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NJ Beekeepers Association

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In 2002, commercial beekeepers located primarily in the southern part of New Jersey noted resistance on the part of their colonies to both legally available chemicals used in the treatment of varroa mites.

Testing performed by Dr. Medhat Nasr of Rutgers University confirmed the efficacy of the two chemicals, Check-Mite (coumaphos) and Apistan (fluvalinate), was severely reduced from the norm, which is on the order of 99% mite kill. In the southern part of the state, where approximately 75% of the state's colonies are situated, mite kill was reduced to 19% for Check-Mite and 75% for Apistan. These numbers were somewhat better in the central and northern regions: 85% for Check-Mite and 80% for Apistan.

Because of the resistance problems, many colonies went into the winter in a debilitated condition, and winter kill of honey bees was higher than average over the winter of 2002-2003. Mr. Paul Raybold, NJ State Apiarist, estimates winter losses from this cause at 18 to 22% statewide, with the higher losses occurring to the south. Another 5 to 10% of colonies surviving the winter were sufficiently weakened to be unacceptable for pollination. Conservatively assuming a loss of 20% of New Jersey's colonies, coupled with an additional 5% unacceptable for pollination, we can estimate that 25% of the colonies which would have been available for pollination in the state, are not. Applying this figure to the major New Jersey crops pollinated by honey bees, we can calculate an approximate economic impact on pollination due to varroa resistance:

Crop	Acres	Value		Loss \$Millions
		Per Acre \$ Millions	Total Value \$ Millions	
Soybeans	101,000	126	12.73	0.32
Apples	2,800	2,899	8.12	2.03
Blueberries	3,100	2,565	7.95	1.99
Peaches	8,000	3,544	28.35	7.09
Pumpkins	2,100	1,844	3.87	0.97
Cucumbers	2,700	3,498	9.44	2.36
Summer Sq.	2,500	3,568	8.92	2.23
Winter Sq.	1,200	1,537	1.84	0.46
Strawberries	400	3,250	1.30	0.33

Total Crop Loss: \$26.96 Million

Additional loss of revenue to the state has occurred in lost pollination contract income, honey production and other beekeeping-related items such as sale of nucs and packages, and beeswax. Conservatively, assuming a 20% overall loss of bees in the state, 2200 colonies are unavailable to produce an average of 34 pounds of honey per colony. At an average wholesale price of \$1.38 per pound (ABJ, March 2003), the lost honey crop would be valued at \$103,224.

An even greater loss of revenue results from lost pollination contracts. Assuming the missing 2200 colonies would perform an average of 3 pollination jobs each at \$50.00 per contract, the lost income is approximately \$330,000.

Factoring in lost sale of nucs, packages, beeswax and beeswax products, pollen, and other products of the hive, we can conservatively estimate an estimated half million dollars in revenue lost to the beekeepers of NJ, not counting the cost of replacing the colonies which died or bolstering the weak survivors.

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