

PRACTICE ABSTRACT 2

How to reproduce *Brassica oleracea* crops in purity

B. oleracea plants are usually self-incompatible and they need to cross with other genotypes for generating progenies. The self-incompatible genotypes require specific management for controlled pollination achieved by spatial isolation in the field or by the use of pollination chambers isolated by net for avoiding pollen contamination by pronubes.

Self-incompatibility is a general name for several genetic mechanisms in angiosperms, which prevent self-fertilization and thus encourage outcross and allogamy.

The protocol to regenerate landraces or their selections by avoiding pollen contamination is transplanting plantlets (3rd–4th leaf stage) into 10-litre pots filled with a peat/perlite substrate (1:1 in volume). Plants are usually grown in the open until they reach the flowering stage and then moved to pollination chambers either in a cold greenhouse or in open field. In some cases plants are transplanted directly into the field and we then use isolation chambers.

The pollinators used are flesh flies (*Sarcophaga carnaria*) because they are more efficient for small pollination chambers than bumble bees or honey bees. Their larvae, about 1000–2000 bought in fishing shops each week, are developed into flies in one-litre containers filled with peat and covered by a net until the adult stage is reached. Metamorphosis occurs when the temperature is between 13°C and 28°C, depending on the season. On average, 70–80% of larvae reach the adult stage. Metamorphosis takes place at 8 and 18 days at 28°C and 13°C, respectively (this is very important to synchronise the availability of adult flesh flies with plant flowering).

Adult flesh flies are released into the isolation chambers when the plants reach the flowering stage. During the presence of the flies in the pollination chambers we can use protein-rich commercial product in order to prolong the life of the flies in the chambers, especially when there are few flowering plants to feed them. At the end of the flowering stage the plants are moved from the chambers to the field to complete the fruit ripening stage.



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THE AUTHOR

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THE PROJECT

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BRESOV aims to tackle the nutritional challenges of a growing world population and changing climatic conditions by enhancing productivity of different vegetable crops in an organic and sustainable farming infrastructure. BRESOV works on broccoli, snap bean and tomato as those staple vegetable crops have significant roles in meeting our global food and nutritional security goal, and under organic conditions can contribute to storing carbon and introducing nitrogen improving organic soil quality.

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