

Plant Propagation Laboratory Introduction and Exercise

Module 2

Controlled Pollination

Most plant improvement comes about through seeds produced via the normal sexual cycle. This occurs through the selection of superior individual seedlings from the seedling progeny resulting from cross-pollination between chosen parents. These superior seedlings are then called "selections", and may be propagated asexually or sexually, depending on the plant species involved.

The basic steps in controlled pollination are as follows:

1. Selection of your parent plants.
2. Bringing chosen parents into flower simultaneously, if possible.
3. Collection of pollen from the male parent. Short or long term storage of the collected pollen may be necessary.
4. Emasculation (removal of male parts) and pollination of the selected female parent. Emasculation is not necessary if the flowers are dioecious or male sterile, or if the flower is to be self-pollinated.
5. Protection of the pollinated flower - not usually necessary if the pollination is made indoors. Records are made of the pollination. The effectiveness of the pollination is usually judged from fruit and seed set percentages.
6. Growing of ripening fruit resulting from the pollination to maturity.
7. Extraction of seeds from fruit; cleaning, drying and storage of seeds. The method of seed extraction is variable, depending on the fruit type.
8. Seed germination. A pretreatment to aid in seed ripening or to overcome dormancy prior to germination is frequently necessary.
9. Seedling growth and transplanting until field size is attained.
10. Transplanting to the final evaluation site and growth to maturity.
11. Field selection among the produced hybrids.
12. Propagation of the selected seedlings.

This sequence represents the highlights of one breeding generation.

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Controlled hand pollination practice

You will have the opportunity to pollinate petunias. The procedure will be demonstrated for you by the laboratory instructor. Record the crosses and collect the seed as they mature. Complete all of your crosses within a week of the assigned lab so you may harvest your seed before your final exam.

Controlled Pollination Data Sheet

Cross number	Male Parent	Female Parent	Date of Pollination	Number of Seed produced
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				