

- Breeder seed may be sown with a small-scale planter since production areas are small.
- The rows should be spaced 30 cm apart.
- The plants should be spaced far enough apart to allow them to express their characteristics.
- Dormancy will be a problem in seed such as freshly harvested rice when it is sown for prebasic seed production.

C. ROGUING

- **Roguing** means removal of contaminants—unwanted cultivars, other species, or weeds—from the crop. Seed production plots of breeder seed must be carefully rogued to remove any off-type plants or any admixture.
- Plots should be rogued before pollination.

D. HARVESTING/THRESHING. Breeder seed should not be harvested with large-scale equipment because of the smallness of the plots and poor cleaning of field-size equipment. Since every grain of prebasic seed is precious, threshing and harvesting must be done carefully by hand.

6.4.2 Prebasic, basic, and certified seed production

Prebasic seed is the progeny of nucleus/breeder seed, and is handled so as to maintain specific genetic purity and identity as completely as possible. Prebasic seed should be produced in the defined region (geographical area) of adaptation for that variety so that there is no change in the genetic and phenotypic stability of the population due to climatic pressure. It must be approved by the Federal Seed Certification Department.

Basic seed is the progeny of prebasic seed produced so as to maintain genetic purity and identity. It may be produced on extension farms, research farms, and by progressive farmers depending on the demand of the region of adaptation. The seed must be certified by the Federal Seed Certification Department.

Certified seed is the progeny of basic seed and is produced by registered growers of seed-producing agencies. Quality is controlled by the Federal Seed Certification Department.

Planting and cultural practices.

ISOLATION

- Isolation requirements must be in conformity with internationally accepted standards.

- The isolation distance for prebasic seed is greater than for basic seed; and that for basic seed is certainly greater than that for certified seed.
- Isolation is also important for the control of some diseases like loose smut on wheat and barley.

SOWING

- Sowing should be done in rows to facilitate roguing.
- Wider than normal spacings have given greater harvests of basic seeds.
- Fields for the production of certified seed are normally sown at the seeding rate recommended for that locality or country.
- Sufficient space between the rows should be allowed for the movement of the roguing party.

ROGUING. Roguing is an integral part of basic and certified seed production programmes.

- Roguing is more effective in small areas of production and uneconomical and less effective on the thousands of hectares required for production of certified seed. Maximum attention should therefore be given to roguing at the prebasic and basic seed production stages. The amount of roguing required later on will depend on how the prebasic seed plots were rogued. If roguing has been done carefully at the early stages, there should be little need for roguing in certified seed fields of genetically stable varieties.
- All distinct types of plants and weeds should be removed. For this purpose several rapid passes are more effective than one prolonged operation which aims at removing everything at one time.

HARVESTING

- A successful long-term, large-value seed programme cannot be based on animal power and manual labour. With basic and certified seed production in advanced countries, fields are large enough to allow the efficient use of combine harvesters.
- Precautions must be taken to prevent mixture during harvesting. Proper cleaning and adjustment of harvesters and threshers is essential.

6.4.3 Seed production in cross-pollinated crops

Inbred lines (pure lines) are genetically homozygous genotypes of species which are developed as a result of self-pollination (inbreeding) and selection for specific characteristics. Inbred lines of maize, for example, are developed