



South Tipperary Beekeepers' Association

Fact Sheet no. 17

Nosema Apis

All beekeepers should be very familiar with the signs and symptoms of all the diseases that affect bees. A colony that is suffering from disease will not develop to its full potential. Diseases that are controlled at the earlier stages have a less detrimental effect on the colony.

Nosema is always a disease that we associate with the spring time. Very few beekeepers consider it during autumn preparation. However the infection you see in spring probably started in your hive infecting a small amount of your bees during the previous autumn. As the bees start to cluster in close contact with one another and are confined to the hives for long spells the infection spreads and by spring time you see the tell-tale signs of Nosema often resulting in the poor build up or loss of the colony. Nosema is a microsporidian parasite of the adult honey bee. To date there are two forms of the disease. Nosema Apis is the most common form but outbreaks of Nosema Ceranae has also being recorded. This fact sheet refers to Nosema Apis only. The spores can only be detected under a microscope.

Nosema is a spore forming disease. Spores occur within the hive especially within the brood nest. As the nurse bee clean out the cells they ingest the spores and then transmit them to the larvae. It can also be transmitted by water, food transfer from one bee to another or while removing crushed infected bees. It affects workers, drones and the queen.

The spores germinate in the gut and enter the digestive cells that line the mid gut where they multiply rapidly. This inhibits the digestion of the pollen which in turn reduces the production of brood food. This results in the reduced life of the worker and also its ability to rear brood. The net result of this is that the colony fails to build up at a normal rate and in severe cases will result in the death of the colony. This is often seen in spring time and is referred to as "spring dwindle". Queens that are infected usually have a reduced egg laying capacity and are often superseded. Nosema is often associated with several viruses such as the black queen cell virus. Positive identification of the disease is by microscopic examination. However, there are outward signs that the beekeepers can take note of such as the slow build up when compared to other colonies. Also because the spore attacks the digestive system it can result in the bees suffering from dysentery. Infected workers defecate on the outside of the hive usually around the entrance or in severe cases on the combs.

Nosema is a stress related disease so the best prevention is to avoid stressing a colony. Small weak colonies are always under more stress to maintain a viable unit. For over wintering it is important that only strong colonies headed by a young queen with plenty of bees and stores are maintained. Good hygiene within the hive helps to reduce the spore level.

Change combs on a regular basis at least 4-6 combs should be replaced every year in the brood box. If a colony dies out any combs you intend to use again should be sterilized with 100 ml of 80% acetic acid for 1 week at 15°C. Remember giving infected combs to a good colony will cause it to be infected with the disease. Changing all the combs in the brood box and giving a new floor board and crown board is even a better idea and is known as the Bailey frame change (Fact sheet no. 15 for details). A shook swarm should also be considered. Avoid unnecessary movement of hives such as transporting bees to crops as this can stress the bees resulting in an outbreak of Nosema.

Prevention is better than cure aided by maintaining healthy colonies with a good varied diet of pollen, avoid crushing bees and change combs on a regular basis.

SOUTH TIP BEES