**SELFING AND CROSSING TECHNIQUES**

**MAIZE**

*Zea mays L.*

**Equipment**

A pair of scissors, camel hair brush, craft paper bag, butter paper bag (7'x3’), Petri dish. methylated spirit, Tag and lead pencil.

**Procedure**

Maize is naturally cross pollinated crop. Staminate flowers are produced on the tassel and pistillate on the shoot. Pollen shedding starts one to three days before appearance of silks and generally continues for many days. Pollen may remain viable for 18-24 hours under favorable conditions.

**Selfing**

1. Select the desirable plant and cover the tassel (male flowers) of plant with Kraft paper bag (14” x 11”) before the opening of anthers.
2. Bag the ear shoot (female parts) of the same plant with butter paper bag (7"x3") before the emergence of silks.
3. Daily visit the plant and observe the appearance of silks.
4. When the silks appear collect the pollen grains from craft paper bag of by slightly shaking the tassel.
5. Place the pollen grains in the Petri dish.
6. Remove the Kraft paper bag from the ear shoot of the plant and dust the pollen grains with the camel hair brush on the silks of the ear shoot.
7. Again cover the ear shoot with its respective bag after pollination.
8. Pollinate each ear shoot for four or five times to ensure good seed setting.
9. If the silks grow longer during pollination days. Cut them down to a one-inch length with a pair of scissors to facilitate easy pollination.
10. Leave the bag on the ear shoot till seed setting to avoid contamination with unwanted pollen grains.
11. Sterilize your instruments and hands with methylated spirit before moving to the other pollinations.

**Labelling**

Tag the plant, indicating the name of the cross, date of pollination and your signature. Write the-female parent first and then the name of the pollen parent (male). Always use lead Pencil as it is water proof and will, not be damaged during rains or due to dew.

**Crossing**

To make a cross between the two varieties, A and B proceed as follows.

1. Treat “ the variety A as female parent and select a desirable plant.
2. Remove the tassel (detassel) with a pair of scissors and cover the ear shoot with a butter paper bag (7"x3"), before the silk have appeared.
3. Use the variety B as the male parent and select the desirable plant.
4. Cover the tassel with craft paper bag (14’x11") whose anthers have not yet opened.
5. Daily visit the plant and observe the emergence of silks.
6. When the silks of the variety A appear, collect the pollen grains from the variety B in Petri diSh by slightly shaking the bagged tassel.
7. Remove the butter paper bag from the ear shoot of the variety A and dust the pollen grains with a camel their brush.
8. Again place the respective bag on the ear shoot.
9. Pollinate 4-5 times to ensure good seed setting.
10. Cut the silks with a pair of scissors down to a one inch length if they have grown long during pollination days.
11. Sterilized your hands and instruments with methylated spirit after every pollination.

 **Labelling**

Tag the plant, indicating the name of the cross, date of pollination and your signature. Write the-female parent first and then the name of the pollen parent (male). Always use lead Pencil as it is water proof and will, not be damaged during rains or due to dew.