

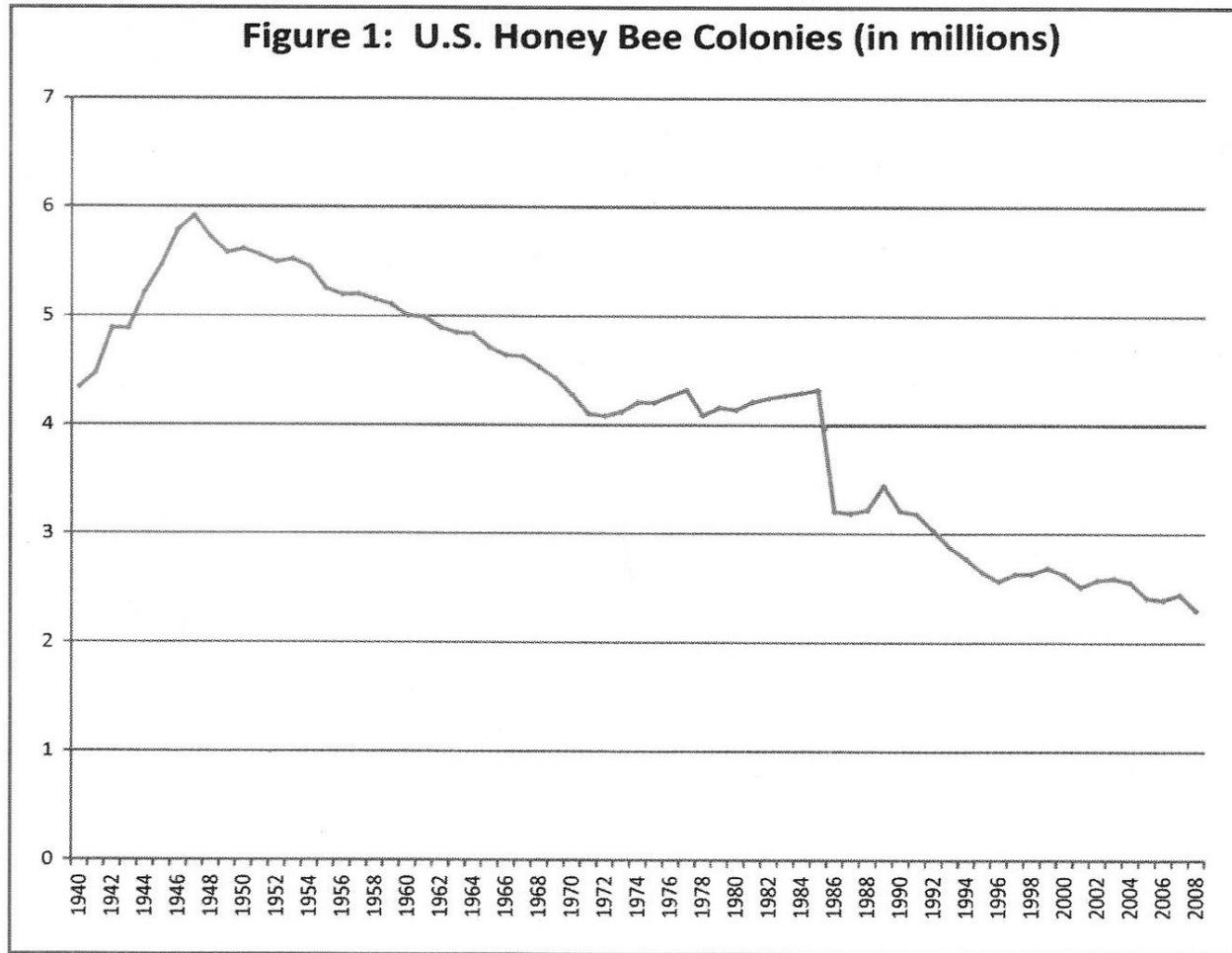


U.S. Honey Bee Colony Losses over a seven year period, 2007-13

- ! 2007 survey = 32% colony loss
- ! 2008 survey = 35% colony loss
- ! 2009 survey = 29% colony loss
- ! 2010 survey = 34% colony loss
- ! 2011 survey = 34% colony loss
- ! 2012 survey = 22% colony loss
- ! 2013 estimate 40% colony loss



- The number of hives since 1946



December 2009

2007 survey = 32% loss x 2.5 million hives = 800,000 hives loss

2008 survey = 35% loss x 2.5 million hives = 875,000 hives loss

2009 survey = 29% loss x 2.5 million hives = 725,000 hives loss

2010 survey = 34% loss x 2.5 million hives = 850,000 hives loss

2011 survey = 34% loss x 2.5 million hives = 850,000 hives loss

2012 survey = 22% loss x 2.5 million hives = 550,000 hives loss

2013 estimate 40% loss x 2.5 million hives = 1,000,000 hives loss

Total 5,650,000 hives loss

Beehives @ \$200 cash cost to operate / hive \$1,130,000,000



Rabobank



The Plight of the Honey Bee

Why the Loss of Honey Bee Colonies May Sting Global Agriculture

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**According to Alexandra Klein et alia (2006) 87 of the leading global food crops are dependent on animal pollination. We have included the production volumes per country of those crops for which sufficient data for the period 1961-2009 was available. This has resulted in a basket of 35 leading crops with a varying number of countries per crop, depending on the availability of data. The aggregate production volume has been indexed with 1961 as the base year. Crops included are: almond, apple, apricots, avocado, aubergine/eggplant, blueberry, broad bean, buckwheat, cantaloupe/melon, cashew nut, cherry, chilli, cocoa, coconut, coffee, cotton, cowpea, cranberry, cucumber, grapefruit, lemon, mango, okra, orange, papaya, peach, nectarine, pear, plum/sloe, pumpkin, rapeseed, raspberry, soybean, sunflower seed, tomato, watermelon.*

The recent steep increase in honey bee colony losses mainly in Europe and the United States has drawn much attention. There are reasons for concern. Approximately one-third of global food production is to some extent dependent on animal pollination, mainly by the honey bee. This dependence is growing as the production of pollination-requiring crops is increasing rapidly and the role of wild pollinators is shrinking.

Introduction

A steep increase in honey bee colony losses has been reported around the globe in recent years. In the United States (US), a phenomenon called 'colony collapse disorder' — first discovered in 2006 — has caused inexplicable losses. The rate of bee colonies not surviving the winter ranged between 30 percent and 35 percent on average for the years 2006/2007 to 2009/2010 — a loss rate of 10 percent would be considered normal. However, some of the worst-hit beekeepers have reported losses of up to 90 percent. Most countries in Europe have also been experiencing colony losses above 20 percent in the past few years. What exactly is causing the increased colony losses remains subject to further investigation. However, the academic world now seems to agree that rather than one factor there is a mixture of potentially synergistic causes for the losses. Although problems have been the worst in Europe and the US, inexplicable losses are also being witnessed in Asia, South America and the Middle East.

This increase in bee colony losses has drawn much attention from the media, politicians, the academic world and the general public. Some even paint apocalyptic scenarios whereby mankind could vanish along with the honey bee. But this is unlikely, as some of the major staple crops like rice, wheat and corn do not require animal pollination. Also, high bee colony losses are not entirely new: in the early 20th century, an epidemic known as the Isle of Wight disease wiped out nearly all the bees from the British Isles.

Nevertheless, there is some reason for concern. A further decline in honey bee numbers could cause a pollination shortage and subsequently impact yields of pollination-dependent crops like apples, pears and cocoa. In a more extreme scenario,

farmers might not be able to grow some crops profitably. Furthermore, the issue — which is now global rather than local — is compounded by world agriculture's increasing dependence on the honey bee.

Agriculture Becoming Increasingly Dependent on Bee Pollination

Some 90 agricultural crops, representing one-third of global food production volume, are to some extent dependent on animal pollination. The total value is even higher as pollination-dependent crops — like apples, blueberries and coffee — tend to be more valuable than wind-pollinated crops like wheat, rice and corn. There are several pollinating animal species, but the domesticated honey bee is by far the most important one, accounting for an average of 80 percent to 90 percent of total animal pollination.

The impact of pollination varies by crop. For some crops, like almonds or melons, pollination is absolutely essential as poor pollination would cause a failed harvest. For other crops, such as oranges and grapefruit, pollination has a small but valuable impact on the size and quality of the fruit.

In the past 50 years, global production of pollination-dependent crops has grown at an accelerated pace relative to the overall growth in food production. In the past five decades, world food production tripled while the production of our reference basket of pollination-dependent crops¹ nearly quintupled (see Figure 1).

In other words: pollination-dependent crops represent a larger proportion of the average diet than they did 50 years ago. This is because rising disposable incomes have encouraged consumers to include more fresh fruits and vegetables in their

- Bees for agriculture **must** be conserved
- To meet the needs of specialty crops
- To feed our country
- To have high value exports

- Farmers need to produce healthy crops
- Some crop protection products are needed
- Some crops need bees

- Seed coating products dust are highly toxic to bees

- **NHBAB suggested mandatory language to EPA for neonicotinoid seed treatments:**
- **Plant treated seed only in accordance with Integrated Pest Management principles. Use of scouting and field history information can reveal whether economically damaging levels of pests controlled by seed treatment insecticides are present in the field. When using transgenic corn hybrids and/or granular or liquid insecticides to control key pests, treated seed may not be necessary.**
- **Only use seeds treated with an effective adhesive agent and perhaps a polymer over coating to prevent abrasion of insecticidal dust from the seed and release to the environment. Only use corn seeds with coatings that do not exceed a Heubach dust abrasion value of 0.75 grams of dust per 100,000 kernels of corn [[substitute similar “kernel equivalent” for other crops – EPA is requested to provide the appropriate technical specification]]**

- **If lubricants are used in planter seed hoppers, then only use lubricants causing minimal dust off.**
- **Use deflectors and other measures on planters to adequately restrict dust to the planted field margins.**
- **Planting treated seeds causes insecticidal dust drift. Drift is more of a hazard the faster the wind speed. Do not sow treated seeds when measured wind velocity exceeds ten (10) miles per hour.**
- **Do not dispose of dust remaining in planters after planting into the environment. Carefully collect, cover and enclose the dust and dispose of it in accordance with the disposal requirements for unused portions of this insecticide according to this label.**

- No One wants Bee losses
- Bee losses are costing beekeepers and specialty crops
- Seed coating products have risk and benefits
- Cost for crop gains should not be externalized on the Bee Industry, Seed Industry and Specialty crops

- When damages occur to bees from planter dust Beekeepers need compensation to rebuild there bees
- To serve agriculture's seed and specialty crops
- Cost should not be externalized
- Risk and associated cost should be coupled to those who directly benefit form seed coating

- Cost for crop gains should not be externalized on the Bee Industry, Seed Industry and Specialty crops
- The Bee Industry wants to say thanks all who realize bees are an important component of agricultural production and are critical to food and ecosystems