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# Queen Breeding, **BEST** Protocol

**Best colony**

**Every location**

**Selected to be**

**Tested without treatment**

BEST Protocol allows a commercial beekeeper to select the best production hives from many of thousands of colonies and then test only those select hives without treatment.

The detailed process: During the spring and summer in North Dakota we mark the best performing 4 hives in every bee yard, based on build up and honey production. Then when the last honey boxes are removed, those highest performing hives are not treated so we can later identify the colonies that can thrive without miticide. About October 1st we evaluate all of those selected hives to find the largest population, temperament, and mite loads from an alcohol wash. During February in Texas we mite wash and evaluate that pool of top producers again to pick our best hives as queen mothers to graft from. Successful hives maintain a mite load below 1% without treatment.

## History of VSH, BEST Protocol, and our Pol-line 2.2 queens

In 2011 we participated in a USDA Baton Rouge Bee Lab field trial to test resistant bees in commercial settings without treatment. For 3 consecutive years The USDA tested VSH and Pol-line queen cells tracking them treatment free for mite load, honey production, and overwintering population size. Those successful results are available on the USDA website. By 2013 many of our queen mothers were hives that had gone thru that testing process. The resistant stock being tested in our own bee yards was that next step we had been looking for. Both some new genes and an idea of how to find more good hives.

After the field trials ended we needed a new name and a new way to select our next queen mothers. Eventually Pol-line 2.2 and the BEST Protocol are what came out of our experience testing bees for mite resistance. BEST Protocol tests only the 4 best hives in **every location** where as the original trials tested **every hive** within only 4 locations. Both methods have advantages. BEST Protocol takes advantage of the large gene pool a commercial beekeeper

naturally has access to and treads as lightly as possible on the limited time available for testing.



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Can we make next years bees even better? We hope so. Best Protocol works efficiently to evaluate outside genetics. We generally buy 10-20% of the queen cells, for our own hives, from outside sources. If new stock outperforms our existing bees then we will graft from it the next spring. If new stock is only average then it slowly phases itself out.

BEST Protocol has been adopted by other commercial beekeepers and the method has been suggested as an effective management practice by leaders in research. BEST Protocol stock is used to re-queen 200,000 plus hives each year, from big commercial companies to the beginner. There are no perfect bees yet, as you research different bees and methods consider the scale, diversity, and locations required to maintain top performance. Try including "BEST Protocol" in your search. To find more great information look up VP Queen Bees, one of our BEST Protocol collaborators, [Click here for VP Queen Bees website.](#)

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