

## Base parameters in Danish queen breeding:

Danish queen breeding has a long tradition of taking benefit of the high number of small isolated islands found around Denmark, as they are perfect suited for queen mating stations. Some of the islands are today reserved for Carnica and Ligustica queens, but the majority of mating stations are used for Buckfast type of breeding. Our long tradition with access to totally isolated mating stations is a major reason for the quality of the mating material found in Denmark today.

Both professional beekeepers and hobby beekeepers expect queens, which provide high margins with limited work effort. This is the reason why Danish queen breeders for decades have bred with dedicated focus on:

### High yield:

The important prerequisite for profitable beekeeping.

### Healthy bees:

As it leads to better average colony performance and reduces the risk of losing colonies - e.g. through the winter.

### Low swarming tendency:

As it increases the honey yield at a lower work effort.

### Calmness:

As it provides better working conditions for the beekeeper.

## Contact information's:

The board of the Danish Queen Breeder's association has a high priority on facilitating contact between beekeepers who are demanding Danish high quality queens from skilled breeders of Buckfast, Carnica, Italian and Nordic Black bees.

Breeder to breeder contact can also be facilitated.

### Please contact us on this email:

[queenbreeders@dronningavlerne.dk](mailto:queenbreeders@dronningavlerne.dk)

A range of Danish queen breeders within our association are at your disposal in case you want to purchase queens bred in Denmark. Please follow the link below to obtain contact information.



[www.queenbreeders.dronningavlerne.dk](http://www.queenbreeders.dronningavlerne.dk)

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Danish Queen Breeders Association was founded in 1921 with the purpose of ensuring sufficient healthy and gentle bees to the Danish beekeepers.

To ensure this, the association should work to achieve enough good queens for the Danish beekeepers.

A set of common breeding criteria makes it possible to exchange breeding material among Danish queen breeders. This ensures a large breeding pool, in order to avoid loss of important breeding characteristics.

The Danish Queen Breeders Association has an ongoing cooperation with other Danish beekeeping Organisations, the Danish beekeepers, as well as the Danish authorities to insure the best possible conditions for the Danish queen breeding.

Ongoing collaboration with Danish researchers ensures access to the latest knowledge about diseases and pests as well as knowledge about the latest testing methods. This knowledge, among other things, serves the association's purpose of ensuring peaceful and healthy queens for the benefit of beekeeping, both in Denmark and internationally.



## We are breeding towards healthy bees, including Nosema resistance and Hygienic behaviour:

### Nosema:

The microsporidia *Nosema Apis* and *Nosema Cerana* are responsible for considerable losses of honeybee colonies around the world.

Selection for resistance or tolerance against *Nosema* disease has been a key parameter in Danish Queen Breeding for more than 30 years, and the effort has turned out to be a great success. Today symptoms of *Nosema* are only seen very rarely in Danish beekeeping. An annual analysis on spore level shows very low levels of *Nosema* spores in Danish honeybee colonies.

The selection is done by taking a sample of bees, from all potential breeder queens in the early spring. The samples are analysed for *Nosema* spores under microscope. All queens that show signs of *Nosema* spores are ruthlessly culled out.

The results of this long term selection, has been described in scientific reports on more occasions.  
Huang, Kryger et.al 2012  
Kurze, Kryger et.al. 2015



## Hygienic performance and Varroa:

Only colonies who remove more than 95% freeze killed brood within 24 hours are considered hygienic. High hygienic performance of the breeder queen, gives a high protection against AFB, EFB and Chalk-brood in the offspring (Spivak & Gilliam. 1998), (Rothenbuhler 1964) In Danish queen breeding this is a crucial trait and a stopping point for even the best breeder queen.

Also against Varroa it gives some protection.

Colonies are treated against varroa in August/Septembers with formic acid/thymol and again in December/January with oxalic acid.

Indeed, it gives very low mite drops in both cases. Our bees are highly hygienic, and investigations in USA (Spivak 2006), and UK (Toufailia 2014) shows that bees with high hygienic performance also have low levels of varroa mites. It seems to be correct. Alcohol wash in middle August indicate very low, if not zero, mite concentration in the time between treatments. Therefore, overt symptoms of virus diseases are normally not seen.



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