US EPA

Pollinator Summit March 5, 2013

Corn Dust Research Consortium

CDRC

David Inouye, Ph.D.
University of Maryland
Chairman, NAPPC
North American
Pollinator Protection
Campaign

Laurie Davies Adams
Executive Director,
Pollinator Partnership

Thanks to EPA

for creating a forum to discuss

pollinator/treated corn seed/corn dust interaction

Our Talk

1. Who We Are – Why We Are Here
2. Pollination and Pollinators
3. Human Behavior and Pesticides
4. The Issue - Honey Bees and Corn Planting
5. The Corn Dust Research Consortium

1. Who We Are – Why We Are Here

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Member NAS NRC Study on the Status of Pollinators of North America

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POLLINATOR PARTNERSHIP

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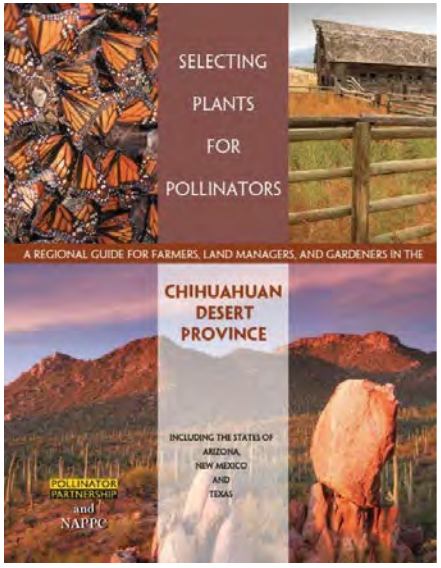
501 (c) 3 nonprofit

North American Pollinator Protection Campaign

NAPPC



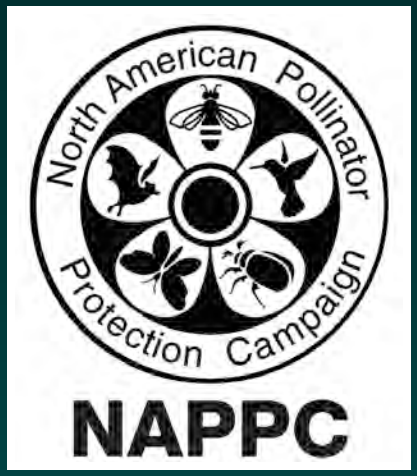
POLICY

Farm Bill

Transportation Act

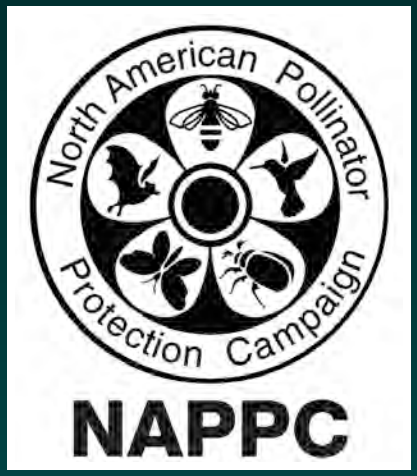
ORIGINAL RESEARCH

Currently in 11 states



Some NAPPC Partners

Some NAPPC Partners



Environment Canada | Environnement Canada

National Park Service
U.S. Department of the Interior

esa

USGS
science for a changing world

UNIVERSITY OF MARYLAND

NATIONAL WILDLIFE FEDERATION

U. S. Department of the Interior
Bureau of Land Management

ABF 1943
American Beekeeping Federation

AHPA

CSREES Cooperative State Research, Education, and Extension Service

Smithsonian
National Museum of Natural History

Conabio
Comisión nacional para el conocimiento y uso de la biodiversidad

DEFENDERS OF WILDLIFE

FAO FIAT PANIS

WILDLIFE HABITAT COUNCIL

WILDLIFE MANAGEMENT INSTITUTE WASHINGTON, D.C.

USDA

UNIVERSITY of GUELPH

NRCS Natural Resources Conservation Service

MISSOURI BOTANICAL GARDEN

pca

CONSERVATION INTERNATIONAL

Butterfly House
a division of the MISSOURI BOTANICAL GARDEN

NATIONAL GARDENING ASSOCIATION

U.S. DEPARTMENT of STATE

U.S. FISH & WILDLIFE SERVICE

National Fish and Wildlife Foundation

Mission: Support the health of pollinators through constructive engagement with all stakeholders

NAPPC

Science-based and Inclusive

Provide Web Resources

www.pollinator.org

www.nappc.org

North American Pollinator Protection Campaign
NAPPC

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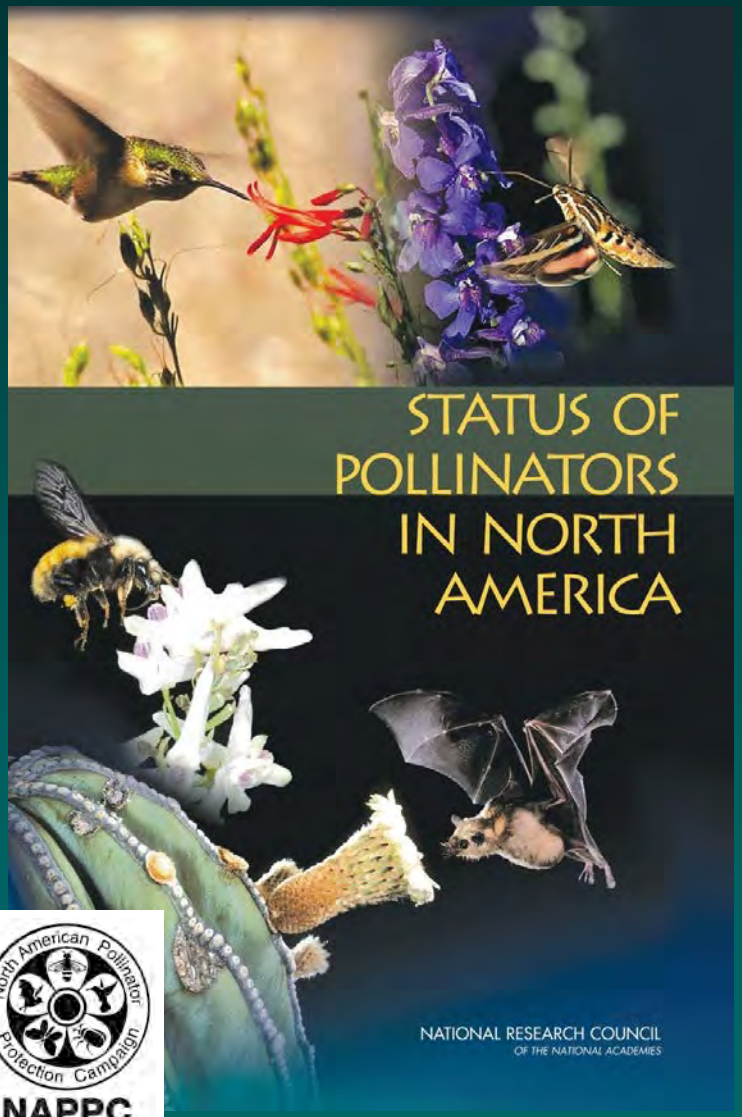
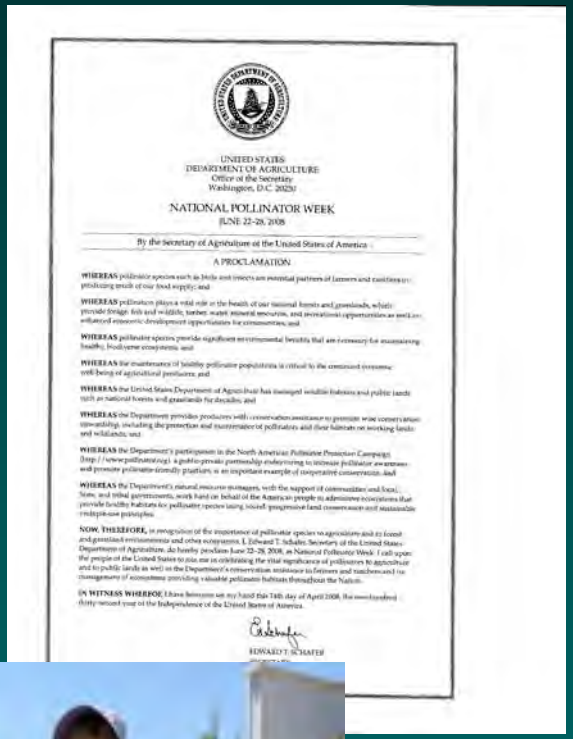
Support Scientific Assessment



- Began as NAPPC Task Force
- Introduced at 2006 NAPPC Meeting
- 300 stories globally in one week a month before CCD

NAPPC

Pollinator Week 7 Years



UNITED STATES
DEPARTMENT OF AGRICULTURE
Office of the Secretary
Washington, D.C. 20250

NATIONAL POLLINATOR WEEK
JUNE 22-28, 2008

By the Secretary of Agriculture of the United States of America

A PROCLAMATION

WHEREAS pollinator species such as birds and insects are essential partners of farmers and ranchers in producing much of our food supply; and

WHEREAS pollination plays a vital role in the health of our national forests and grasslands, which provide forage, fish and wildlife, lumber, water, mineral resources, and recreational opportunities as well as enhanced economic development opportunities for communities; and

WHEREAS pollinator species provide significant environmental benefits that are necessary for maintaining healthy, biodiverse ecosystems; and

WHEREAS the maintenance of healthy pollinator populations is critical to the continued economic well-being of agricultural producers; and

WHEREAS the United States Department of Agriculture has managed wildlife habitats and public lands such as national forests and grasslands for decades; and

WHEREAS the Department provides producers with conservation assistance to promote wise conservation stewardship, including the protection and maintenance of pollinators and their habitats on working lands and wildlands; and

WHEREAS the Department's participation in the North American Pollinator Protection Campaign (http://www.pollinator.org), a public-private partnership endeavoring to increase pollinator awareness and promote pollinator-friendly practices, is an important example of cooperative conservation; and

WHEREAS the Department's natural resource managers, with the support of communities and local, State, and tribal governments, work hard on behalf of the American people to administer ecosystems that provide healthy habitats for pollinator species using sound, progressive land conservation and sustainable multiple-use principles;

NOW, THEREFORE, in recognition of the importance of pollinator species to agriculture and to forest and grassland environments and other ecosystems, I, Edward T. Schafer, Secretary of the United States Department of Agriculture, do hereby proclaim June 22–28, 2008, as National Pollinator Week. I call upon the people of the United States to join me in celebrating the vital significance of pollinators to agriculture and to public lands as well as the Department's conservation assistance to farmers and ranchers and to management of ecosystems providing valuable pollinator habitats throughout the Nation.

IN WITNESS WHEREOF, I have hereunto set my hand this 14th day of April 2008, the two hundred thirty-second year of the Independence of the United States of America.

EDWARD T. SCHAFER

North American Pollinator Protection Campaign
NAPPC

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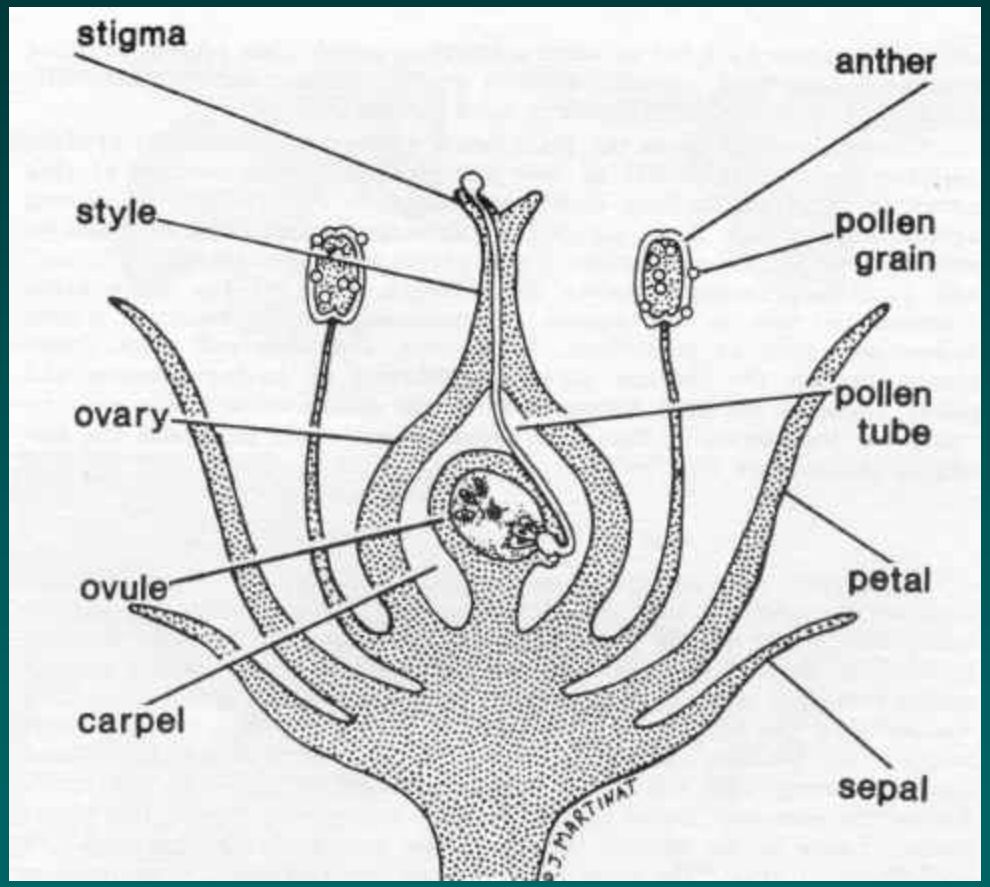
2. Pollination and Pollinators

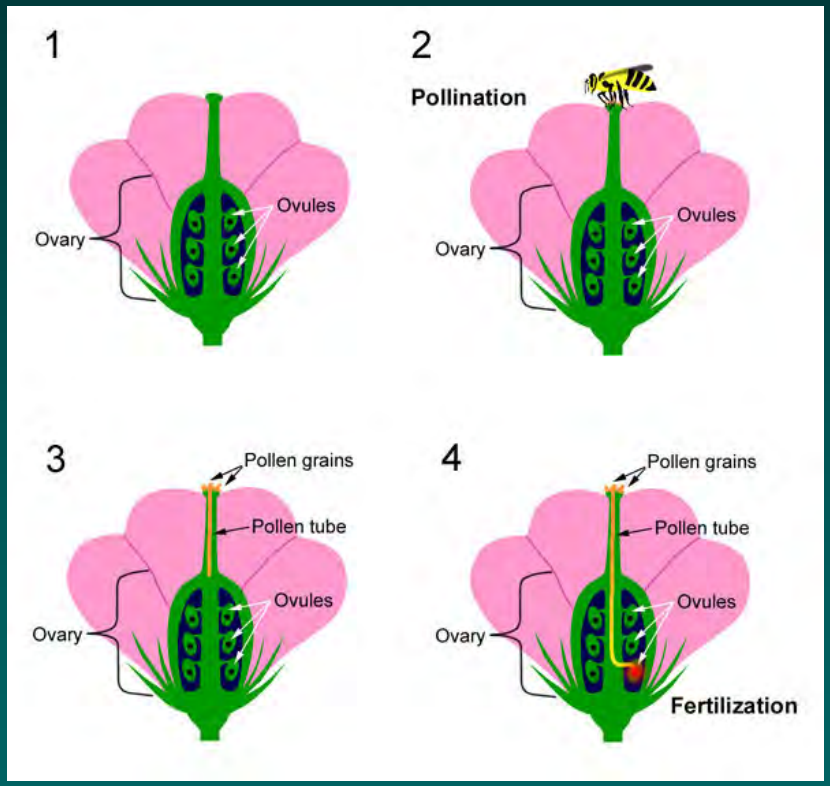
Pollination moves male part of the flower to female part and creates genetic diversity



Pollination by Animals

Almonds
Apples
Blueberries
Broccoli
Peppers
Cashews
Cauliflower
Collards
Cucumbers
Eggplant
Gourds
Kale
Kholrabi

Lemon
Mustard
Muskmelon
Okra
Parsley
Parsnip
Peaches
Pumpkins
Rutabaga
Squashes
Watermelons
and more . .



Pollinating Animals

- Birds
- Bees
- Bats
- Beetles
- Butterflies
- Moths
- Flies
- Small mammals
- Reptiles

The Importance of Pollinators

$200+ Billion Annually Worldwide

1 in 3 Bites of Food

Ecosystem Service in Natural Landscapes

Climate regulation

Disturbance regulation

Water regulation

Erosion control

Nutrient cycling

Waste treatment

Pollination

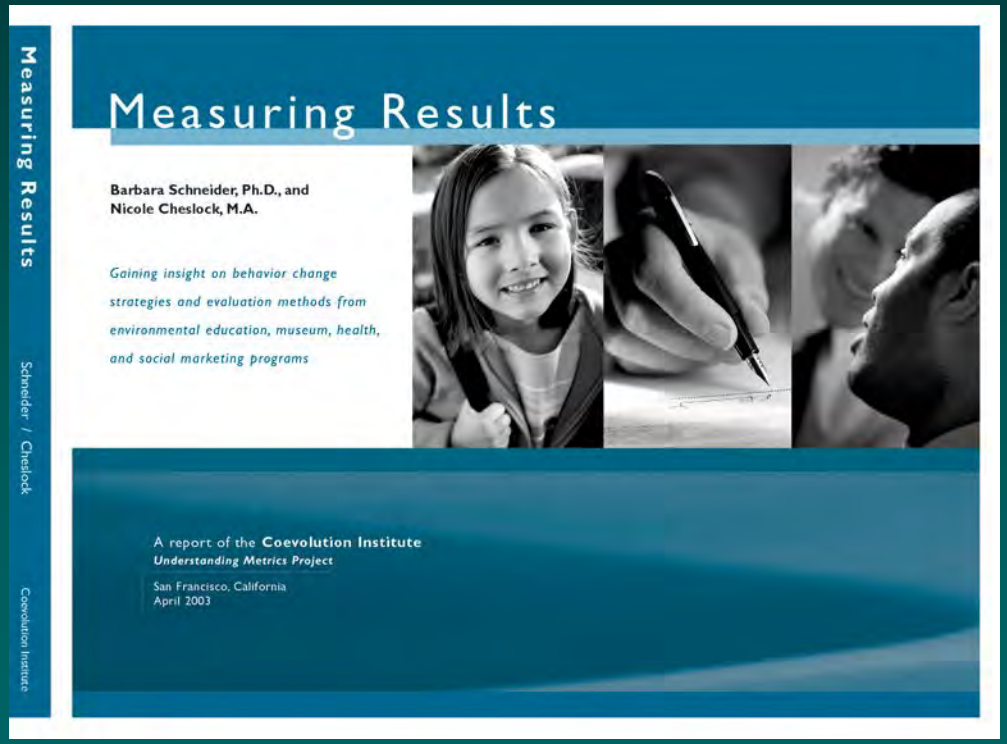
Pollinators Rely on Healthy Habitat

Problems for Honey Bees (and Other Pollinators)

- Lack of clean forage and habitat
- Mites and parasites
- Disease
- Genetic stock
- Management practices
- Pesticides

3. Human Behavior and Pesticides

Measuring Results and Changing Behavior



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Behavior Change is the Goal

- Start where people are
- Demonstrate specific behaviors based on science and tested experience
- Anticipate barriers to change
- Deliver the message through a credible source that your target trusts

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Pesticides - Reduce Harm

- A – Abstinence (Don’t use at all)
- B – Best Practices
- C – Consider Alternatives

Do not let perfectionism stand in the way of progress

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Pesticides - Be a Resource

List of 150+ pesticide research papers on

www.pollinator.org

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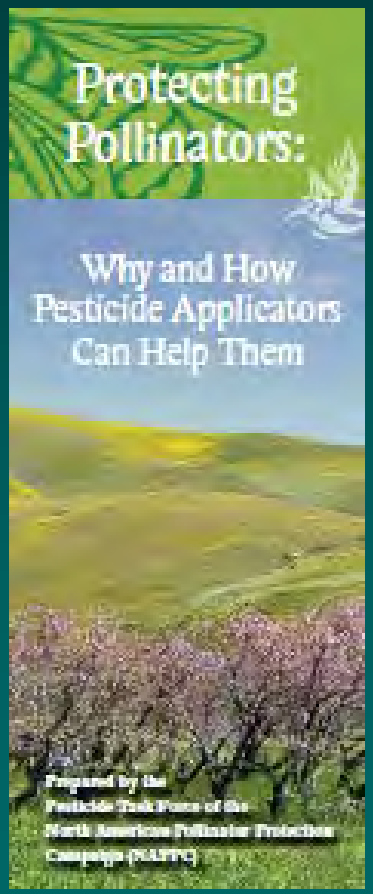
NAPPC Pesticide Task Force

Agricultural and Home Use



NAPPC Pesticide Task Force
CEC for Professional Applicators

- 90%+ of US Agriculture currently uses pesticides
- Seek to influence the behaviors of those who apply pesticides

4. The Issue – Honey Bees and Corn Planting

- Corn does not need animal pollinator visits to reproduce

- Honey bees gather corn pollen and take it back to the hive

The Current Issue is not the Plant but the Planting

The mechanical planting of treated corn seeds creates absorbent dust that holds a high accumulation of pesticides and is exhausted during seed planting, behind the planter and into the air using the exhaust fan.

Previous Treated Corn Incidents

OPERA

2008 Germany – incidents in flowers adjacent to fields during maize sowing – issue was the coating

2012 Ontario - 38 beekeepers reported incidents during April and May (coincident with corn planting)

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NAPPC Honey Bee Health Task Force

35 grants in 5 years

NAPPC Honey Bee Health Task Force

One grant targeted the issue we are addressing today

NAPPC

Introduced at and Funded by

NAPPC in 2011 - Krupke study

PURDUE UNIVERSITY

Goals of Krupke NAPPC Proposal

- Investigate how/when honeybees are exposed to neonicotinoids used for treating corn seed

- Assess periods of greatest risk, and the processes by which bees may pick up neonicotinoid insecticides

Some Corn Planting Background

- Most planting throughout the Midwest occurs in late April – early May
- Fields must be dry to be planted
- Treated seeds are sticky – require talc in planter to ensure uniform planting

Corn Dust

Krupke Summary and Next Steps

- Honey bees living near corn fields have multiple routes of exposure to neonicotinoid insecticides
- Exposure may be by contact (dust, soil), by ingestion (pollen), and is likely a combination
- Talc exhaust is an obvious target for mitigation
- Synergies? Neonicotinoids + fungicides
- Many flowering plants in fields before planting… effects on other pollinators?

Photo credit: Helen Hayes

Photo credit: MaiaT

Krupke Summary and Next Steps

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Photo credit: Helen Hayes

Photo credit: MaiaT

Presented before all the Stakeholders at NAPPC

- Pesticide manufacturers, researchers, beekeepers, regulators all heard this at once.
- Response - How can we solve this?
- EPA Stakeholder Meeting – October 2012 the week of the NAPPC meeting
- Solutions/challenges discussed – 3rd party collaboration

5. Corn Dust Research Consortium

- Working toward a focused analysis
- Leads to best-practices and change
- Collaborative, inclusive problem-solving
- Unique response to the problem

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American Beekeeping Federation
American Seed Trade Association
American Honey Producers Association
Association of Equipment Manufacturers
Bayer CropScience
Canadian Honey Council
Farm Equipment Manufacturers Association
National Corn Growers Association
Pollinator Partnership
Syngenta
University of Maryland

PLUS CDRC will seek protocol review from USDA ARS, Canadian PMRA, EPA

RFP Developed and Released Feb. 4

- Sent to over 900 individuals
- 4 LISTSERVs in US and Canada
- Researched land grant Universities in Corn Belt states and sent to each Dept. of Ag and Dept. of Entomology
- Sent to any recommended researcher in US and Canada

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Corn Dust Research Consortium

Question 1

What are the foraging conditions around corn fields at planting time?

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Corn Dust Research Consortium

Question 2

How does a new alternative to current lubricants (talc or graphite) compare?

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Question 1

The Objective: Develop recommendations for best management practices that growers can follow in order to minimize exposure of forager honey bees to seed dust while maintaining as much forage for honey bees as possible.

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Question 2

The Intent: Evaluate alternative lubricant for planting corn seed in the US Midwest and in the main corn growing areas of Canada.

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BOTH Questions

The Goal: Produce peer-reviewed published papers to advance the understanding of the issue through open and transparent oversight.

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What CDRC is NOT -

1. An endorsement of seed treatment, neonicotinoids, or any practice
2. A program with a preconceived outcome
3. A study involving any pollinator other than honey bees
4. A CCD examination
5. Applicable to any other crop until tested
6. An examination of all the routes of exposure
7. An examination of synergistic relationships (i.e. insecticides and fungicides)

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Again - Focus on 2 Questions

1. What are the foraging circumstances during corn planting for honey bees?
2. How does a substitute lubricant compare to talc and graphite (current practice) during corn planting?

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Timeframe

- March 5 – March 8 – Evaluate proposals -TODAY
- March 12 – Deliberations based on proposals
- March 15 – Award grants
- April-May – Spring corn planting
- August 1 – Progress report due
- December 1 – 1st year final report due
- January-February – determine possible improvements in corn planting best practices in time for dissemination before spring planting 2014

CDRC

- Comprehensive response to a specific problem
- Collaborative input and oversight
- Addressed quickly – in time to be helpful
- Private and NGO funding for major research
- Model for future problem solving

Recap

- Research 2 questions during the 2013 corn planting season
- Produce published peer-reviewed research
- Goal of research is to inform best practices to reduce bee kills and increase forage
- Oversight is by Corn Dust Research Consortium

CDRC

For more information about the
Corn Dust Research Consortium
or Pollinators
www.pollinator.org
or Contact us

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Photo credits

- John Obermeyer
- Christian Krupke
- Helen Hayes
- Maia T
- David Inouye

THANK YOU - Let’s Go Forward Together

CDRC