

Varroa sampling guidelines



Katie Lee
M.S. student



Impact of *Varroa destructor* on Honey bees

- Reduced body weight
(Schneider and Drescher, 1987)
- Reduced longevity
(De Jong et al., 1982)
- Suppressed immune system
(Yang and Cox-Foster, 2005)
- Virus Transmission
(Reviewed in Chen, Evans and Feldlaufer, 2006; Chen and Siede, 2007)



Goal: Develop a standard, quick and accurate method to sample *Varroa*



Colony



Apiary

Methods: Sampled mites on adults in 548 colonies and mites in brood in 80 colonies over 2 years

Methods

Sampled an average of 35 bees from each comb in 20 ml of 70% ethanol

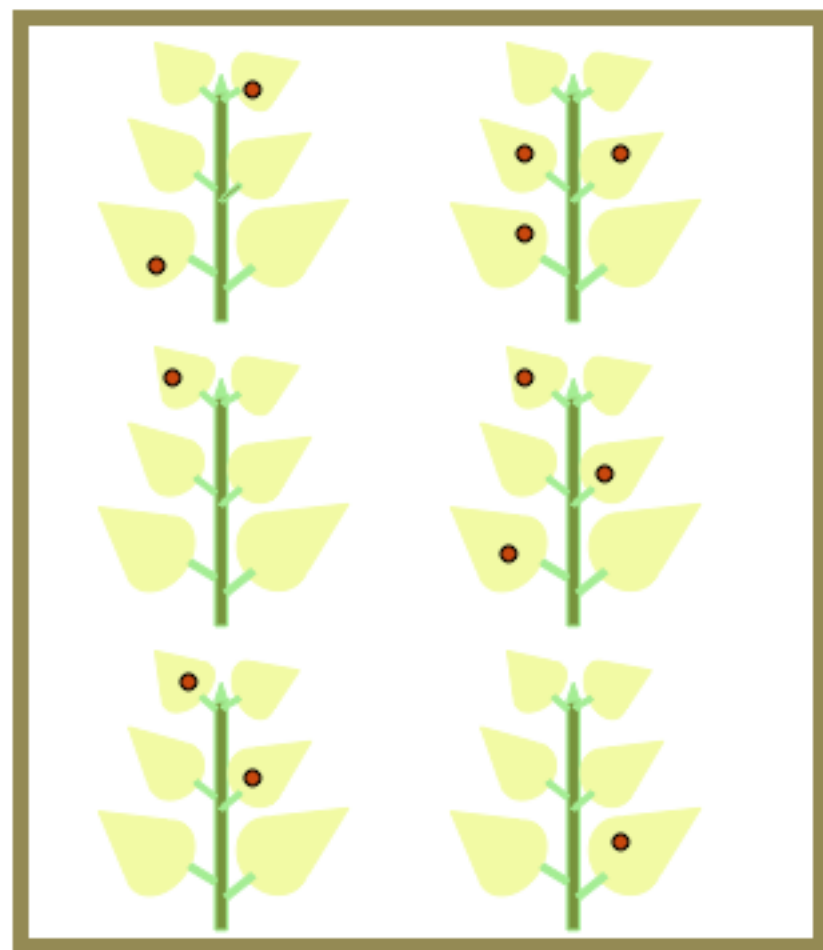




Sampled Mites in Brood in 75 colonies



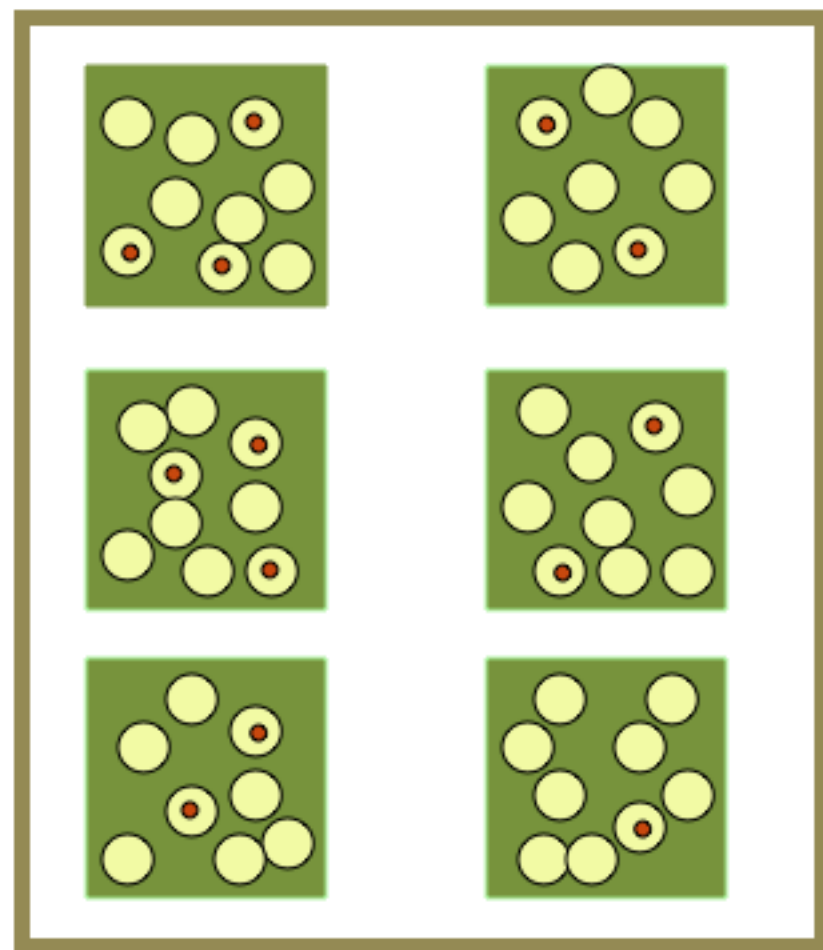
Sampling Statistics used normally for pests on crops



Field



 = leaf
 = pest

Apiary



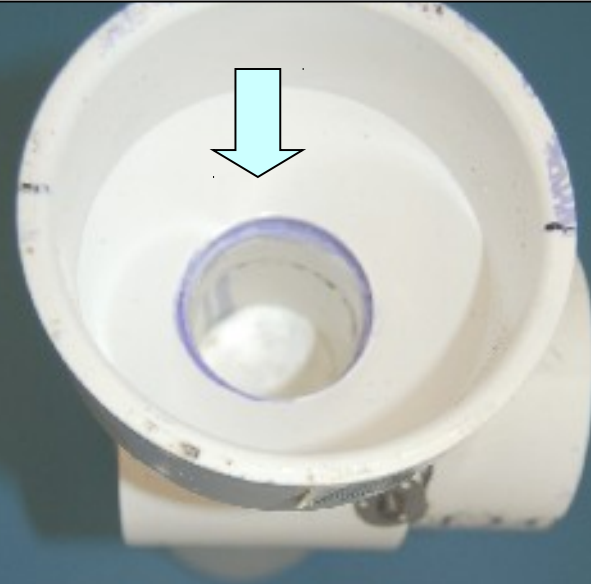
 = honey bee
 = mite



Dump bees into funnel

Volume that measures 245 bees

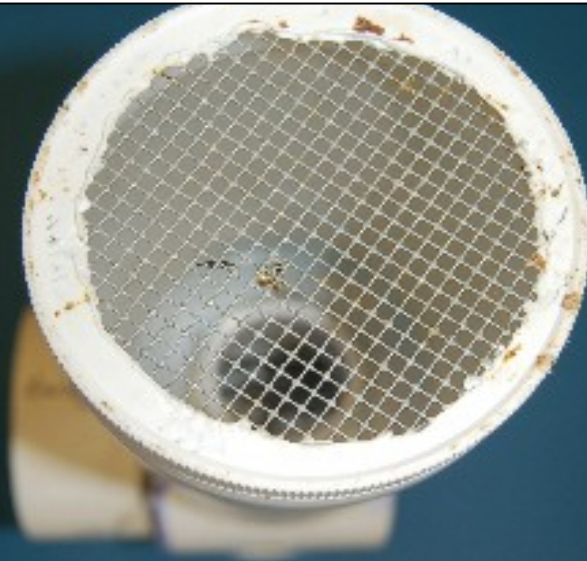
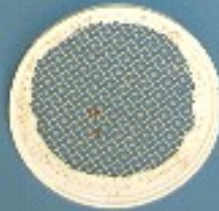
Turn handle to release bees into body of device



Body of device that holds bees

Add powdered sugar through mesh

Screw-on wire mesh cap





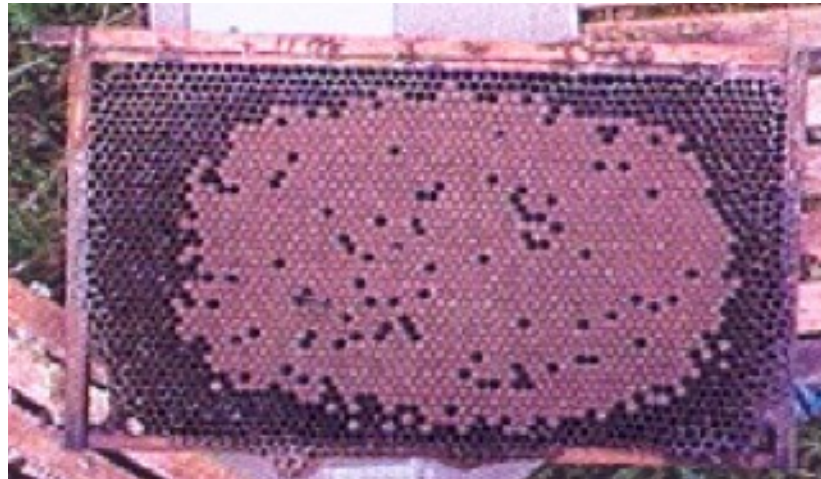
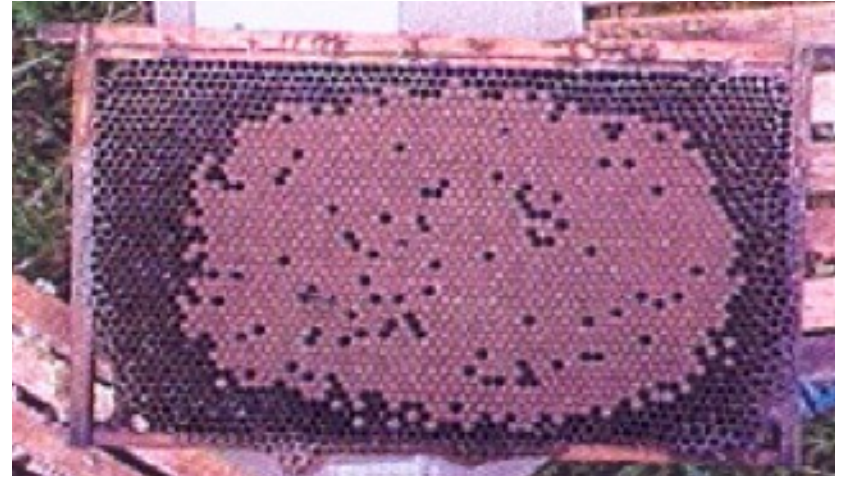
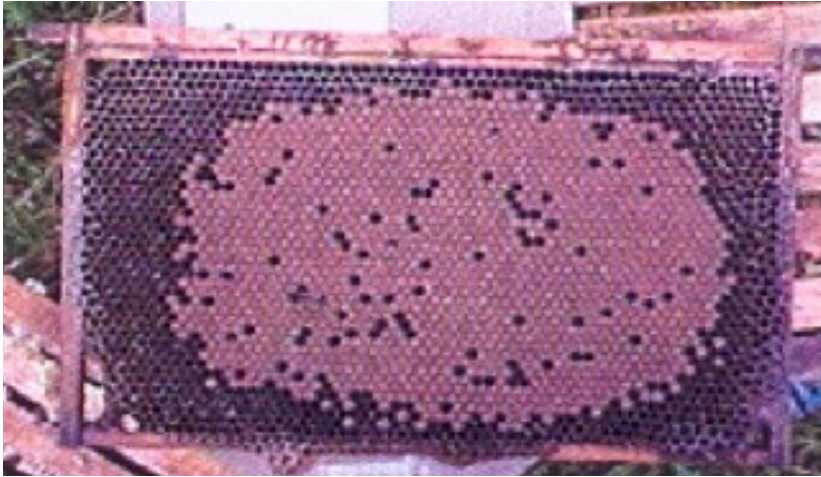
You can replace sugar-coated bees!



Conversion Chart: Sampling One Colony

# mites in 245 bee sample	Colony mite density (mites per 100 bees and pupae)	
	< 8,000 pupae	> 8,000 pupae
1	0.5	0.4
5	2.0	2.9
10	4.0	6.7
15	6.1	10.6
20	8.2	14.7
25	10.3	18.8
29	12.0	22.0

8,000 pupae = 3 frames of brood, both sides



When and Why to Sample?

- Gives us all a tool to monitor mite levels
- Sample from brood nest at any time
- Sampling will not kill bees
- Can make treatment decisions by colony or

- Can save money, reduce treatments!
- Standard method allows comparison
- Can select breeding stock