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Process of preserving the quality seeds

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Introduction:

The commercial production, processing and maintenance of high quality seed requires good storage facilities & specialized equipments. In addition, numerous factors which govern the ultimate quality of the seed and which may not be so important in general crop production must be considered. The National Seeds Corporation was established in 1963 to promote the production and distribution of good quality seeds. This Corporation is responsible for the production & marketing of quality seeds and for the certification of commercially produced seeds

Seed is a living material in which life is preserved in a dormant stage. If the seed is harvested soon after it reaches maturity, it is protected from damage in the field. At this point, the physical quality is the highest and viability at its maximum. Therefore, in order to obtain high quality viable seed, it is important to harvest at right time. However, in case of adverse weather and field conditions, the seed should be harvested immediately after it reaches maturity. The moisture content of freshly matured seed varies from one type to another. Generally, cereal crop seed and vegetable seeds would contain 30-40 per cent moisture at the mature stage.

Determination of moisture content of seed: Moisture content of the seed is the amount of water in the seed. There are number of methods available for determining the moisture content in soil. These are desiccation method, Phosphorus pentaoxide method, oven-drying method, vacuum drying method, distillation method, Karl Fisher's method, direct weighing method and microwave oven method. The best method for determining the moisture content in seed is oven-drying method. In this method, water is removed from seeds by heat under controlled conditions. The difference in weight before and after heating is the amount of water seed contained. Now a days, quick moisture meters and digital humidity sensors are also used for moisture determination.

Seed drying: After harvesting, the seed should be dried rapidly to a safe moisture level for storage. Otherwise, there is danger of overheating and mould growth due to high rate of respiration. This in turn results in loss of

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viability. The advantages of having adequate drying facilities are: seed can be harvested earlier, thus reducing bird damage, shattering and damage caused by animals & insects. Harvesting early thus permits more timely field preparation for the next crop. When we dried the seed to recommended moisture content, it becomes possible to store the seed for long periods without seed deterioration & loss of viability. The drying of seed sample should start as soon as possible. The moisture content of seeds to be stored as base collections should be between 3-7 per cent, as active collections should be between 3-8 per cent depending on the species. If the seed is properly dried, there is less damage during the processing operations especially in elevators & cleaners. The methods used for drying are sun drying, drying with natural air, drying with forced natural air and drying with forced artificially heated air, dehumidified drying, silica gel drying, calcium chloride drying, shade drying etc. Sun drying is usually a slow process & due to unpredictable weather conditions, this method is not a popular method due to danger of mould growth as well as bird & insect damage. The process of seed drying depends on the types of seed, initial moisture content, climatic conditions, local cost of construction, availability of electricity and management efficiency & level of competency of employees.

Seed cleaning & grading: After drying the seeds, seed must be properly cleaned & graded. Cleaning machines are available for this. These machines utilize air and screens or sieves for the cleaning & grading. They take out dirt, leaves, stem, chaff etc. A built in fan blows air through the seed and removes light seed & foreign material. The screen grade out material larger than the seed, broken grains & other types of seed.

Seed Treating: After cleaning & grading, it is essential that the seed be chemically treated against pests and diseases. The seed treater along with thinner gives a very thin layer of chemical solution on the seed. The benefits of seed treatment includes controlling of seed-borne diseases such as grain smuts, fusarium scab & seedling blight etc., protection of seed against seed rot & storage pests, improved germination through the control of surface moulds and control of soil insects.

Packaging: Before shipment of seed for sale, seed must be packaged for protection and to prevent contamination. The package which are used includes cotton bags, plastic bags, paper bags and jute bags. The bag in which seed is packaged must be sealed securely and have a tag on which per cent germination, date of test, purity, kind of seed etc must be mentioned.

Seed storage: The degree of dormancy of seed and thus its longevity depends primarily on the moisture-temperature relationships. The colder & drier the seed is kept during storage, the longer the seed will remain viable. It is said that for every per cent decrease in moisture content, the seed life is doubled. Depending upon the seed, the safe storage moisture levels would be between 6 and 10 per cent.