

# Assess your Project Queens

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## How to Fairly Assess Your Project Queens and Help Us in the Process

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Your queen is the most important member of your hive. A great or poor queen will make or break your pollination success and honey crop. Effective selective breeding increases populations, improves resistance to diseases and pests, and increases the ability of your hives to survive the winter. Over the past two and a half years, the B.C. Bee Breeders' queen testing project has been comparing some of the best stock from across Canada to identify varroa resistant lines that have good economic potential.

Breeding stock can take years to develop into a consistent line with excellent traits and must be maintained by continual assessments and selections. Comparing the stock to other populations of bees that have not been subjected to the same selection is an important component of measuring the success of the breeding program.

Breeding stocks require a good number of hives to ensure inbreeding does not threaten viability. Gene infusions from other good stocks can lead to hybrid vigor and strengthen the bees. However, when mixing up the genes from different lines, beekeepers will get some great crosses as well as average and, perhaps, poorer queens. There will always be some variation at the beginning of a breeding project which mixes stocks.

Continued evaluations will weed out poor queens which must be replaced with better queens. Replacing poor queens ensures better drones for mating with all virgins. "Breeders can focus on one trait and select for this mechanism, however multifactor resistance is probably more effective." (p. 194, Queen Rearing and Bee Breeding, Laidlaw and Page, Wicwas Press, Cheshire, Connecticut, USA) The scope of the B.C. Bee Breeders' queen testing project is to look for varroa resistance, not necessarily to define the mechanism of that resistance

Needed: Participants to evaluate our queens

Beekeepers throughout the province are invited to participate in the next stage of the breeding program by placing our queens into your apiaries next to your own or another stock and then reporting back on how they perform. In order to have consistent trials across the province, we are

asking participants to use the following guidelines when introducing the queens to your apiaries:

- keep hives in the same apiary and move them all if they are to travel
- start the project and comparison hives at the same time
- equalize the size of the hives when introducing the queens – add and subtract frames of brood or shake bees
- if necessary, provide equal stores and feed equal amounts of sugar and pollen
- provide equal sized boxes
- ensure the types of comb are a similar mix, (foundation, new comb, old comb, ratio of drone to worker cells)
- place the entrances facing multiple directions to avoid drift and therefore potentially higher varroa levels

Working together for the benefit of B.C. beekeepers

We at the queen testing project have worked hard for the past two years to identify and choose only the best queens for breeding. We are testing their progeny to ensure the mothers' excellent traits are passing on to their daughters. This year, you will have an opportunity to participate in the project by introducing these queens into your apiaries, monitoring their performance, and contributing feedback. This stock may be variable, but we expect good results. B.C. beekeepers will benefit by the dissemination of all this great genetic material.

Along with your queens from our breeding program, you will be provided with guidelines for monitoring, comparing and reporting on your hives. Again, this is to ensure that the feedback from beekeepers throughout the province is as consistent as possible.

Funding assistance

We would like to acknowledge partial funding by the BC Bee Breeders Association, BC Honey Producers' Association, BC Ministry of Agriculture and Lands as well as federal funds from Agriculture and Agri-Food Canada.

How to purchase queens

Open mated queens will be available starting at the end of May. For ordering details, please refer to the following sale notice.



## QUEEN MARKING

It is common practice to mark the queen with a small spot of paint on her back (thorax). A color code exists within the beekeeping industry to indicate the year the queen was introduced.

International Queen Marking Color Code:

Color:	For Year ending In:
• White (or gray)	1 or 6
• Yellow	2 or 7
• Red	3 or 8
• Green	4 or 9
• Blue	5 or 0

Model car paint may be used to mark the queen. The identifying mark should be small, so that it does not cover any other part of the queen. A 1/16" stick, lightly dipped in paint, is a good applicator. Generally, queens are marked before being introduced, however they can be marked at any time. Paint should be given ample time to dry before the queen is released into the colony. In fact, queens may be purchased already marked by the queen producer.

There are other marking techniques too. One used by breeders in Holland to identify lines has two colors, a larger dot of one color with a small dot of another color. For easier record keeping, when dealing with different generations there's added flexibility in tracking through using the costlier pre-manufactured colored dots with numbers from one to 100.

Some beekeepers also identify queens by clipping the tip of one forewing. If queens are replaced every two years, the beekeeper clips the left wing on queens introduced in odd years, and the right on queens introduced in even years. The clipping practice may also supplement the paint spot technique as a back-up should the queen lose her paint mark. If clipped correctly, the queen will not be able to fly. However, if clipped too closely, the queen may appear damaged and be superseded.