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Pollination – A Beekeeper's Perspective

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Beekeeping has changed

- Mid-20th Century
- Larger-scale farming
- Hundred-acre fields of a single crop
- Fewer family farms with garden and orchard
- Grandfather’s honey bees gone from farm

Contributing Factors

- Expanded scale of U.S. agriculture
- Global transportation of foodstuffs
- Importation of foreign honey
- Introduction of artificial sweeteners
- Falling prices for U.S. - produced honey
- Increased urbanization of America
- “Disconnect” between public and Nature

Migratory Beekeeping

- Wintering in the South
- Transportation to distant crops
- Cranberries - Maine
- Apples - New York
- Pickles - Maryland
- Canola - Dakotas
- Sunflowers - Idaho
- Following the bloom

Almond Pollination

- Major economic force in U.S. beekeeping
- Increase in world price has driven increased acreage
- 1.2M colonies needed to pollinate almonds each year
- 50% of all honey bee colonies in America

Beekeeping has its challenges

- Bacterial diseases
- Pesticides
- Parasitic mites
- Viral infections
- Africanized honey bees
- Small hive beetles
- Colony Collapse Disorder (CCD)

Beekeepers are resourceful

- Sideline beekeepers (100-500 colonies) moved into niche of small farms/ orchards
- Hobbyists increased in urban settings
- New beekeepers proliferated rapidly as environmental awareness/ concerns took “center stage”

Honey Bee Genome

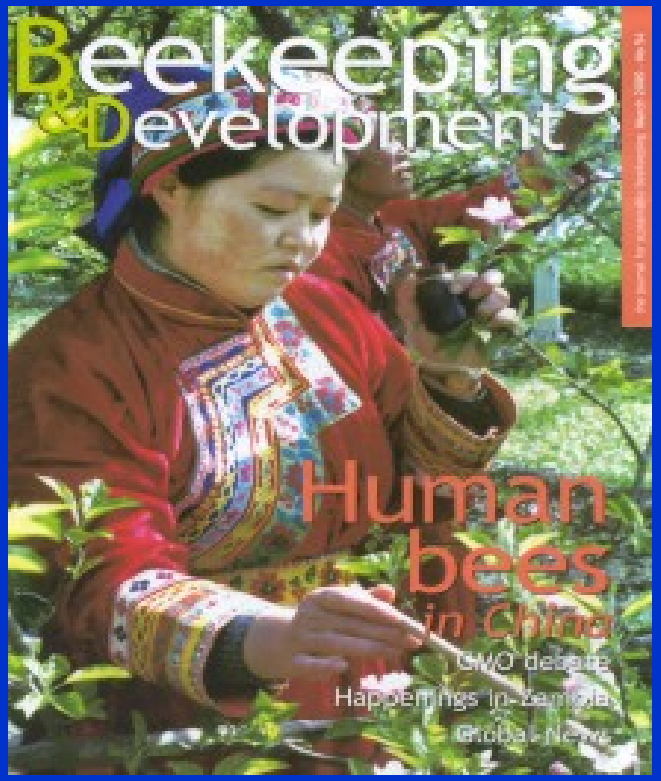
- Sequenced at Baylor University with funding from the National Human Genome Research Institute (NHGRI), National Institutes of Health
- Enabled innovative research in such areas as:
  - honey bee nutrition and health
  - immunologic responses to the environment
  - social behavior of individual bees
  - colony function as a “super-organism”

CCD - a Wake-up Call

- Rapidity and scope of honey bee losses almost unbelievable
- Highlighted the dependence of agriculture upon honey bee pollination
- Demonstrated the fragility of the system as a whole
- Refocused attention on pollinators as indicators of environmental health

Very close to the Tipping Point

- Honey bees in U.S.A. barely sufficient to meet current demand
- Honey bee health is in jeopardy
- Importation of bees is not sustainable
- Alternative pollinators are not available to meet requirements



Requirements for the Future

- Continuing education of the public
- Additional research on honey bee issues
- Better understanding of relationships among all insect pollinators
- Further exploration of interactions between agricultural practices and pollinators
- Development of resiliency within the pollinator community

Resiliency

The ability to respond to,
to mitigate the impact of, and
to recover from an adverse event

Components of a Resilient Beekeeping Industry

- Nationwide network of sentinel colonies for the detection of adverse events
- Periodic sampling of sentinel colonies and detection/ identification of potential threats
- Means to assess promptly and respond appropriately to detected threats or insults
- Reserve or replacement colonies or bees to be deployed to impacted areas