

*Bombus pascuorum* (Scopoli, 1763) is very useful as a model organism. It can be used to enhance seed production of genetic material. The advantage of this approach is the possibility of selections of the same species in beds situated close together, avoiding contamination by unwanted pollen from the neighboring beds or species (Ptáček, Drobna 2006).

For the establishment of *M. pascuorum* the authors developed the method of artificial colony. This method is based on the experience in management of honey bee colonies in laboratory condition. Here, queens were able to start a colony with the attendance of several young honey bees, or in couples, or with one worker from another colony, or finally, those having their own young *B. terrestris* worker. Bumble bees were kept in a container at 20 – 30 °C and with the air humidity of 65 - 70 %. They were fed with a solution of sugars sucrose with 10 % of fructose were used. The pollen was provided in the form of pellets taken by pollen traps in honey bee colonies. The bees were able to consume also quality dried pollen pellets bought from suppliers. Dry pollen was moistened approximately to the natural state and placed into suitable plastic containers to avoid drying.

For the establishment, conditions and treatment described above. We used the method (Ptáček 1983) that queens rejected honey bee workers; so we used only queens and their egg laying in laboratory.

Queens were put into couples. Those uneven couples were kept single till some time. They were immediately supplied with sugar and pollen (remains are visible in fleeces) is a signal of egg laying. In the couple of queens one develops as the dominant and the other as the subordinate. The broody queens grabble with the elongated abdomen on the wax and start to lay eggs. Within several days the queen starts to lay eggs.

When the first queen is put into a separate box together with the first worker, the proceeding can be repeated till the third level of couples. Nearly 70 % of queens lay eggs under this treatment. During the first ones are before the emergence of the first worker can be given to the queen falling behind with her subordinate. The queen, and also the contact with the worker appears.

When inserting fresh pollen into the pockets constructed at the time when they spin cocoons. When workers emerge, the colony is provided with supplemental feeding of sugar solution and pollen. Freshly established colonies are fed with both, pollen and sugar in a solution. In the age of 5-7 days, the queens copulate with males. Queens alone are let for another 3 days to fill their honey stomachs. Under 4 °C in suitable containers with the high humidity.

Artificial cages served food enough for the bumble bee colonies

overwintered queens of *M. pascuorum*.

The dominant queen starts to lay eggs, the submissive one should be taken off.

Cells with eggs

Cells with larvae

When the first workers emerge, the colony is placed to the hive and let to develop outside

Young bumblebees can be already seen through the walls of cocoons.

The hives placed in cages are used for the development of colonies of clovers and other plants.

The final stage in the development of nest.

