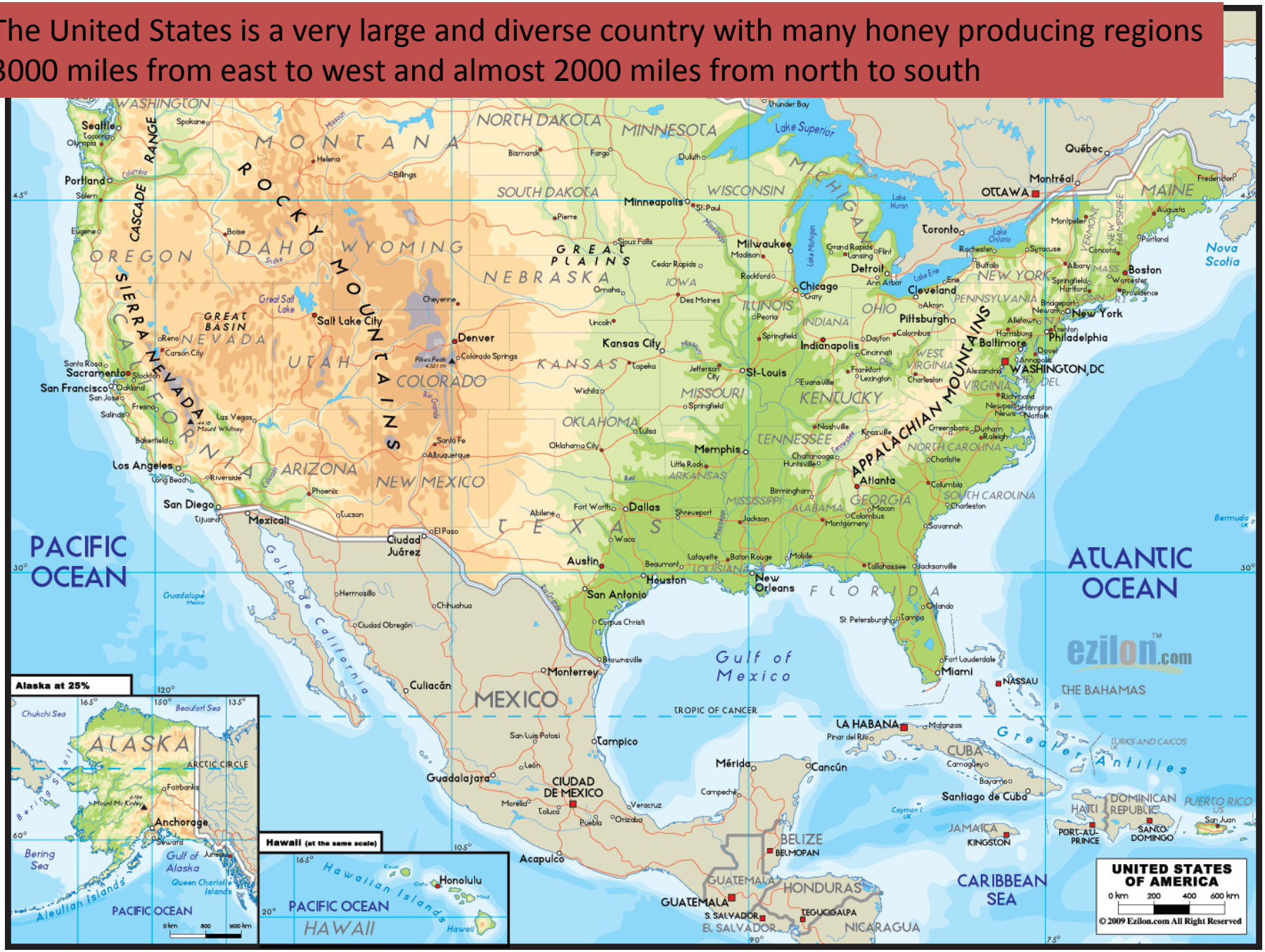
BEEKEEPING IN THE UNITED STATES

APICULTURAS EN LOS ESTADOS UNIDOS

The United States is a very large and diverse country with many honey producing regions 3000 miles from east to west and almost 2000 miles from north to south



U.S. BEEKEEPERS

- 2.4 million hives
- 200,000+ small scale beekeepers (<5 hives)
- 1000+ part time beekeepers (40 – 300 hives)
- 1000+ commercial beekeepers (>500 hives)
- 40 + large scale beekeepers (>10,000 hives)
- 75%+ of the bees in the US are operated by commercial beekeepers

COMMERCIAL BEEKEEPING
primary sources of income

1. Crop pollination

   $250+ million pollination fees

2. Honey production

   $200 million wholesale pricing

3. Queen and package bees

   $<3 million?

HONEY PRODUCTION VS. CROP POLLINATION

- Over last 5 years, total honey production in United States is less than 200 million pounds(<$200 million).
- During same period crop pollination fees have exceeded the value of honey to most commercial beekeepers (California almonds alone uses 1.4 million hives @ $140 per hive = almost $200 million)
- Pollination has become much more important to US beekeepers than honey production
- Honeybees add $18 Billion dollars of value to pollinated crops in the United States

Top 10 Honey production areas

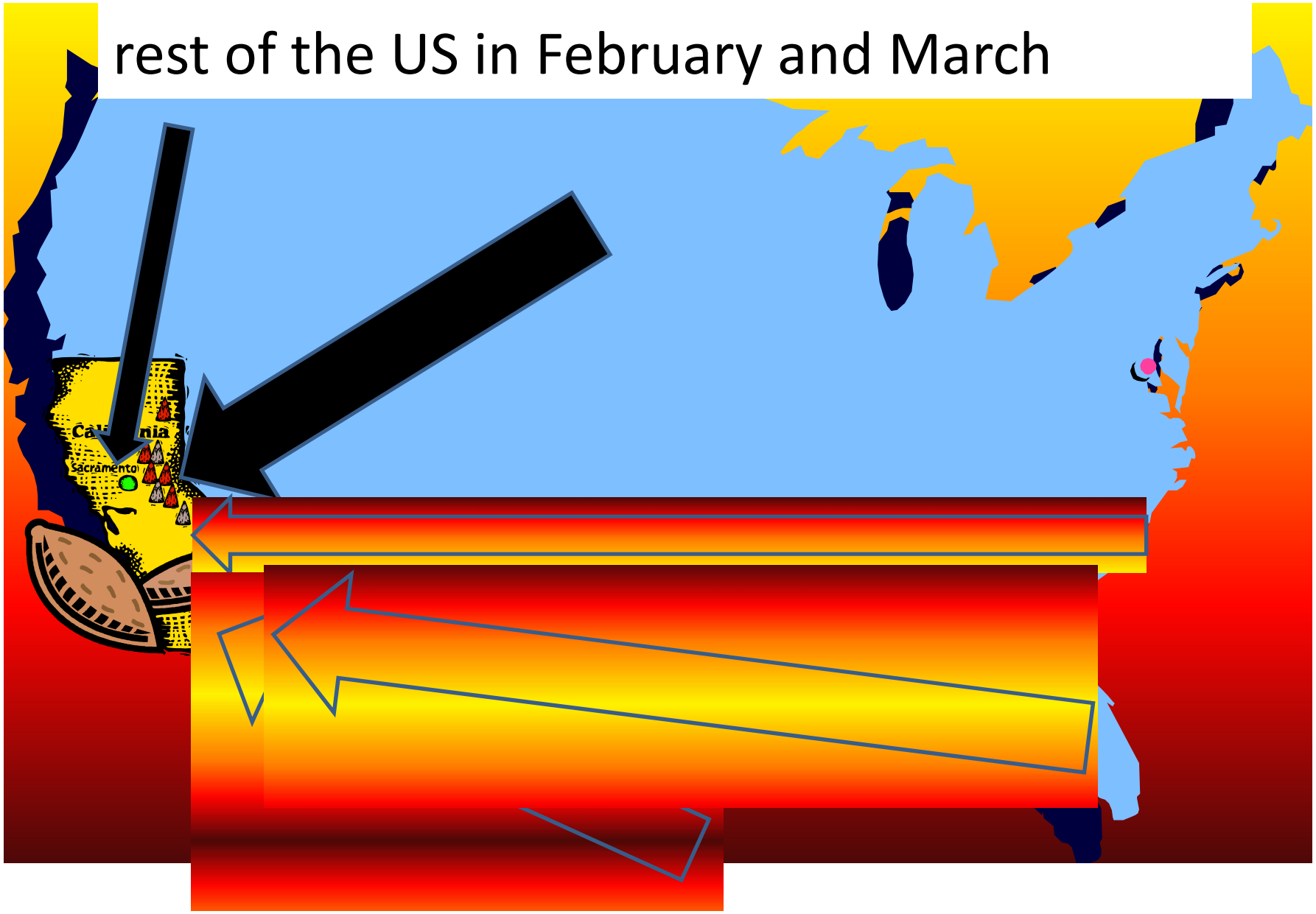
1. North Dakota
2. South Dakota
3. California
4. Florida
5. Montana
6. Minnesota
7. Michigan
8. Wisconsin
9. Texas

10+. Georgia, New York, Idaho

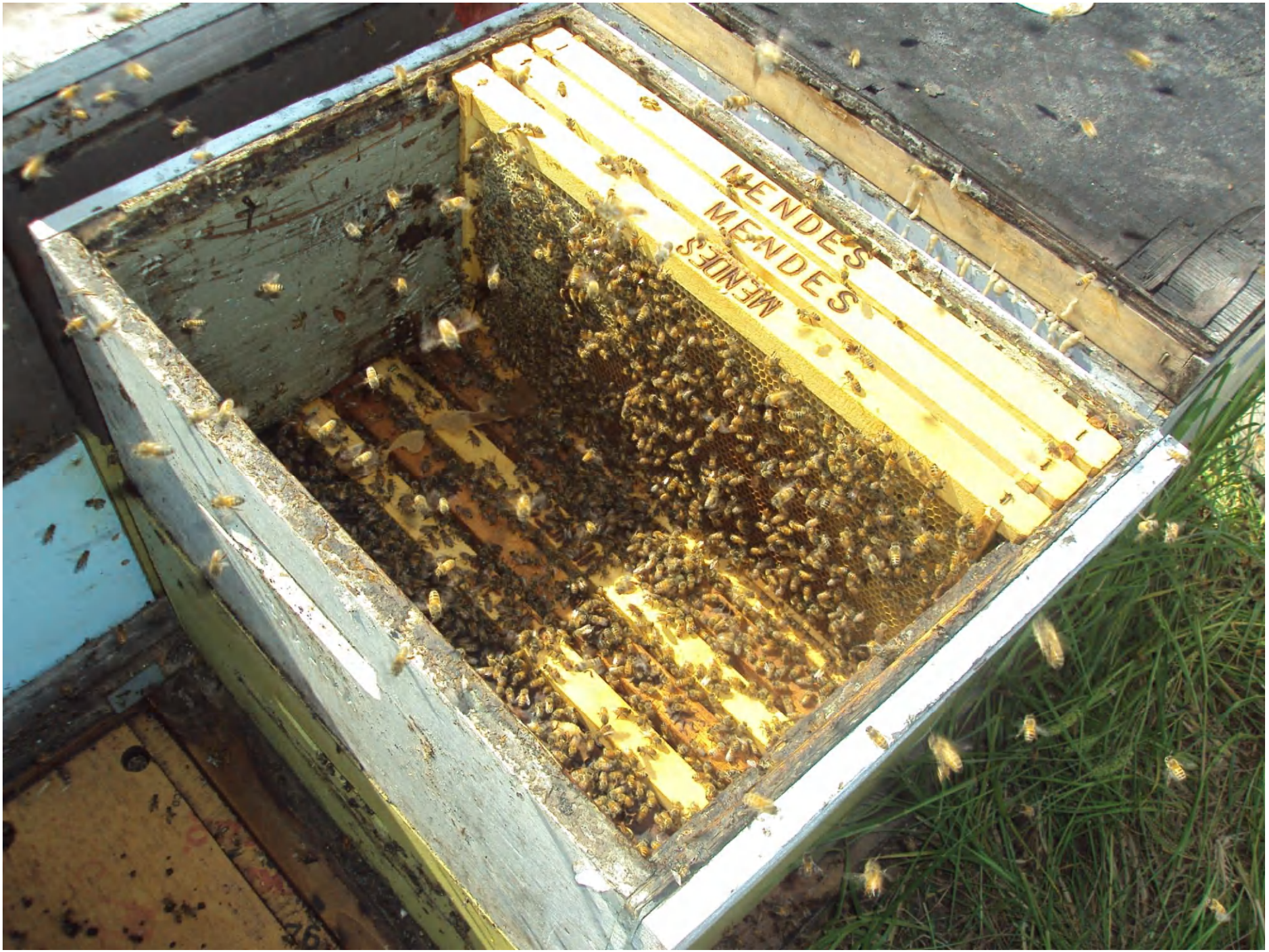
CROP POLLINATIONS

- Almonds - 1.4 million hives, February to March in California
- Apples – Washington, New York, Maine, Pennsylvania, North Carolina
- Blueberries - Oregon, Michigan, Maine, New Jersey, Georgia, Florida,
- Cranberries – Wisconsin, Massachusetts, Washington, New Jersey
- Vine crops – watermelons, cucumbers, squash found in many states
- Seed crops - alfalfa, onion, carrot, canola, found mostly in the western states

California Almonds receive hives from the rest of the US in February and March



Many Us beekeepers use 10 frame double deep hives. Most commercial beekeepers keep their hives on pallets. I place 6 hives on a pallet. It is more popular to see 4 hives on a pallet.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Most commercial US beekeepers use forklifts. Bobcat loaders are popular

Hives ready to be loaded on a truck

Loading semis at night

Arriving in California

Unloading in the field

Just before almond bloom

Almond bloom

Ten wheel truck load of bee

Small truck spreading bees in the field

Blueberry pollination in Maine

Honeybee Health concerns

- Pathogens
- Pesticides
- Nutrition
- Colony Collapse Disorder???
- Queen failure
- Population dynamics

Hive pathogens

1. Varroa mites (most serious)
   - direct damage from mites
   - carrier for viruses
   - added pesticide exposure to control
2. Nosema Ceranae (many are not treating)
3. American Foulbrood (antibiotics effective)
4. European Foulbrood (antibiotics effective
5. Tracheal mites (most are not treating)

Pesticide exposure

Varroa mite treatments:

Fluvalinate and coumaphos are most common residue in wax and pollen.

Plant Protection Products (PPP):

Insecticides – direct kill plus residue in hive

Fungicides - high levels in wax and pollen

Herbicides – reduce forage

Concern with sublethal effects of active and inert ingredients bees are exposed to over time. Tank mix of several PPP is common. Synergistic combinations or chronic exposure are not tested by regulatory officials. Impact to pollinators is often unknown.

Nutrition

- Good bee forage has become more difficult to secure
- Agricultural monocultures (especially round up ready crops) offer limited variety of pollen
- Concern with Fungicides damaging pro-biotic bacteria in honeybee digestive tract
- CCD bees show damage to digestive tract. Sick bees stop eating

Colony Collapse Disorder or CCD

Symptoms:

- Rapid depopulation of hive (in a few days)
- queen and small group of bees remain
- absence of wax moth or hive beetles
- often find plenty of honey and pollen

No clear explanation for this phenomenon yet.

Some beekeepers have lost 90%+ of hives.

Queen Failure

- Several beekeepers report that queens do not last a full year
- Even new queens often supercede within 30 days of introduction
- Not sure if the problem is in the production of queens (problems in mating) or in hive that queen is introduced.
- Queen loss over 30% has become common

Population Dynamics

- Many hives will not build populations even under spring conditions
- Hives that don’t build properly have mostly young bees
- Honey production is severely compromised

Hive management

Effective strategies to control varroa are crucial to hive survival:

- Many beekeepers use a combination of genetic selection, chemical control, comb replacement, and constant splitting to maintain hive counts

Focus on Nutrition:

- Feeding protein and syrup has become important to ensure proper nutrition.

Location selection:

- Some agricultural areas have become very difficult to keep bees near. GMO crops like corn, soybeans, and cotton are problems.

Cost of production:

- Average cost of production to provide a strong hive for almond pollination is estimated at $200 per hive per year.


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