



## Generation Models of Seed Multiplication

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Seed is the most cost-effective and fundamental ingredient for long-term agricultural output. A small quantity of seed, known as nucleus seed, is available with the plant breeder at the time of a variety's release. After a succession of multiplication steps, a commercial quantity of seed is generated. Starting with a maintenance programme in which nucleus seed is multiplied as breeder, foundation, and certified seed in a generation system of multiplication.

In other words, the seed multiplication generation system is nothing more than the production of a specific class of seed from a specified class of seed up to certified seed stage. The selection of an appropriate seed multiplication model is critical to the continued success of a seed programme, which is based on the rate of genetic degradation, seed multiplication ratio and total seed demand.

Different seed multiplication models for each crop can be derived based on these factors, and the seed multiplication agency should determine how quickly farmers can be supplied with seed of newly released varieties after the nucleus seed stock has been handed over to the concerned agency, so that the old varieties can be replaced. The chain of seed multiplication models could be, based on the basic factors.

### A. Model-I: Three - Generation

Breeder seed - Foundation seed - Certified seed

### B. Model-II: Four - Generation

Breeder seed - Foundation seed (I) - Foundation seed (II) - Certified seed

### C. Model-III: Five - Generation

Breeder seed - Foundation seed (I) - Foundation seed (II) - Certified seed (I) - Certified seed (II)

Seed multiplication is usually recommended for most commonly cross pollinated and cross pollinated crops using 3 or 4 generation models. Ex: Castor, Redgram, Jute, Greengram, Rape, Mustard, Sesame, Sunflower, and the majority of vegetable crops.

## Classes of Seed

The classes of seeds are described in summarized form below:

#### ❖ Breeder seed

Breeder seed is created from nucleus seed in an Agricultural University research facility under the direction of a skilled plant breeder. This ensures that foundation seed is supplied both initially and on a regular basis. A joint inspection team of scientists and officials from the certifying agency and the National Seed Corporation monitors breeder seed. Breeder seed crop genetic purity should be maintained at 100 percent.

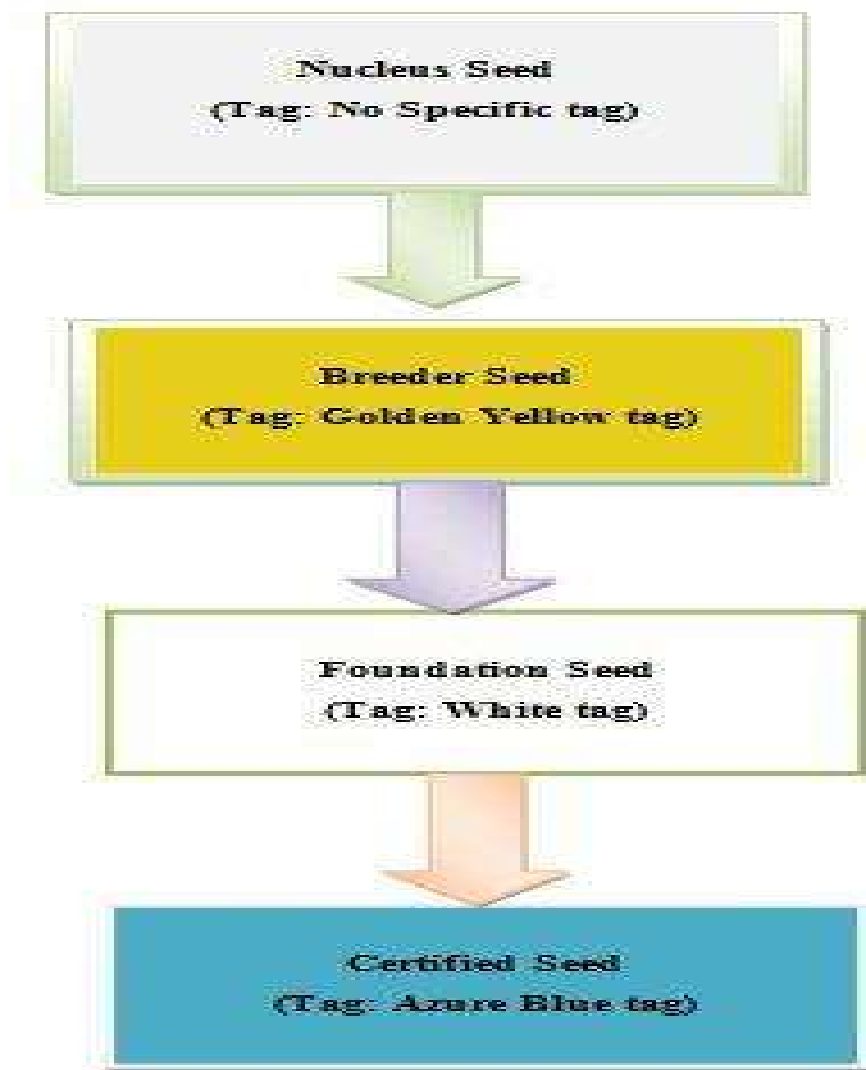


Fig: Stages of seed multiplication

#### ❖ Foundation seed

Foundation seed is the offspring of breeder seed and is produced under the technical supervision of competent plant breeders or technical officers by the State Farm Corporation of India, the National Seed Corporation, and the State Seed Corporation. A certification body oversees and approves its manufacturing. 99.5 percent genetic purity should be maintained in foundation seed.

#### ❖ Certified seed

The progeny of foundation seed, certified seed is produced under the supervision and approval of a certification agency. This class of seed is typically produced on progressive grower's farms by the State and National Seeds Corporation and private seed companies. This is the commercial seed that farmers may buy, and it should have a genetic purity of 99 percent.