

# Honey Bee Colony Collapse

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[www.ent.uga.edu/bees](http://www.ent.uga.edu/bees)

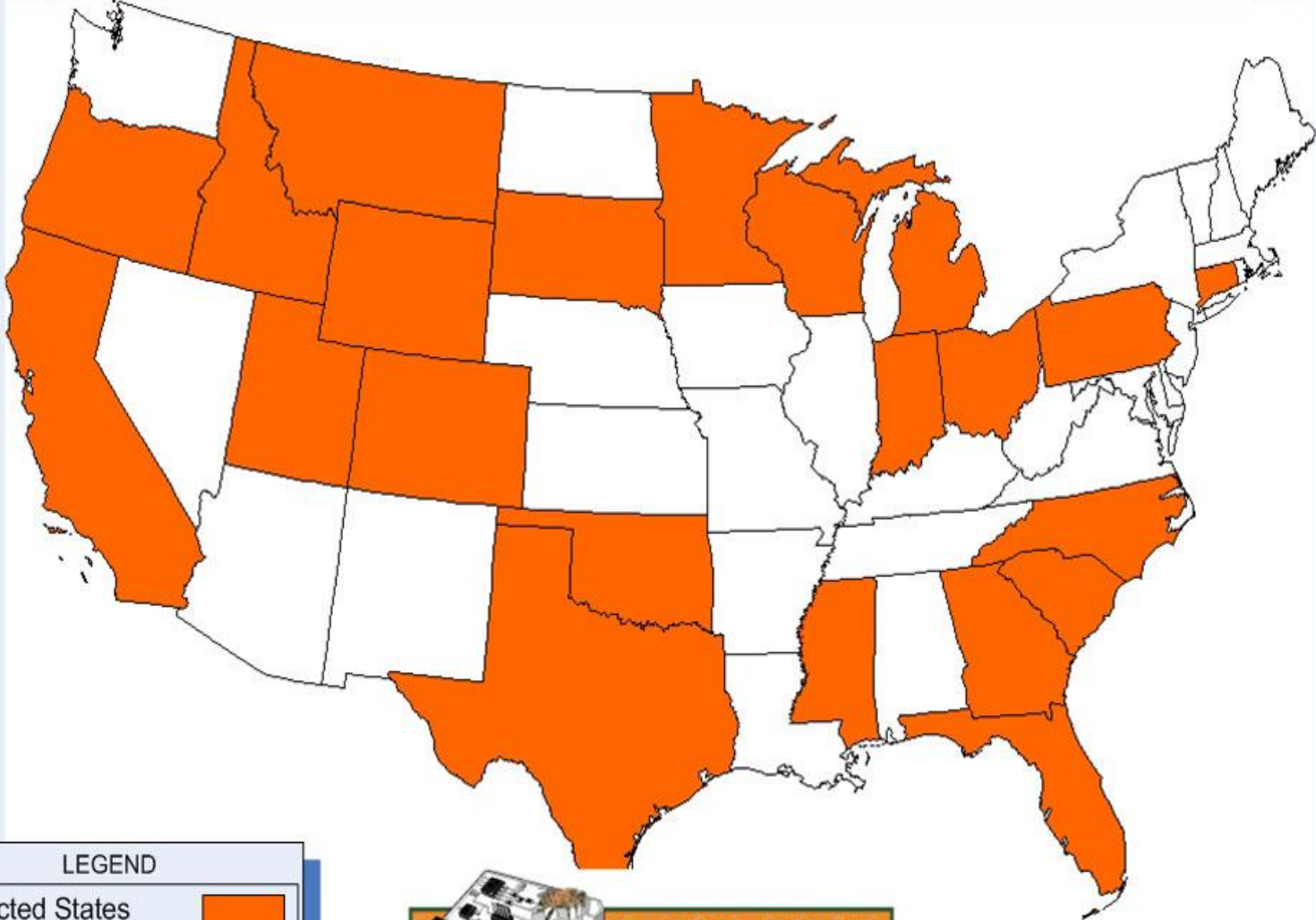


# CCD Symptoms



- Sudden loss of adults
- Queen, small cluster and brood remain
- Honey not robbed out
- No secondary pests

Honey bee Colony Collapse Disorder  
Map of Affected States February, 2007




LEGEND

Affected States	
Non-reported States	



Analysis & Map Support  
by Lupine Logic Inc.  
(2/13/2007)



# Cause-and-effect

## Out of our control

- Environmental pesticides
- Exotic pathogens
- Mite-associated viruses
- Parasitic mites
- Shrinking forages

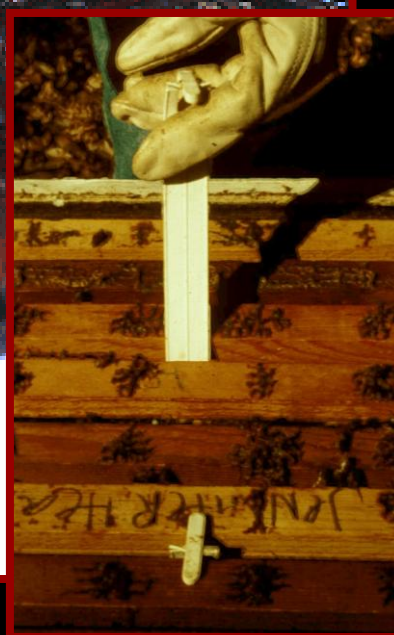
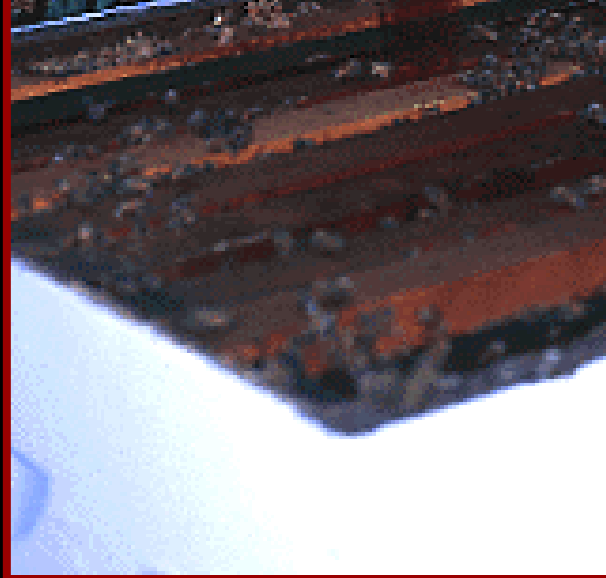


## In our control

- In-hive pesticides
- Migratory stress
- Nutrition
- Decrease in genetic diversity
- Management





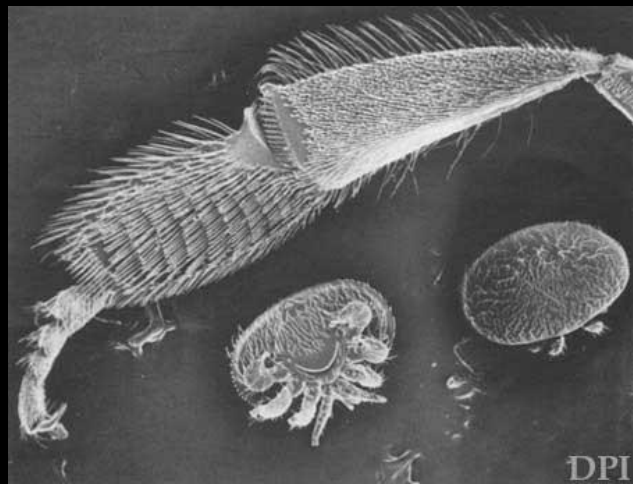
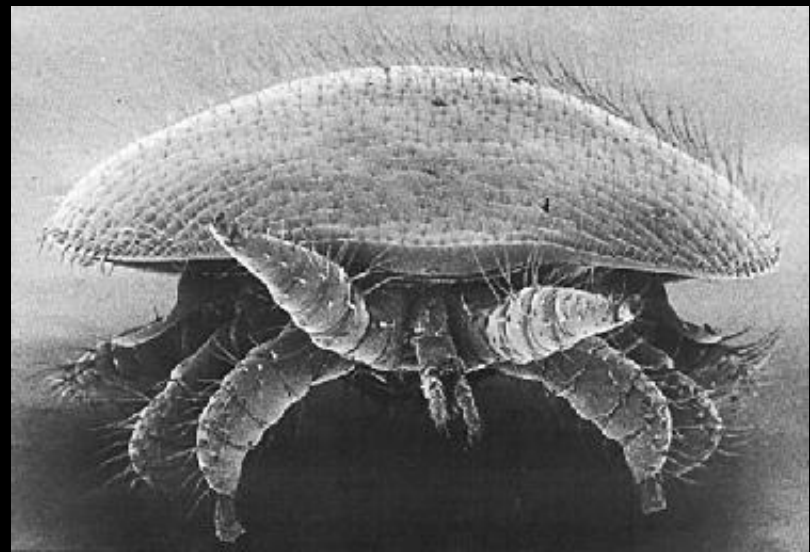




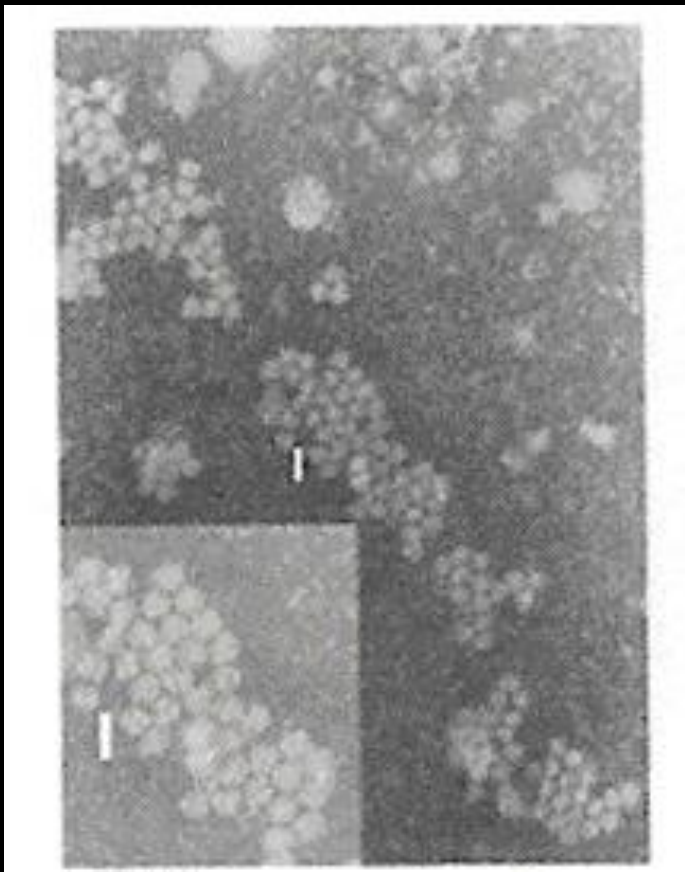


# Pre-Wax Sample #2

Pesticide Residue	Result (PPB)	LOD (PPB)
2,4-dimethylaniline	N.D.	4.0
2,4-dimethylphenyl formamide	N.D.	4.0
Amitraz	N.D.	4.0
Coumaphos	870	1.0
Coumaphos oxon	31	1.0
Fluvalinate	2500	1.0







IAPV

*Nosema ceranae*











## Benefits of Pollination

- National average  
\$14.2 billion
- Georgia average  
\$70 million







# Preventative Measures



- Apply pesticides in late evening when bees have ceased foraging
  - Do not contaminate blooms
  - Use pesticides that degrade rapidly and completely
  - Avoid application of pesticides during windy days to discourage drift
- Use formulations of pesticides that are less hazardous
    - Granulars, solutions and soluble powder
    - Avoid dusts and wettable powders



# Pesticide Classes Not As Toxic To Honeybees

- Synthetic pyrethroids (Permethrin)
- Botanicals (Pyrethrins and Rotenone)
- Soaps
- Oils
- Microbial Pathogens (*Bacillus thuringiensis*: Dipel)