the discussion that took place during this meeting, refer to Appendix 7-2.

September 1998 Partner and Task Force Meeting

CLI Partner and Task Force members met again on September 23 and 24 in Alexandria, VA. Efforts were made beforehand to encourage the involvement of as many participants as possible. A CLI Update, published in August 1998, invited interested parties to attend the meeting. The update was sent to all Partner and Task Force members and CLI Stakeholders, and was posted on the World Wide Web. Some project Stakeholders, such as environmental organizations, were telephoned and personally invited to the meeting by EPA staff members. Forty-seven people were in attendance. Julie Winters of the U.S. EPA's OPPTS served as the moderator. (For a complete list of attendees, refer to Appendix 7-2.)

The goals of the meeting were:

- to present the data and the findings of Phase II quantitative and qualitative research, in order to ensure the understanding of participants;
- to develop possible recommendations and action steps arising out of Phase II work;
- to make policy recommendations when possible and appropriate;
- to recommend label changes and identify tradeoffs in going forward; and
- to recommend further research where necessary.

During the first day, findings, implications and conclusions from both the quantitative and qualitative Phase II CLI research were presented. Members of the subgroups on Storage and Disposal and Consumer Education also gave reports on their activities.

On the second day of the meeting, participants were asked to make recommendations to the EPA on policy changes, immediate label changes, and areas for further research, based on the information presented the day before. For a full list of the recommendations, please refer to Chapter 9. Discussion included topics addressed on the first day, as well as ingredient information, signal words, hazard hierarchy, and label format/language. CLI recommendations on which participants could agree were adopted to be presented to the EPA, for consideration by the Agency for possible adoption. For details on the discussion that took place during this meeting, refer to Appendix 7-3.

April 1999 Partner and Task Force Meeting

The fourth CLI Partner and Task Force Meeting was held on April 7 and 8, 1999, in Alexandria, VA, to update Stakeholders on CLI events that had happened since the September 1998 meeting. Thirty Partner and Task Force members attended the meeting. Topics of discussion included plans for an upcoming media event, implementation of CLI proposed label changes by the Office of Pesticide Programs (OPP), issues related to storage and disposal, and the consumer education campaign. (To view the meeting summary and notes, refer to Appendix 7-4.)

The EPA informed CLI Stakeholders about plans for an upcoming media event, to be held in Spring 2000, to announce some of the labeling recommendations that EPA will be making as a result of the CLI. The Partners and Task Force discussed potential messages, goals, and details of the event.

Jean Frane from the OPP informed project Stakeholders how the CLI recommendations made in September 1998 were being implemented. The OPP revised the First Aid Statements, using CLI recommendations, and expects to release a *Pesticide Registration (PR)* notice citing these new recommendations in Fall/Winter 1999. Certain label changes, recommended at the September Partner and Task Force meeting, were adopted by the EPA as changes that can be currently submitted to the OPP. These label changes, changes that will be considered on a case-by-case basis, and changes that will not be considered at present until formal implementing documents are published, were presented to CLI Stakeholders and are listed at the end of Chapter 9.

Storage and disposal issues were also discussed by Jean Frane of the OPP. At the meeting, it was pointed out that some states are reluctant to take part the "Read the Label *FIRST!"* campaign while there are still unresolved issues concerning the storage and disposal section of the label.

The Consumer Education sub-group updated Stakeholders on events pertaining to Consumer Education. The Subgroup presented drafted text for outreach brochures targeting gardeners, children's health, pet protection, and household products. Message placement plans and the process of designing a consumer education campaign logo were also discussed.

CHAPTER 8:

STAKEHOLDER INTERACTIONS AND COMMENTS

This section summarizes interactions with and comments made by CLI Stakeholders during Phase II. (To view actual Stakeholder comments, refer to EPA Public Docket, Administrative Record, AR-139.) CLI Stakeholders included consumer advocacy groups, environmental groups, consumers, health and safety professionals and organizations, international groups, government agencies, manufacturers of consumer household products, and retailers. Specific interactions with and comments made by Stakeholders who were part of CLI Phase II subgroups are not presented here, since they are addressed in other sections of this report. Interactions with Stakeholders during Phase I of the CLI were summarized in the *CLI Phase I Report*. (A complete list of CLI Stakeholders is provided in Appendix 1-4.)

Stakeholder Outreach

Throughout the CLI, the EPA actively encouraged the participation of Stakeholders through a variety of methods. The Agency attempted to identify the most effective ways to communicate with and learn from project participants, as well as to identify their particular interests. The many methods utilized to communicate with Stakeholders are detailed below.

Media Conferences and Public Announcements

Media conferences and public announcements were issued for all important milestones in the CLI. The initiation of Phase II was formally announced by Lynn Goldman, the Assistant Administrator for Office of Prevention, Pesticides, and Toxic Substances, and six of the CLI Partners, at a press conference in September 1997. Details of this media event can be found in Chapter 1 of this report (*Overview of the Phase II Process*), under the section entitled "The History of Phase II." Similar to what happened for Phase I recommendations, an EPA media event will be held for Phase II recommendations in Spring 2000. First Aid label changes will be announced by a *Pesticide Registration (PR)* notice released in Fall/Winter 1999.

Publications/Memos and Correspondence

The EPA strove to make information about the CLI accessible to all interested parties. To introduce people to the concepts of the CLI, the EPA published a fact sheet on the initiative in September 1997. This informational handout detailed the background, research process, and Phase I research findings of the CLI, and listed contact information. It was sent to over 1,000 people interested in CLI and was posted on the CLI website, *http://www.epa.gov/opptintr/labeling*

Four consumer-oriented CLI "Updates" were produced and disseminated to all parties that expressed interest in the CLI. The first update was written during Phase I. During Phase II, two updates were produced, both containing information on the status of the CLI and contact information for interested parties. They were sent to about 1,000 people (this list included

people who had indicated interest in the CLI, as well as organizations and press contacts identified by the EPA) and were posted on the CLI website.

An attempt was made to keep active CLI participants informed and involved in the progress of the CLI. Informational CLI memos were produced and disseminated to all CLI staffers and Stakeholders. For example, at the onset of the quantitative and qualitative research, the EPA sent out information about the research to CLI Partner and Task Force members and solicited comments from them. Information about these research efforts was also sent to other interested CLI Stakeholders through memos. A *Federal Register (FR)* notice was published on Tuesday October 27, 1998 (63 FR 57298) announcing the availability of the raw data from the quantitative research.

The EPA actively solicited the opinion of environmental and consumer advocacy groups. Before the start of the Phase II quantitative research, the EPA sent a letter to environmental and consumer advocacy groups, updating them on the progress of the CLI and inviting comments and questions regarding the quantitative study. (For a copy of the letter, refer to EPA Public Docket AR #139.) See below for a summary of Stakeholder comments.

CLI Website

A web page was created for the CLI on the EPA website. Here, anyone with Internet access can read about the initiative, E-mail comments on the CLI to the EPA, or download documents. All materials published by the CLI have been posted on the website, in a form that can be downloaded or printed online. The website address is *http://www.epa.gov/opptintr/labeling/*

Stakeholder Meetings

Aside from the four Partner and Task Force meetings, several other meetings were held between the EPA and/or the EPA and CLI Partner and Task Force members and other interested Stakeholders. (For information on the four Partner and Task Force meetings please refer to Chapter 7 in this report.)

In April 1997 the EPA and several CLI Partner and Task Force members held a meeting in Crystal City, VA, with environmental and public interest groups and other interested parties. The purpose of the meeting was to provide these groups with an update of the CLI activities up to that point, in particular to announce the quantitative research plan. Topics discussed included an overview of Phases I and II of the project; the legal and financial issues relating to the finding of the quantitative research; the quantitative research design, funding, and methodology; storage and disposal issues; ingredients issues; interim label improvements; consumer education; and the role that non-governmental organizations can play in CLI. Participants thanked EPA for inviting them to be a part of CLI and encouraged the EPA to keep the lines of communication open. They felt that doing so would encourage more NGOs to participate in CLI, as well as help identify why more of these organizations are not participating in the Initiative.

In June 1997 another meeting was held with key environmental and public interest groups. The meeting was between EPA Task Force members, Susan Wayland (Deputy Administrator of OPPTS), David Roe of the Environmental Defense Fund (EDF), Carolyn Hartman of the U.S. Public Interest Group (U.S. PIRG) and Jeff Wise of the National Environmental Trust (NET).

The purpose of the meeting was to better understand the environmental and public interest groups' agenda on labeling issues, and to determine if CLI could fit into their agenda.

Stakeholder Comments

Throughout the CLI, Stakeholders were encouraged to provide their comments on the initiative by E-mailing them to the website, responding to the PR notice and EPA publications/memos, and by contacting EPA staff directly. These comments are presented below. Comments from Stakeholders who participated in CLI Phase II subgroups are not presented here, since they are addressed in other sections of this report. For a list of all contributing Stakeholders who commented during Phase II, please refer to Appendix 8-1.

Comments on the CLI

Some of the Stakeholder comments addressed the focus of the CLI. One Stakeholder recommended that the EPA issue a clear statement specifying the reason behind its involvement in the CLI.

A few comments addressed the inclusion of certain groups of people into the planning group of the CLI. For example, one Stakeholder commented that the CLI planning and steering group should include consumers. Another person thought that public interest groups should be included in the list of Partners (the Stakeholder provided a list of examples of groups that could be included).

One commenter suggested expanding the range of products that are covered by the CLI to include scented candles. They cited a report that scented candles may be harmful to pregnant women and young children because some of these candles, according to the report, may emit volatile organic compounds (VOCs), reproductive toxins, neuro-toxins, and/or carcinogens. The commenter requested that candles intended to be burned in the home list all ingredients and that their labels give warning regarding inhalation of emissions from these candles.

Comments on EPA Policy

One Stakeholder commented that to address the root of the labeling issue, EPA would have to make a policy decision. He/she wrote that "to improve public health, and curtail environmental degradation from inappropriate disposal of hazardous pesticides and cleaners, it will be necessary to take a proactive stand," and suggested that the EPA "mandate, legislate, and eliminate the casual and unnecessary use" of hazardous pesticides and cleaners. Using pesticides as an example, the Stakeholder reasoned that "if pesticides are bad or questionable, if the chemicals can, or may initiate cancer in children, or manifest disease years after exposure, if they are polluting our water, poisoning our fish, contaminating our soil, and degrading our air, we must ask ourselves,‘Do we want them to be so easily available, with a bunch of small print caveats that no one is going to bother reading anyway?’"

Comments on Quantitative Research

Regarding the quantitative study, some Stakeholders were interested in ensuring that the survey adequately represented minority, low-income, and low-education consumers. One Stakeholder suggested broadening the study to include respondents with different cultural backgrounds and who speak languages other than English. Another wanted to know if the survey would target product users involved in janitorial, gardening and cleaning businesses and was glad to find out

that the quantitative survey planned to address non-users of products as well as users. (Non-product users were not tested but were screened.)

One Stakeholder recommended that the study test a variety of alternative labels, both current labels and prototypes. This person also wanted the study to explore the possibility of listing factors that are unknown about a product, such as whether a specific ingredient has been tested for possible adverse health effects, writing: "Current label information does not indicate the extent to which ingredients are tested and which ingredients the health precautions apply to. Without either explanation or a mock label that somehow indicates that this information is missing, respondents are not likely to raise this as an issue. The study leaves in place the 'what you don't know can't hurt you' aspect of current labeling."

Another Stakeholder requested that the quantitative study include a clear statement of purpose, in order to focus participants on environmental and health information.

Comments on Labeling

Stakeholders made suggestions about information to include on product labels. One person, who suffers from a medical reaction to formaldehyde, requested that formaldehyde be listed on all products, even when it is not an active ingredient. Another citizen commented that product labels ought to include the instruction, "do not flush down toilet."

One Stakeholder suggested the use of icons or graphics for products containing chemicals that are potentially harmful to children and pets. This person recommended that these products prominently feature an "obvious, easily understood WARNING with a picture of a small child, and a pet on the front label to immediately put people on notice without reading any further, or for those lacking full command of the language."

Another Stakeholder pointed out that the EPA should not overlook the importance and value of labeling requirements, which may not have immediate use for the consumer, but which may force a manufacturer to reformulate a product to reduce a health risk. This person urged the EPA to look at the experience of California, a state with its own specific labeling criteria, as an example for potential label reform. The commenter had contributed during Phase I and felt that his/her organization's earlier comments had been "completely ignored."

A person who submitted comments stressed the importance of making label language very simple, pointing out that young adults often may not comprehend the language on product labels and may sometimes use these products. The citizen also pointed out that simpler language is essential for product users who might have limited English reading skills.

Comments on Consumer Education

Opinions on the proposed consumer education campaign varied. One Stakeholder thought that the "Read the Label *FIRST*!" campaign was an important component of the CLI. Another person felt that the education campaign was doomed to failure, reasoning that the CLI effort would not be able to compete with the persuasive advertising campaigns of companies.

Representatives from the Working Group on Community Right-to-Know, Consumers Union, Environmental Working Group, Farmworker Justice Fund, Friends of the Earth, National

Coalition Against the Misuse of Pesticides, Natural Resources Defense Council, Northwest Coalition for Alternatives to Pesticides, U.S. Public Interest Research Group, and World Wildlife Fund submitted a joint letter to the CLI. These groups expressed concern about the timing of the consumer education project. Their letter urged the EPA to address the following questions before proceeding with the consumer education project:

- How will the project educate the public about the presence and potential hazards of most toxic ingredients, which are not disclosed on pesticide product labels?
- How will the project change the behavior of manufacturers (as opposed to the behavior of consumers)?
- What CLI milestones has EPA established for requiring full disclosure on pesticide product labels and for resolving alleged confidential business information issues?
- How will the project communicate that certain information on health and environmental hazards is not available, i.e., for inert ingredients, contaminants, and toxic metabolites, and that EPA relies on industry self-certification for information?

Comments on the Flammability of Products

A Stakeholder, whose business was destroyed in a fire caused by an aerosol pesticide product, expressed concern with the flammability of products. This person wrote, "I have interviewed fire protection officials all over this country, and these products have been causing thousands of fires and killing people for many years." The citizen was also upset that the CLI had not been initiated earlier.

Comments on Disclosure

Representatives from the Working Group on Community Right-to-Know, Consumers Union, Environmental Working Group, Farmworker Justice Fund, Friends of the Earth, National Coalition Against the Misuse of Pesticides, Natural Resources Defense Council, Northwest Coalition for Alternatives to Pesticides, U.S. Public Interest Research Group, and World Wildlife Fund also commented on disclosure of ingredient information on product labels. They expressed concern about what they saw as, "the agency's lack of progress on requiring manufacturers to fully disclose toxic ingredients and health hazards on labels." Their letter followed up on a letter that they and 60 other environmental, consumer and public health organizations had sent during Phase I.

Comments Relating to Storage and Disposal Issues

Respondents to the information request sent to the North American Hazardous Materials Management Association (NAHMMA) shared additional comments and opinions on storage and disposal of product containers. The Sonoma County Waste Management Agency stated that incorrect label instructions, such as, "wrap in newspaper and throw in trash," have led to illegal and harmful disposal of household hazardous wastes (HHW). As a result of illegal and/or harmful disposal of these wastes, Sonoma County has had to spend millions of dollars to divert these wastes from their local landfill (HHWs are not accepted in Sonoma County's landfill). Additionally, the County attributes incorrect labeling instructions to the fact that in 1996, while

70% of their local population were aware of their local HHW program, the same percentage did not know they possessed HHWs.

The Sonoma County representative suggested that the EPA require product labels to indicate whether the product is hazardous and suggested adding to the label a toll-free number providing local or state disposal information. The County feels that this is a better option than the current language of, "contact your local waste management department." Finally, the Sonoma County Waste Management Agency would like the EPA to require full disclosure of product contents on labels. The County feels that this will be more effective than warning labels, in providing consumers with an indication of the potential hazard of the product.

Comments were also provided by the State of Wisconsin's Department of Agriculture, Trade and Commerce Protection. The Department stated that labels are already too cluttered with information, and that adding more information to labels will not be beneficial for consumers. The Department pointed out that consumers are able to cope with only "so much information" and the EPA should not present more than basic storage and disposal information on labels. Finally, the Department suggested that the EPA work with industry representatives when developing labeling language.

In September 1998, CSMA and HIPIC sent a letter to Deputy Assistant Administrator of the EPA's Office of Prevention, Pesticides and Toxic Substances (OPPTS), Susan Wayland, stating their position that they do not support the recommended label language advocated by EPA staff and some of the other Storage and Disposal Work Group members. They believe the claim that there is sufficient need or justification to warrant inclusion of a statement on product labels directing consumers to contact their local authorities for disposal information, when disposing of partially full containers is not supported by any compelling evidence. CSMA and HIPIC believe there is a substantial body of scientific support for making the recommendation to dispose of these products through the normal waste systems, either in the trash or down the drain, depending on product type. They stated that no such scientific support for directing consumers to call their local authorities has been presented to the Work Group. The letter also offers comments about some of the work presented to the Work Group, and includes comments regarding the quality of information disseminated by local authorities.

In January 1999, the North American Hazardous Materials Management Association (NAHMMA), sent a letter to Mr. Stephen Johnson, Acting Deputy Assistant Administrator, OPPTS, thanking him for meeting with them in late December on the Consumer Labeling Initiative (CLI). The letter outlined NAHMMA's position on several of the issues that arose in the meeting. NAHMMA reiterated the State and Local Agency position that pesticide product labels should refer product users to an appropriate local agency for disposal instructions and, if necessary, to the state waste management agency. Some of the major issues discussed were: 1) language could be added to the above disposal instruction referring callers to a toll-free hotline if the caller can't reach a local contact; NAHMMA suggests either EPA's RCRA/Superfund or NPTN hotline could be that number; 2) state and local officials should make the decisions on how to manage pesticide wastes from households and small businesses, but current pesticide product labels thwart those efforts by informing people to dispose of pesticides in the garbage. NAHMMA mentions that there is local liability to pay for contaminated solid waste landfills and local water supplies; 3) while NAHMMA agrees that further in-depth scientific analysis of potential impacts of various categories of pesticides is warranted, no line can be drawn among

pesticides to determine which should be collected and which should be disposed of that all municipalities will agree to; 4) the EPA is asked to provide nominal funding to update and maintain the state contact list; 5) NAHMMA suggests that a PR Notice be issued with the recommended changes, and requests that the solution to the storage and disposal issue be included as part of the CLI.

At the same time, CSMA and HIPIC sent a letter of thanks to Mr. Stephen Johnson and Ms. Marcia Mulkey for meeting with CSMA and HIPIC and their member companies on January 6, 1999, to discuss issues surrounding the efforts to develop disposal instructions for partially-filled containers. The letter states that the group did reach consensus on disposal instructions for empty containers, and that over 90% of containers are empty when discarded. CSMA and HIPIC reiterated their positions that there is significant scientific data to justify disposing of partially-filled containers in the trash, and there is no understanding of how widespread the state/local laws are that prohibit this practice. The letter continues by encouraging resolution of this issue, and reiterates the organization's earlier suggestion that a committee be formed to develop risk-based criteria for directing particular consumer pesticides that may warrant special handling to waste collection programs designed to accommodate this level of management. The letter concludes by urging that any new statements be issued in a Rule as outlined by the Administrative Procedures Act.

In addition, when the effort to revise the disposal instructions on pesticide and hard surface cleaner labels by the Storage and Disposal Subgroup ended in a stalemate, the Office of Prevention, Pesticides, and Toxic Substances (OPPTS) received approximately 55 letters from organizations around the country involved with, or interested in, the subject of household hazardous waste. These letters have been included in the CLI's Administrative Record (AR-139). Generally, all of the letters reflected the following sentiments: EPA's disposal instructions should not contribute to a locality's CERCLA liability; EPA shouldn't undermine state/local authority to manage these wastes; EPA shouldn't undermine local educational efforts related to these products; in 1981 there weren't many local programs for collecting/managing these wastes but now there are; and EPA's disposal instructions shouldn't contribute to sanitation worker exposures to these products, or spills of these products into the environment.

EPA Response to Stakeholder Comments

The EPA responded by mail or e-mail to all Stakeholders who contributed substantive comments or raised specific questions during Phase II. These responses are available through the EPA's Public Docket, Administrative Record, AR-139.

CHAPTER 9

CLI PHASE II RECOMMENDATIONS

The recommendations presented below were suggested by CLI Stakeholders present on the second day of the CLI Partner Task Force Meeting (September 24, 1998). These are the recommendations that the CLI (as represented by the Partner and Task Force members present at the meeting) made to the EPA. The EPA responded to the recommendations regarding which label changes can currently (i.e., at the time this report was written) be made at the April 1999 Partner and Task Force meeting. In addition, plans for a CLI media event to take place in Spring 2000, plans of completion of the Phase II Report, and plans for the Consumer Education Campaign were also announced at the April meeting. A section describing the label changes and the new developments for CLI follows the CLI recommendations.

Prior to the Partner and Task Force meeting, Susan Wayland, Deputy Assistant Administrator for the EPA's Office of Prevention, Pesticides, and Toxic Substances, had asked Stakeholders to consider the following items when making recommendations:

- identify what product label changes can be implemented immediately, and the options and associated tradeoffs;
- identify any needs for further research, the options and associated tradeoffs, and anticipated end points for making label changes; and
- identify any needed policy choices, and the possible options and associated tradeoffs for each choice.

Topics for discussion during the meeting included the following:

- signal words and hazard hierarchy,
- ingredients,
- label format,
- consumer education, and
- storage and disposal.

For each of these discussion topics, the Partner and Task Force members attempted to address each of the items identified above. In many cases, the issue of Consumer Education overlapped with the discussion topics, and was considered as a stand alone topic in others. Information or recommendations regarding consumer education are therefore captured both by discussion topic and under the Consumer Education topic area.

Signal Words and Hazard Hierarchy Recommendations

Product Label Changes

1. For products that fall into toxicity categories 1, 2, or 3, recommend that manufacturers be encouraged to voluntarily put one or more bullet points underneath the signal word on the front label, explaining the precautions associated with the product. The statement which currently refers people to turn to the back of the package for more explanation of the precautions should remain on the front of the label.

Further Research

1. Recommend that additional research be conducted on the effects of "highlighting" and graphical depictions of the signal words on the front of the label before any such changes are implemented. ("Highlighting" means things such as bolding the word, boxing the word, using colors to make the word stand out, making the word bigger, etc.; graphical depictions could include bar graphs, thermometers, "laugh meters," or similar designs incorporating all three words into a hierarchical visual format.) Also explore as a part of this research "information fragmentation" (i.e., placing precautionary-related information on both the front and back label panels) issues. Note on intent: the need for this research is not intended to preclude the change recommended pertaining to placing the precaution bullet on the front panel with the signal word.

Policy Choices

1. For toxicity category 4 products only, the EPA should consider not having a signal word. (Currently, both category 3 and category 4 products can have the signal word "Caution" associated with them.)

2. The EPA should determine what the consumer should understand about signal words and the hazard hierarchy. If the intent is for the signal words to flag for the consumer that care should be taken, then the recommendations here are enough along with appropriate educational efforts (see education recommendations). If the intent is for the hazard hierarchy to be understood, then additional research and education are necessary.

Consumer Education

1. Recommend that an effort be made to educate consumers about the meaning of the signal words, and how they are defined and used on labels. This should be done in a factual context, and without judgement calls which conclude the meaning for the consumer (i.e., the Agency should not recommend that consumers always buy products marked CAUTION in preference to products marked DANGER).

Ingredients Recommendations

Product Label Changes

1. Recommend that the EPA not make any across-the-board label changes for ingredients at the present time.

2. Recommend that the EPA allow manufacturers the flexibility to voluntarily provide "other ingredient" information on the label in a way that consumers in the study expressed they wanted (i.e., listed by category, perhaps with some explanation of purpose).

3. Recommend that the EPA allow manufacturers more flexibility in where they provide ingredient information (e.g., back panel versus front panel).

Further Research

1. Recommend that the EPA conduct further research to identify how to supply consumers' expressed need for medical information to people who want it. It was noted that information learned from the quantitative research of Phase II should be incorporated in any further research.

Policy Choices

1. Recommend that the EPA further examine how to provide ingredient information on the label in the way consumers expressed they want it, as indicated by the research (i.e., give them categories of ingredients along with the purpose.) Also, refer to research recommendations in the format section.

Consumer Education

1. Educate consumers about ingredient information on labels (i.e., why they appear on the label and the meaning of "active" and "other"), through the "Read the Label *FIRST!*" campaign. Additionally, it was suggested that the education campaign be utilized to inform the public about where to get health and safety information, e.g., for people prone to allergies, etc.

Label Format Recommendations

Product Label Changes

1. Recommend that statements that were clearly preferred by consumers in the quantitative research be used, as appropriate, and that the EPA make program changes to allow this to happen to the extent possible.

<u>Directions for Use</u>

2. Recommend that the EPA consider replacing the statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling," with the simpler phrase tested on the quantitative survey — "Use only as directed on this label."

3. Recommend that manufacturers *voluntarily* put direction for use in bulleted form with no wrapping text (i.e., making sure that each new direction for use is set off on a separate line, and does not continue on the same line), using ordinal numbers if sequence is important.

<u>Precautionary Statements</u>

4. Recommend that manufacturers *voluntarily* put the principal health hazard information from the precautionary statements in bulleted form underneath signal words.

5. Recommend that manufacturers and the EPA, where possible, use simple language, avoiding jargon; avoid wrapped text; keep sections together in same column; use more white space; and eliminate needless words. This recommendation was particularly expressed with regard to precautionary statements.

6. Recommend that the EPA remove language that is not appropriate to consumers from precautionary statements, e.g., language more appropriate for agricultural pesticides, etc.

Precautionary Statements — First Aid Specific

7. Recommend that manufacturers *voluntarily* put First Aid information in a table format and within a box.

8. Recommend that manufacturers who provide a toll-free number for emergencies voluntarily include that number beneath or within any table/box that includes First Aid information.

Further Research

1. Recommend that further research be structured to investigate location and presentation of ingredient information (e.g., placing ingredient information on the front or back of the label, tabular formats, etc.), before any across-the-board changes are made to ingredients information. This recommendation addresses the variation in need which can arise between product categories, e.g., indoor and outdoor versus cleaner product labels.

2. Recommend that further research be conducted to investigate how the information hierarchy (i.e., information that consumers in the quantitative research said was most important to them) translates into the order in which information appears on labels.

Policy Choices

1. Given the efforts in other non-CLI forums to standardize the use of icons, further work on this topic should not be pursued as a part of the CLI.

Consumer Education

1. Recommend that the "Read the Label *FIRST!*" campaign educate consumers that it is acceptable for them to open and read label booklets (particularly for outdoor pesticide products) in the store.

Consumer Education and "Read the Label *FIRST!*" Recommendations

It was noted that the Consumer Education Subgroup will address any recommendations from other topic areas related to Consumer Education.

1. Educate consumers on what specific parts of the label mean or are intended to communicate; specifically, signal words, active and other ingredients, storage and disposal, and precautionary statements including First Aid.

2. As the CLI project continues, expand membership of the Consumer Education Subgroup to include brand managers, marketing staff, and label designers from within the Partner companies, particularly with respect to designing and assessing the impact of the logo for the "Read the Label *FIRST!"* campaign.

3. Recommend that messages conveyed through the consumer education campaign be market-tested in appropriate ways before they are launched.

4. Recommend that retailers be brought into the Consumer Education Subgroup, as they will be important for distributing the messages developed by the group.

Storage and Disposal Recommendations

Phase II Follow Up

1. Recommend that the EPA send information from the quantitative study about recycling symbols (those with chasing arrows) to relevant organizations.

2. Recommend the EPA gather any available information on risk assessments regarding product disposal from states, manufacturers, and other appropriate organizations and share this information with all applicable parties, in an effort to coordinate these types of studies.

3. Recommend that the quantitative data on disposal practices be sent to the North American Hazardous Materials Management Association (NAHMMA) and that NAHMMA be encouraged to share this information with its members.

Product Label Changes

1. Recommend that for empty containers, the statement on product labels read, "Place in trash. Recycle where available." The recycling statement would be optional for manufacturers. Also optional, manufacturers may use the statement that reads: "Do not re-use container."

2. Recommend that, given that there was no agreement on label statements for partially filled containers, there be a delay in any *Pesticide Registration (PR)* notice regarding the disposal statement on empty containers until the EPA makes a policy decision about how to handle partially filled containers.

3. Recommend to keep the status quo for storage statements on product labels.

EPA Actions on CLI Recommendations

During the April 7-8, 1999, Partner and Task Force meeting, the EPA discussed how it intended to address the recommendations made during the September 1998 Partner and Task Force meeting. The EPA's Office of Pesticide Programs (OPP) is handling the recommendations for label changes, and it presented a draft strategy for dealing with those recommendations at the April 1999 meeting. Also at the meeting, planning was initiated for a CLI media event in Spring 2000, to announce the CLI recommendations; and updates on both the completion of the Phase II Report and the Consumer Education Campaign activities were presented.

Draft OPP Strategy for Implementation of the Phase II Label Changes

OPP's draft strategy for implementing some of the CLI recommendations, presented in the April 1999 Partner and Task Force meeting, includes the following:

1. OPP will circulate an internal guidance memorandum to forewarn EPA product managers about the type of paperwork to expect coming from companies making label changes recommended by the CLI. The memo would cover label changes that can be approved now, changes that would be considered on a case-by-case basis, and changes that would not be considered at present. These draft changes are listed below.

2. Revised First Aid statements have been agreed upon and a draft *Pesticide Registration (PR)* notice announcing these new statements is currently being reviewed by EPA staff. The PR notice is expected to be issued in Fall/Winter 1999.

3. PR notices for all recommendation topics will be issued after the guidance memo. Some PR notices may be issued as "final" notices without a time period allotted for public comment, while others will be issued "for comment."

4. Label changes will apply to all FIFRA regulated pesticide products, not just consumer pesticides and household cleaners.

5. Sometime in the future, the PR notices will be incorporated into EPA regulation, where necessary.

Label Changes That Can be Submitted Now

While manufacturers must abide by current regulations, they can submit the following label changes to the OPP (see Appendices 3-3 to 3-6 for examples of some of these label changes):

- adding hazard bullet points under signal words;
- removing inappropriate language on consumer labels;
- providing information on "other ingredients" in a variety of ways; and
- presenting first aid information in simplified formats, including a toll-free number, and using the new revised First Aid statements.

Changes to the overall label format and presentation that can currently be made include:

- use of preferred statements;
- use of simpler language and less jargon;
- use of revised hazard and use statements;
- use of bullet formats;
- avoidance of narrative text formats (e.g., using bullets and headings);
- keeping sections together in the same column;
- using white space;
- eliminating needless words, while still abiding by current regulations;
- adding numbers for sequential actions;
- use of tables;
- adding sub-heading into the Directions for Use section; and
- rearranging precautionary statements to give prominence to those of greater interest.

Label Changes That Need to be Discussed with EPA Product Managers Before Submitting

- changing the location of the ingredients statement.

Label Changes That Cannot be Submitted at Present Time

- changing, combining, or deleting headings;
- locating storage and disposal instructions outside of the Directions for Use section;
- revising the Federal misuse statement; and
- leaving off the signal word for products in toxicity category 4.

CLI Media Event

During the April 1999 Partner and Task Force meeting, the EPA informed CLI Stakeholders about plans for an upcoming media event, to announce some of the labeling recommendations that EPA will be making as a result of the CLI. Plans for the media event were postponed until Spring 2000, however, to coincide with the ‘kick-off’ of the CLI Consumer Education Campaign; the media event will serve as the ‘kick-off’ event for the "Read the label *FIRST!*" Campaign. This launch is timed to coincide the appearance of newly redesigned labels on store shelves with consumers’ general interest in seasonal gardening and cleaning activities.

Eventually, the Consumer Education Subgroup intends to finalize and make available to the public a variety of educational materials (e.g., brochures, pamphlets, etc.).

1. The goals of the media event are to announce to the public CLI's accomplishments, inform the public that labels are changing to become simpler, promote the "Read the Label *FIRST!*" campaign, promote the CLI partnership between EPA and its Stakeholders, and increase consumer awareness in general regarding product labels.

2. The media event is scheduled for Spring 2000. It was proposed at the April 1999 meeting that because the event serves as a way in which to reach the general public, a well-known public figure may be appropriate to convey the messages of the event, in addition to the EPA and CLI Partners.

3. The target audience for the media event is the general public, the trade press, community newspapers, and lifestyle magazines.

4. Messages for the event will be drafted by EPA and circulated to CLI Partners and other Stakeholders prior to the event.

Completion of the Phase II Report

An update on the Phase II Report and details for its completion were presented to CLI Partner and Task Force members during the April 1999 meeting. Partners and Task Force members were informed that all of EPA's recommendations on label changes, as a result of CLI, will be included in the Report. Partner and Task Force members agreed that displaying the Phase II findings on the Internet before the completion of the Report would be counterproductive and, therefore, resources should be spent on completion of the Report.

Consumer Education Campaign

An update of the activities since the September 1998 Partner and Task Force meeting regarding the Consumer Education Campaign was presented during the April 1999 meeting.

1. Upon recommendation from the September Partner and Task Force meeting, the Consumer Education Subgroup had been expanded to include marketing, brand, outreach, and public relations experts.

2. A message development group was formed to develop the messages for the "Read the Label *FIRST!*" campaign, for use in both outreach fliers and/or brochures.

3. A message placement group was also formed to identify and implement the most appropriate avenues for distributing the messages and products for the Consumer Education Campaign in order to promote the "Read the Label *FIRST!*" campaign.

4. Ideas for generating a unique logo for the *"*Read the Label *FIRST!"* campaign were shared during the April 1999 Partner and Task Force meeting. Logo design concepts included the idea of a design competition or contracting with a graphic designer to produce the logo. The goal would be to have a logo in place that companies and other CLI participants could use on products, in advertising, and on education materials in time for the Spring 2000 promotion period.

CHAPTER 10

PUBLIC REVIEW OF THE CLI PHASE II REPORT DRAFT

Before the CLI Phase II report was finalized, it was made available to project Stakeholders and the public for comment. This chapter describes how comments were solicited and incorporated, and presents an overview of the feedback received.

Project Stakeholders and the public were provided a one month period, from July 1 to July 29, 1999, to review and comment upon a draft of the CLI Phase II report. In late June 1999, all project Stakeholders in the CLI database, which includes over 700 people, were notified, by facsimile, e-mail or letter, of the opportunity to review the draft. This notification included instructions on obtaining a copy of the draft and issuing comments. A *Federal Register (FR)* notice (64 FR 38422) indicating the availability of the draft report, requesting comments, and describing the comment process, was also published on July 16, 1999. On July 1, 1999, the draft report was posted in a downloadable format on a temporary web site established for the purpose. Paper copies of the draft were sent out upon request. The draft was also made available via the Administrative Record (AR-139). Two conference calls, publicized in the initial notice and on the web site, and open to anyone, were held during the month of July to discuss substantial comments and issues.

Three commenters requested an extension of time to comment on the draft report, noting that the date of publication of the *Federal Register* notice had not provided a full thirty-day comment period. EPA denied these requests, noting that the fiscal schedule for publishing the report would not accommodate an extension; that the draft report itself, being technical in nature and lacking regulatory effect, would not generally be subject to public comment at all prior to publication; that large sections of the draft report had been prepared in an open, joint stakeholder meeting process and had gone through prior comment iterations; and that special and extensive 30-day notice had been provided to all groups who had ever expressed any interest in the project by commenting at earlier stages.

Comments were issued by EPA staff, industry, trade and environmental organizations, and the public. All of the comments were reviewed carefully. Editorial comments that clarified or did not alter the meaning of the text were incorporated. Comments on the report's recommendations, findings, implications, and conclusions were noted but not incorporated, because these sections were developed through a joint Stakeholder process, which included review by project Stakeholders. Comments that clarified people's own previous comments were accepted, whereas comments that modified someone else's comments were not. General comments on the research and process of the CLI and topics addressed in the report are summarized below. These comments are divided up according to those that address the report and those that address specific aspects of the CLI. All comments submitted on the CLI Phase II Draft Report can be viewed in the Administrative Record (AR-139).

Comments on the CLI Phase II Report Draft

Most Stakeholders who had been involved throughout Phase II agreed that the Phase II report reflects the CLI Phase II process accurately . Many comments on the CLI Phase II Report Draft were editorial or clarifying in nature. People and groups also commented upon whether or not they agreed with the report's findings and recommendations. Some people also suggested additions to the report.

Many comments were submitted on the Storage and Disposal chapter of the report. Industry representatives commented on the appropriateness of including certain sections in the Storage and Disposal chapter (Chapter 6), particularly in the chapter sub-section describing the Storage and Disposal Subgroup activities. They argued that certain topics should not be included in this section because they were not officially discussed within the Subgroup. Commenters offered their opinions on whether or not they agreed with the proposed language, and offered arguments highlighting advantages and disadvantages for each proposed statement. Additionally, a few commenters pointed out potential problems with some of the proposed storage and disposal language (i.e., that they may violate certain regulations or policies). In addition to providing feedback on the proposed language suggested by the Storage and Disposal Subgroup, some commenters offered their own suggestions for alternative statements.

Comments were also issued about the label language tested in the quantitative and qualitative research. For example, language regarding the Federal Use statement was questioned (see discussion below).

One commenter from the EPA voiced many criticisms of the report. The commenter:

- felt that some of the CLI Phase II findings and conclusions were not supported by the data presented in the report;
- questioned how specific aspects of the label changes would be implemented (e.g., use of "white space," elimination of needless words, specification of how long to wait before re-entering a treated area);
- disagreed with parts of the CLI Phase II process; and
- criticized aspects of the research design (e.g., poorly-designed mock labels, unclear and leading wording of some research questions).

NAHMMA expressed its frustration that EPA has failed to make a policy decision on pesticide disposal to be included in this Phase II Report. The absence of meaningful outcome on this area of the project is very disconcerting to state and local governments.

Comments on the CLI

The CLI yielded a range of comments. The initiative was praised by some for highlighting problems with label language. Others thought the initiative should be expanded. Addressing the roles of CLI participants, one commenter felt that these roles were weighted toward those with stake in the pesticide market. Another felt that consumers and public interest groups should have been included as CLI Partners.

Conflicting views were expressed regarding where on the label product ingredients should be listed. Reasons stated for keeping the ingredients statement on the front panel included: 1) respondents seemed satisfied with the current placement, and 2) consumers and other regulators might need to find the information in a hurry. One reason stated in support of allowing manufacturers to locate the ingredients statement on the back of the label was that customers are accustomed to looking there, since many other consumer products list ingredients on the back of the label. Comments on ingredients also addressed how and what type of ingredient information should be presented.

The proposal to change the mandatory Federal use statement from, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling," to, "Use only as directed on this label," elicited many comments. It was pointed out that the new proposed statement may not convey the fact that failure to follow the label was against the law. Furthermore, it was commented that this proposed change may make it illegal to use the product in a way that the label does not prescribe. Suggestions included keeping the current Federal use statement, or proposing additional language for the EPA's consideration.

The majority of comments received about storage and disposal were related to the lack of resolution regarding disposal language for unused pesticides and household cleaner products. Comments from state and local agencies reiterated their frustration that there had not been an EPA policy decision to resolve this issue at the time the draft Phase II Report was available for comment. Industry representatives and trade associations also reiterated their viewpoint that language on product labels directing consumers to call a local authority for disposal instructions was inappropriate.

Many people expressed support for the CLI consumer education campaign. The "Read the Label *FIRST*!" slogan was applauded as being direct and concise. It was also suggested that the slogan needs no logo. Some comments addressed what to include in the content of the consumer education campaign.

Other comments addressed the label format, use of graphics, and First Aid and precautionary statements. More than one person commented on the difficulty of incorporating more blank space, bullets, and unwrapped text on labels, due to the limited amount of space on labels. Comments were issued both in support for and against the use of icons and graphics on product labels. Comments in favor of and opposing the use of a visual format to display the signal word were also provided. It was suggested that if symbols and icons are used, they should be harmonized with those used in the European Union and/or Canada. Comments were also made on the specific wording of First Aid statements. It was also pointed out that the First Aid instruction to induce vomiting may not be appropriate for products with more than 10% petroleum distillate, due to the aspiration hazard. In

addition, it was suggested that the order of precautionary statements should reflect the importance of the statements.

CHAPTER 11

PEER REVIEW COMMENTS ON THE PHASE II REPORT DRAFT

Background

The use of qualitative and quantitative research with a large number of consumers to determine consumer behavior and opinion is a relatively new and unique approach for EPA. The Consumer Labeling Initiative (CLI) had its Phase I Report peer reviewed in 1996 and found the reviewers' comments to be quite informative and helpful. Given the potential magnitude and impact of the recommendations deriving from the CLI's Phase II research, the EPA and CLI participants wanted to determine whether we had gone about our research appropriately and whether independent researchers believed the recommendations were supported by the research. With those goals in mind, a peer review of the Phase II Draft Report was undertaken.

Document Reviewed

The document reviewed was the Consumer Labeling Initiative Phase II Report - Draft, July 1, 1999. The Report contained the following major sections: 1) Executive Summary; 2) Overview of Phase II of the CLI; 3) Quantitative Research; 4) Qualitative Research; 5) Quantitative and Qualitative Research Conclusions; 6) First Aid - Qualitative Research; 7) Phase II Sub-groups; 8) Partner and Task Force Meetings; 9) Stakeholder Interactions and Comments; 10) CLI Phase II Recommendations; and finally many appendices supporting the research efforts. Appendices included: 1) Lists of participants; 2) Quantitative, qualitative, and first aid research screening documents, discussion guides, questionnaires, and mock labels; 3) notes of all major meetings; and, 4) a list of stakeholders who had submitted comments. The stakeholder comments were not included in the reviewed draft, and were included in the subsequent revision.

Peer Reviewers

The peer review was conducted by four independent reviewers not associated with either the United States Environmental Protection Agency, or the Consumer Labeling Initiative project. Reviewers were selected based on their expertise or experience in the fields of consumer behavior, consumer opinion, risk and hazard communications, consumer research and testing, and consumer education. Reviewers included: Dr. J. Stanley Black, Community Response Analyst, Office of Community Relations, Illinois Environmental Protection Agency; Dr. Albert J. Ignatowski, Principal, HazCom Consulting, and Senior Fellow, Wharton School, Risk Management and Decision Processes Center, University of Pennsylvania; Dr. Sidney I. Lirtzman, Dean, Zicklin School of Business, and Emanuel Saxe Professor of Management, Baruch College, City University of New York; and Beth Resnick, Associate Director, Division of Public Health Practice, National Association of City and County Health Officials.

Charge to Reviewers

Reviewers were asked to respond to 26 questions in five categories: Study Design; Study Implementation--quantitative, qualitative, and research groups; Study Results and Recommendations; the Peer Review Process; and any other comments not falling into those categories. The questions, which are included later in this chapter, asked, for example, about the appropriateness of the study methodologies and statistical methods chosen, the adequacy of the screening and survey instruments used, whether the key learning objectives were represented sufficiently in the research; whether the findings and recommendations were clearly supported by the research, etc.

Summary of Reviewers' Comments

Generally all of the reviewers' responses to the review questions were quite positive. However, there were some specific criticisms which are mentioned below. The most negative comments concerned the length and complexity of the written questionnaire. Comments which were submitted concerning specifics in the report itself have been addressed in the final version and so are not addressed here.

Study Design

All of the reviewers agreed the methodologies used in the study were appropriate and addressed the key learning objectives. One reviewer suggested that presenting randomly selected householders with a set of varied label formats might have provided more realistic results than the mail or phone surveys, but he also said the cost and logistical complications of that approach might not have been warranted by the increased value of the information obtained. Another reviewer believed that more valid information with respect to comprehension would have been obtained using personal interviews. Another reviewer didn't think enough focus was given to label alternatives for low-level readers and non-English speakers.

Qualitative Study Implementation

Screeners

Generally the reviewers reported the recruitment procedures to be adequate. However, one reviewer stated it would have been better to focus on non-purchasers of products, and use the purchasers as a control group. Another reviewer said the selection criteria for the focus groups seemed quite inexact, but went on to say there were no claims that the groups were representative but only aimed for a reasonable variability.

Discussion Guides and Learning Objectives

All reviewers said the guides seemed sufficient and the objectives were represented. One reviewer suggested he would have asked participants for their preferences regarding label formats before showing any mock samples.

Mock Label Adequacy

All the reviewers agreed the labels were appropriate. One reviewer believed that there was too much emphasis on designing labels that mimicked existing FIFRA label design requirements, and then asking respondents if they liked them. The reviewer went on to say he would have preferred even more emphasis been devoted to isolating some key features of label design and presenting them in a manner to elicit respondent preferences. Another was concerned there appeared to have been too many labels.

Quantitative Study Implementation

Screeners and Discussion Guides

All reviewers generally agreed the recruitment screeners and discussion guides were appropriate and adequate.

Written Questionnaire

All of the reviewers felt the written questionnaire was entirely too long. They had concerns about its complexity, smallness of type, and dense format. They were concerned the length could have lead to "question fatigue" and at least one reviewer expressed some concern about projecting the results because of that fatigue. Another reviewer suggested it would have been better if the items in the questionnaire were divided among subgroups of the study population, with appropriate redundancy for checking constancy.

Statistical Methods

Generally the reviewers were satisfied, but one reviewer said the tables were primitive (only percentages are reported) and he couldn't tell if tests of significance were performed routinely or not. He went on to say the size of the quantitative sample is large enough that some of the results have to be considered very important.

Learning Objectives

All agreed the learning objectives were adequately represented in the mail and phone questionnaires.

One reviewer did not think it appropriate that industry funded the quantitative research.

Research Groups

When asked "did the work of the groups appear to reflect what was being learned in the qualitative and quantitative research" all but one reviewer claimed they were unable to answer the question because of its vagueness. One reviewer did say the work of the groups was consistent with the gist of the results from the quantitative research.

Study Results and Recommendations

Findings Supported by Research

All the reviewers agreed the findings were supported by the research. One said, however, there was no attempt to qualify or moderate the findings based on the quite divergent results of the subgroup of respondents, namely the less-well educated, lower-income, and minority populations.

Another reviewer expressed concern about whether we actually can determine consumers' current comprehension of the label language; although, he goes on to say "if one looks at the results of the preference data it is possible to draw the inference there is significant lack of comprehension of the standard label language because of preference for language which uses simpler words, phrases, and is active and directive toward specific goals." He later states it is only in the interviews on the first aid statements one is able to find reports of consumer confusion as to the meaning of words and phrases. This particular reviewer believed only personal interviews should be used to determine comprehension.

Use of Quotes

While the reviewers said the discussion and recommendations seemed relevant in relation to the quotes used, most said a wider sampling of quotes would have given them more confidence in the quotes selected.

Enough Raw Data Presented

All the reviewers agreed there was enough data presented. One reviewer said it should only be construed to represent consumer opinion and not actual behavior. He went on to say that while demographic information was obtained for all respondents, the tables are not broken down by these groups so the impact, if any, can be directly assessed. Another reviewer said "it is a very rich resource for evaluating consumer responses in this area."

All the reviewers agreed the conclusions and recommendations were supported by the findings and data.

Other Comments

Does the Report Adequately Explain the Project

All said yes, although one did say it was repetitive.

Are Stakeholder Concerns Adequately Represented/Addressed

Some reviewers felt stakeholder concerns were adequately represented, while others expressed some confusion or dissatisfaction. Limited stakeholder comments appeared in the version which was given to the peer reviewers. Significant additional stakeholder comments were included in the final version. One reviewer said more consumers and state and local agency representatives should have been included in the planning and steering groups and that increased retailer participation would have been helpful as well.

Storage and Disposal

One reviewer believed the extensive information on waste and container disposal was not well incorporated into consideration of the label design. Recommendations for including this information on labels seem "weak." The input for the various stakeholder groups was interesting but not directly germane to the study purpose. Another reviewer said it would have been more objective if both industry and the state and local organizations had presented reports or papers, rather than providing information differently.

Consumer Education

One reviewer suggested the education campaign should include references to source reduction and other alternative products and that retailers should be included since they will most likely play a large part in this effort.

One reviewer commented the study could have been significantly strengthened if more of the "interested parties" were professional hazard communicators. The reviewer went on to say he did not wish to diminish the value and import of much of what was learned; he found many of the conclusions immediately useful.

Peer Review Process

The reviewers all agreed this type of review should be done for similar efforts. One reviewer wrote the review procedure was commendable and long overdue. All reviewers agreed allotting more time to do the review would have been helpful. All agreed the materials provided to do the review were sufficient, but could have been organized better to facilitate the review; for example, the order of appendix materials, clearer labeling of appendix materials, references to the appropriate sections included in the questions, etc. One reviewer said the materials were unwieldy and offered several suggestions on how to improve the report.

Questions to the Peer Reviewers

Study Design

1. Were appropriate methodologies chosen to conduct the study?

2. Were appropriate methodologies chosen to address the key learning objectives?

Study Implementation

Qualitative:

3. Were the recruitment screeners appropriate to acquire the type of consumers needed to conduct this study?

4. Were the questions asked in the discussion guides appropriate and/or sufficient to acquire the necessary consumer opinions about labels?

5. Were the key learning objectives represented in the discussion guides?

6. Did the mock labels/samples appear to be adequate for the participants?

Quantitative:

7. Were the recruitment screeners and practices appropriate to acquire the type and quantity of consumers needed to conduct the quantitative survey?

8. Was the telephone interview outline adequate for its purpose?

9. Was the length, structure and content of the written questionnaire appropriate?

10. Were appropriate statistical methods and processes used to compile and evaluate the data from the surveys?

11. Were the key learning objectives adequately represented by the questions on the mail and phone surveys?

Research Groups:

12. Did the work of the groups appear to reflect what was being learned in the qualitative and quantitative research?

Study Results and Recommendations

13. Are the findings supported by the research?

14. Are the implications reasonable, based on the findings?

15. Based on the quotes provided in the text from the focus groups, do the discussion and recommendations seem relevant?

16. Is enough raw data presented to provide the reader with a clear picture of consumer behavior/opinions regarding labels?

17. Are the conclusions supported by the findings and data?

18. Do the recommendations appear supported by the research findings?

19. Do the report findings/recommendations concerning the consumer education campaign, storage and disposal, standardized information, etc. appear to be supported by the research?

Peer Review Process

20. Should the Agency consider this type of review for similar research efforts? If not, why not?

21. Were the materials sufficient for your review? If not, what additional materials would you like to have seen included in the package.

22. Was the time allotment adequate for review of the material and preparation of comments? If not, how much time do you believe is reasonably required to perform this review?

23. What changes would you suggest to improve the process?

Other

24. Does the report adequately explain the goals, process, and accomplishments of the project?

25. Are stakeholder concerns adequately represented/addressed?

26. Are there any additional areas you would like to address or comments you would like to include?