

PRACTICE ABSTRACT 13

Soil based seed germination protocol for cauliflower and broccoli

High germination percentages and development of germinated plants are criteria to assess the quality of seed batches. The seed quality can be evaluated by seed germination tests. In the Council Directive 2002/55/EC of 13 June 2002 on the marketing of vegetable seed it is defined that cauliflower seeds being sold must exhibit at least 70 % and broccoli seeds 75 % germination percentages.



Pictures: Seedling starters filled with soil.

Credit pictures: OBS, Organisation Bretonne de Sélection, France.

To test the seed germination percentage of your seed lots, a simple soil-based method can be performed as an alternative to the paper based method (see Practice Abstract 5).

Sow seeds in 150 cell seedling starters with 50 seeds per replicate having three replicates per seed lot. When testing different seed lots, place the different replicates of each lot in different seedling starters. Fill the seedling starters with a soil suitable for small pots and with high drainage ability. Place one seed in each pot and cover it with soil. Water the seedling starters and avoid to float the seeds up. Keep the temperature at around 18°C and the soil moist.

Seedling assessment takes place when the cotyledons appear and one true leaf is developed. Score the number of normal and non-germinated. Normal seedlings are vigorous, fully developed seedlings without any deformation (see example pictures). Out of the three replicates, calculate the average number of normal seedlings by adding the number of normal seedlings (NNSs) from each replicate and by dividing by 3:

$$\text{Average number of normal seedlings} = \frac{\text{NNS}_{\text{Rep1}} + \text{NNS}_{\text{Rep2}} + \text{NNS}_{\text{Rep3}}}{3}$$

The germination percentage is calculated as following:

$$\text{Germination percentage} = \frac{\text{Average number of normal seedlings}}{\text{Number of seeds sown}} \times 100$$



Normal seedlings of cauliflower (left) and abnormal seedlings of cauliflower (right). Credit pictures: OBS, Organisation Bretonne de Sélection, France.

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THE AUTHORS

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THE PROJECT

BRESOV SHAPING THE FUTURE OF ORGANIC BREEDING & FARMING

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, introduce nitrogen and improve organic soil quality.

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