

Welcome
to
Chandra Shekhar Azad University of Agriculture and
Technology, Kanpur (UP)



Lecture Topic
Maintenance of Genetic Purity during Seed production.
Presented by
Dr. Anubhav Kumar
(Teaching Associate)

Department of Seed Science & Technology

Important safeguards for maintaining genetic purity during seed production:

1. Control of seed source
2. Preceding crop requirements
3. Isolation
4. Rouging of seed fields
5. Seed certification
6. Grow-out test

1) Control of seed source

- Association of Official Seed Certifying Agencies (AOSCA) recommended 4 classes of seeds
 1. Breeder's Seed
 2. Foundation Seed
 3. Registered Seed
 4. Certified Seed

- **Breeder's Seed:**

- Directly controlled by the original breeder, sponsoring breeder or institution and which provides for the initial & recurring increase of foundation seed.

- **Foundation Seed:**

- Include seed stock so handled as to most nearly maintain specific genetic identity & purity and that may be designated or distributed by an agricultural experiment station.
- It is the source of all certified seeds, either directly or through registered seed

- **Registered Seed:**

- It is progeny of foundation or registered seed
- It is so handled as to maintain satisfactory genetic identity & purity and that has been approved and certified by a certifying agency.
- This class of seed should be of a quality suitable for production of certified seed

- **Certified Seed:**

- It is progeny of foundation, registered or certified seed that is so handled to maintain satisfactory genetic identity & purity and that has been approved & certified by certifying agency.

2) Preceding Crop Requirements:

- Fixed to avoid contamination through volunteer plants & also the soil borne diseases

3) Isolation:

- From contamination.
- Natural contamination: (cross pollination)
- Other contamination may be due to mechanical mixture at
 - Harvesting
 - Sowing
 - Threshing
 - Processing
 - Handling
 - Soil

4) Rouging of seed field

- The removal of off type plants is referred to as rouging
- There are three main sources of off type plants.
 - Firstly the off type plants may arise due to presence of some recessive gene in homozygous conditions at the time of release
 - Another source of off type plants is the volunteer plants arising from accidentally planted seeds or from seed produced by earlier crops.
 - Mechanical mixtures is also source of contamination.
- Removal is necessary before pollination occurs
- Regular supervision by trained personnel is imperative.

5) Seed Certification

- The principal objective of seed certification is to maintain & make available crop seeds which are of good seeding value and true to variety.
- Qualified & well experienced inspection is necessary.
- Seed standards are confirmed by such agencies.

6) Grow-out Test

Varieties being grown for seed production should periodically be tested for genetic purity by grow-out tests, to make sure that they are being maintained in their true form