

Manitoba Queen Breeders Association: Past and Future

Summary prepared by KRTP after meeting with former MQBA members and beekeepers currently expressing interest in reactivating a breeders' support group

Editorial input provided by Dr. Rob Currie

Brief History of the MQBA

The MQBA was founded in 2002 at a meeting organized by Terry Fehr concerning collaboration on improving bee stock. The MQBA began with far more members than was initially expected would participate, demonstrating the desire to improve genetic stock and a spirit of collaboration for this type of work. The first meeting concluded with approximately 16 members and five directors appointed, with Terry as the first chair.

The MQBA worked closely with Dr. Rob Currie at the University of Manitoba (UM) where they set up a central location for evaluation. Breeder colonies were contributed by various producers so that colonies could be tested under common conditions. These colonies were evaluated under a degree of stress (mainly varroa) that most people would not ordinarily subject their colonies to in a regular operation. Thus, using these colonies that were already pre-selected by numerous producers for productivity, winter survivability, defensiveness, and more, supplied good genetic traits and diversity, the UM/Currie team was then able to further evaluate for performance, tolerance to varroa, and more.

Breeding programs are a long-term commitment and people's interest or ability to commit over a long period may change. The program waned at the end due to declining interest, perhaps some misplaced expectations and some concerns related to industry stakeholders who felt the stock could have been more directly distributed/accessible for beekeepers outside of the breeders' association rather than through the purchase of queens (many of the members of the association did not produce queens for sale but only for their own use).

Ultimately, the program was successful in achieving improvements in stock relative to offshore stock and unselected stock from Manitoba producers. Manitoba stock from the MQBA that went into other research projects outside of the province outperformed other bees in some categories of selection criteria.

Program Approach and Evaluation Process

- The philosophy of the MQBA was not to breed a "Manitoba bee" per se, but rather that each beekeeper could do their own selection the most effectively and each beekeeper had different traits they wished to prioritize – thus there was a diversity of genetics that came into the program.
- The UM was not trying to select bees for these producers, rather the goal was to put bees from different sources of stock under stress from varroa and to evaluate these stocks under identical environmental conditions. Producers were then allowed to choose

what stock they wanted back to breed from based on the data that was provided each spring.

- Measures evaluated by the university included: varroa population reduction, mite grooming, mite biting, colony cluster size and colony weight in fall and spring under exposure to varroa, winter survivability, and more. Traits such as honey production, gentleness and other traits important to producers were evaluated under their selection criteria.
- Chalkbrood and other forms of disease resistance were not quantitatively evaluated. When selecting for many other criteria sometimes a chalkbrood susceptibility appeared (going forward hygienic testing can be used to help avoid this).
- The UM did what beekeepers couldn't easily do without bearing a lot of economic costs, that is, mainly to expose them to varroa for comparative evaluations and this "system" also allowed the stock to be evaluated fairly under common conditions to separate environmental and management effects from bee genetics.
- One of the key traits that ended up getting selected for in the end through repeated evaluations in this program was *not* a reduction of varroa (reduced mite production), but rather, a tolerance to varroa (better survival under high mite loads).

How Beekeepers Accessed Genetic Material

- Dr. Currie (UM) gave the MQBA summaries of all the data on the colonies from all participants (varroa reduction, grooming, mite biting, cluster size, weight loss, survival with high level of mites etc.) and then the beekeeper could choose which traits they each wanted to prioritize and graft from to enhance those traits in their operation.
- Stock for grafting was distributed in several ways. 1) Beekeepers would come and pick up a frame of eggs; 2) Frames of comb containing eggs but no bees were shipped to producers for grafting; and 3) Nucs containing breeder queens were shipped and shared among producers for grafting in their own operations. The latter system worked well but queens associated with those nucs could often not be kept beyond the first season so subsequent evaluation of their performance was not possible.
- The university did *not* do grafting.

Future of an MBQA

Organization

- The KRTP will convene a meeting for interested beekeepers to gather and form a consensus on objectives and determine their operational structure
- The KRTP will seek to fulfill a supporting role
- Examples and lessons to be learned from past MBQA & success and challenges in other provinces' breeding programs and associations (*KRTP is currently gathering info for guidance on this topic*)

Possible Opportunities

- Outlet for collaborative work with other Canadian breeding programs, associations, or individuals
- Provide members with discounted rates (Eg. hygienic testing, UBeeO, access to breeder queens, workshops)
- Selling/exchange of tested breeding stock between group members and certification potentially by the KRTP; including selling tested daughters at a premium to market
- Prioritize the accessibility of genetics that a breeder group produces
- Promote buy-in from beekeepers
- Organize workshops on issues such as: time management for large-scale queen rearing, breeding program education, etc.
- Other opportunities should be identified by the founding members

*The KRTP will convene a meeting in early April (2024) to bring together interested parties.
Contact Matthew: krtymb@gmail.com to be included.

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