

## **LECTURE FIVE**

Harvested Seed (Threshed, Shelled, Dried)

Common Weed Seed

Inert Material

Noxious Weeds Seed

Other Crop Seed

Deteriorated Seed

Other Variety Seed

Off – size Seed

Damaged Seed

Marketable Seed (Cleaned, Graded, Treated, Packaged, Tested)

**Figure 2. Types of materials removed from seed during processing.**

## **SEED PROCESSING, TREATING AND PACKAGING**

Seed processing is a vital part of the total technology involved in making available high quality seed of improved varieties. It assures farmers of high quality seed with minimum adulteration. If seed is not processed and handled properly, all past effort of plant breeders in developing superior varieties and seed production may be lost.

The purpose of seed processing is to remove undesirable materials such as inert matter, weed seed, other crops seed, broken seed, shriveled and small seeds to conform to prescribed quality standards, besides improving storability and palatability.

### **Principles**

The quality of seed is improved during processing in two ways; separation of contaminating seeds of other crops, weed, and inert matter. (2) upgrading, or the elimination of poor quality seed. The ultimate goal of processing is to obtain the maximum percentage of pure crop seed with maximum germination potential. This concept is reflected in terms of the pure live seed percentage. This is calculated by multiplying the percent purity and the percent germination as the following example:

Seed lot x pure seed (95%), Germination %= 93%

Pure live seed 88.35percent (.95x.93x100)

Separating & Upgrading

Cleaning

Conditioning & Precleaning

Receiving

receiving

Bulk Storage

Treating and Bagging

Storage

Shipping

### **Figure 2: Essential steps in seed processing.**

In a typical processing sequence, the first operation is pre-cleaning to remove trash and appendages from the seed. The next step is basic cleaning and grading followed by specific operations. When all undesirable materials have been removed treatment of seed with insecticides & fungicides may be carried out. Finally, a desired quantity of seed is filled in a container, weighed, labeled, sealed and removed for storage.

Seed processing is based on differences in physical properties between seed and undesirable materials. Processing machines are chosen according to size, length, shape, weight surface texture, colour, etc affinity to liquid, electrical properties. A single machine does not do the entire job. Good seed processing is achieved when proper equipment are used.

Examples

(A) Seed cleaning equipment

(i) pre-cleaning equipment e.g scalper : rough clean various kinds of trash from the seed lot.

It contains vibrating or rotating screen (or sieve) through which the small seed pass readily, while the larger seed and leaf matters are “scalped off and remove.

(ii) Air screen machine - farming mill makes use of air flow

(iii) Gravity separation

- (iv) Length separation
- (v) Width and thickness separation
- (vi) Surface texture separation
- (vii) Colour separation
- (viii) Colour
- (ix) Electro-static separation etc.