

Guide to Hybridization in Camellias

by Dr. Clifford Parks

Mr. Hulyn Smith suggested that we should encourage serious camellia gardeners to become involved in hybridizing, and he further recommended that we should provide a few general instructions on hybridizing procedures. Following his guidance, we will list some procedures that can be followed in making controlled pollinations. The following steps in making a hand-pollination are diagrammed on Figure 1.

1. **The easy help the bees approach:** It is possible to get good results without hand-pollinations. Nuccio Nurseries has had excellent success in selecting superior varieties from populations of seedlings grown from seeds collected in their nursery. This is possible because camellia flowers are rarely fertilized by their own pollen. Thus, in a nursery where many varieties are growing close together most seeds produced are chance hybrids. If you have large camellias in containers, you can place the varieties you want hybridized close to each other, and hope the bees will do it for you. Many well known *reticulata* hybrids have been produced by camellia collectors in this fashion. Look in the nomenclature book and note how many varieties descriptions start with: Seedling of.....

2. **Hand pollination:** If you want to combine specific parents or make hybrids between different species that are not easily combined it is better to

make controlled crosses. The procedure is simple but requires care and practice to become fast at it. The steps are as follows:

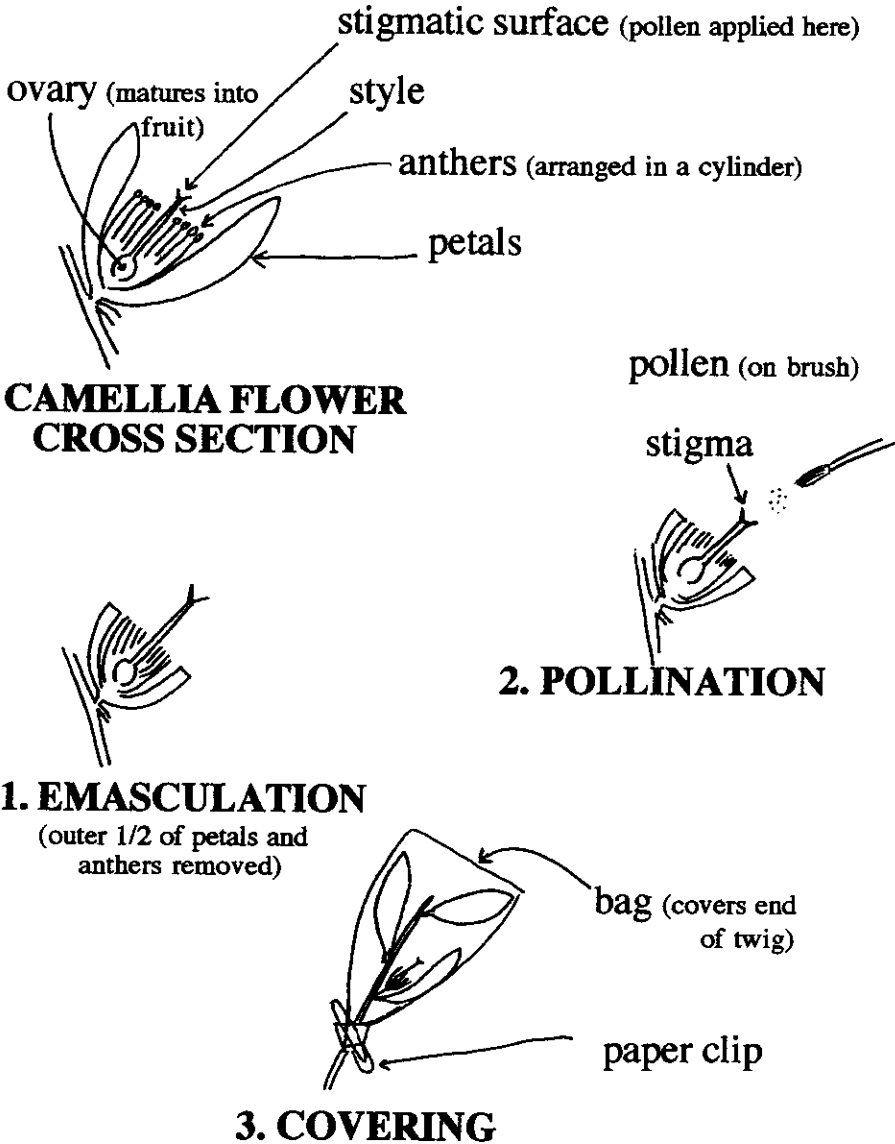
A. EMASCULATION

Anthers with pollen must be removed from the flower bud to be used as the seed parent. Select a bud that is close to floral opening. A bud that will open on the following day is optimum, but a younger bud that will not open for two days can be used. Less developed buds are more easily damaged by emasculation, and are thus less likely to mature into seed pods. Once the bud is selected gently grasp the base of the bud with the left hand and use a surgical scissors to remove the outer 1/3 to 1/2 of the petals with the right hand (reverse, if you are left-handed). This will expose the anthers and the style with its stigmatic surface. Carefully clip away the anthers without injuring the female parts of the flower (style and stigma). When the anthers are all removed, emasculation is completed. Do not bruise or otherwise damage the basal parts of the flower near the ovary.

B. POLLINATION

Select the male or pollen parent. Use pollen from a freshly opening flower just as the pollen is being released from the anthers. Do not use a flower that has been open on the plant for some time because visits by bees and other pollination vectors may have contaminated the pollen with pollen from other plants.

Figure 1. Diagrammatic representation of steps taken in a hand pollination.



Pollen may be stored for a few days in a gelatin capsule or in a clean piece of paper in a frost-free refrigerator. Pollen may be applied to the stigmatic surface directly from the anthers on an open flower or by a small, soft paintbrush using stored pollen samples. Long term pollen storage can result in successful hybridizations, but the percentage of success is lower than hybridizing with fresh pollen.

C. COVERING

If the pollinations are done in a greenhouse with no pollination vectors flying around, you are finished. We do not cover pollinations done in the greenhouse during the winter since no bees are active at that time. Be sure to label your pollinations as you will not remember each one. If bees are active, or you are working out-of-doors, you will need to cover your pollinations with small paper bags for a period of 7 or 8 days. This is to prevent bees from

“repollinating” your pollination. We usually hold the bags on with paper clips. When the bag is removed, you are finished. When pollinating out-of-doors in the spring, bagging is very important because bees are very active at that time of year.

3. SEED HARVEST AND PLANTING

When camellia seeds are fully mature, the capsule open and the seeds fall on the ground, and they may be lost. Camellia seeds are mature before the capsules open. We usually check open-pollinated capsules on the same plant to determine if seeds are mature. Also, capsules may be covered with a small bag to catch the seeds from an opening capsule. Camellia seeds have a very short longevity when conditions are warm and dry, so seeds should be stored under conditions of high moisture and refrigeration. We recommend that seeds should be planted as soon as possible after harvest.