

Aims, objectives and overview of the breeding programme and accompanying research

Primary aim : *To reduce the dependency on chemical treatment for Varroa control by increasing the prevalence of Varroa tolerant colonies in Ireland.*

To augment the feral/wild native Irish honey bee population with Varroa tolerant colonies.

The programme aims to reduce the amount of chemicals used to treat honey bees for Varroa infestation by increasing the number of colonies that can tolerate Varroa without beekeeper intervention. It is hoped that this can be achieved using selective breeding in much the same way beekeepers have done for traits such as docility and honey production.

The chief objective is to assist beekeepers to use a method by which they can achieve this. The more beekeepers that use the breeding method, the better. Within this, a core group will submit detailed reports on their colonies to NUIG to help the research into Varroa tolerance in Irish honey bees. These core group bees will be genotyped in order to obtain a genetic picture of the Irish honey bee population.

Simply put, colonies are assessed for Varroa and selection for breeding uses those assessments. Those with low Varroa levels are not treated for the mite and are preferentially used to breed from. Those colonies with Varroa levels above a certain threshold are treated and, when appropriate, re-queened with the offspring of low-Varroa queens from within the same apiary or from other participating beekeepers. This is not a fool-proof method, there is no such thing, therefore it is important that some free, altruistic, re-queening forms part of this programme in order to help beekeepers who lose colonies by not treating. In other words, beekeepers need to assist one another if the breeding programme is to help everyone.

Meanwhile research at NUIG will endeavour to uncover how some honey bees in Ireland can tolerate and even resist Varroa mites. This information will be fed back into the breeding programme to help steer the selection process. The research and the breeding programme also aims to assist the native Irish honey bee's feral and wild population by augmenting it with colonies bred from Varroa tolerant queens.