



Planning of seed production for
different classes of seeds for self and
cross pollinated crops

What is seed?

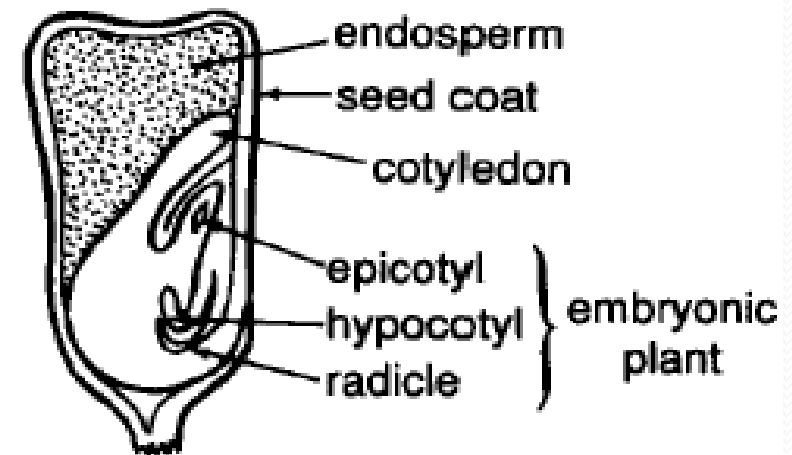
In broad sense

Seed is a material which is used for planting or regeneration purpose.



scientifically

Seed is a fertilized matured ovule together covered with seed coat is called seed or it is a propagating material.

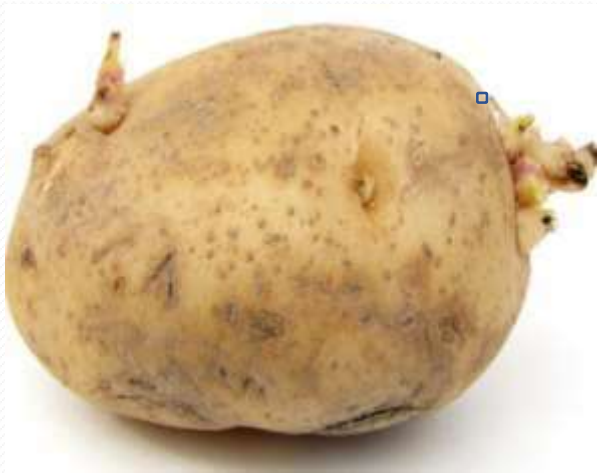


Technological point of view

Seed is a fertilized ripened ovule consisting of three main parts namely **seed coat**, **endosperm** and **embryo**, which in due course gives rise to a new plant.

It also refers to

Propagating materials of healthy seedlings, tuber, bulbs, rhizome, roots, cuttings, setts, all types of grafts and vegetatively propagating materials used for production purpose.



Potato Bulb



Garlic Bulb



Turmeric Rhizome



Rose Cuttings

Classes of Seed

- ✓ Nucleus Seed
- ✓ Breeder Seed
- ✓ Foundation Seed
- ✓ Certified Seed

Nucleus Seed

- Produced from basic nucleus stock.
- Produced by the original breeder/Institute /State Agriculture University (SAU)
- Small scale multiplication.
- Pedigree Certificate issued by Breeder.

General Standards:

Genetical Purity :- 100%
Physical Purity :- 100%
Min. Germination :- 100%
Max. Inert Matter :- 0%

Breeder seeds

- Progeny of Nucleus Seed.
- Multiplied in large area as per indent of Department of Agriculture and Cooperation (DOAC), Ministry of Agriculture, Government of India, under supervision of plant breeder / institute / SAUs and monitored by a committee consisting of the representatives of state seed certification agency, national / state seed corporations, ICAR nominee and concerned breeder'.
- Golden Yellow colour certificate is issued.

General Standards:

Genetical Purity	:- 100%
Physical Purity	:- 100%
Min. Germination	:- 100%
Max. Inert Matter	:- 0%

A/04/0602

Tamil Nadu Agricultural University, Coimbatore

Crop : Groundnut
Variety : VRI 2
Class of Seed : BREEDER SEED
Lot No : 9/11/05
Date of Test : 24.11.05
Pure Seed : 50g
Inert matter : Nil
Germination : 80%
Genetic Purity : 100%
Net Wt. : 30g
Producing Institution : VRI 2

3492

N

ONE

POISON TREATED



AREA MANAGER (P&T)
AEW OF TANCOP
DEPT. OF AGRICULTURE
NEYVELL 632 843

Assistant Professor
(Plant Breeding)
Regional Research Station
Tamil Nadu Agricultural University
Vidhachalam-606 001.

Foundation Seeds

- Progeny of Breeder Seed.

Produced by Recognized Seed Producing agencies in public and private sectors under the supervision of Certification agencies.

- Large Scale Multiplication.
- White Colour certificate is issued.

General Standards:

Genetical Purity :- 97-98%

Physical Purity :- >95%

Min. Germination :- 70-85%

Max. Inert Matter :- 2%

Isolation:

Self Pollinated = 50-150 m

Cross Pollinated = 600-1200 m

Tag No. **WA**
05



Karnataka State Seed
Certification Agency
BANGALORE

Kind

Variety.....

Lot No.....

Use of seed after expiry of the validity period is entirely at user's risk and the holder of the certificate shall not be responsible for any damage to the user. No one should purchase the seed if seal or the certification tag has been tampered with.

Name and Address
of the Seed Producer.....

FOUNDATION SEED

Class of Seed

Certificate No

Date of issue of Certificate

Date of Test

Certificate Valid upto
(provided seed is stored under cool and dry environment)

Seed Certification Officer
(Name & Place)

Validity of certificate
further extended upto

Seed Certification Officer
(Name & Place)

Certified Seed

- Progeny of Foundation Seed.
- Produced by registered seed growers under the supervision of Seed Certification Agencies.
- Meant for Distribution to the Farmers for commercial cultivation.
- Azur Blue colour certificate is issued.
- Large Scale Multiplication

General Standards:

Genetical Purity :- 98%
Physical Purity :- >90%
Min. Germination :- 60-80%
Max. Inert Matter :- 2%

Isolation:

Self Pollinated = 50-300 m
Cross Pollinated = 600-1600 m

Information on the Label

- a. Species (botanical name)
- b. Cultivar name
- c. Category
- d. Reference number
- e. Date of issue of certificate

Variety & Kind	Vernal Alfalfa
Lot No.	307-98
Pure seed	98.90%
Inert matter	01.05%
Other crop seed	00.00%
Weed seed	00.05%
Noxious weeds	00.00%
Germination	90.00%
Hard seed	05.00%
Date tested	Jan. 2001
Net weight	60 lbs.



Types of Seeds

MONOCOTS	DICOTS
Embryo with single cotyledon	Embryo with two cotyledons
Usually endospermic	Usually non-endospermic (Except Castor seed)
Germination usually hypogeal (Except in onion)	Germination usually epigeal (except in pea, gram)
Flower parts in multiples of three	Flower parts in multiples of four or five
Major leaf veins parallel	Major leaf veins reticulated
Roots are adventitious	Roots develop from radicle
Secondary growth absent	Secondary growth often present
Grains, (wheat, corn, rice, millet) sugarcane, banana, ginger, onions, grass	Legumes (pea, beans, lentils, peanuts) mint, lettuce, tomato, oak, tree, etc.

STAGES OF SEED PRODUCTION

Nucleus Seed



BREEDER SEED



FOUNDATION SEED

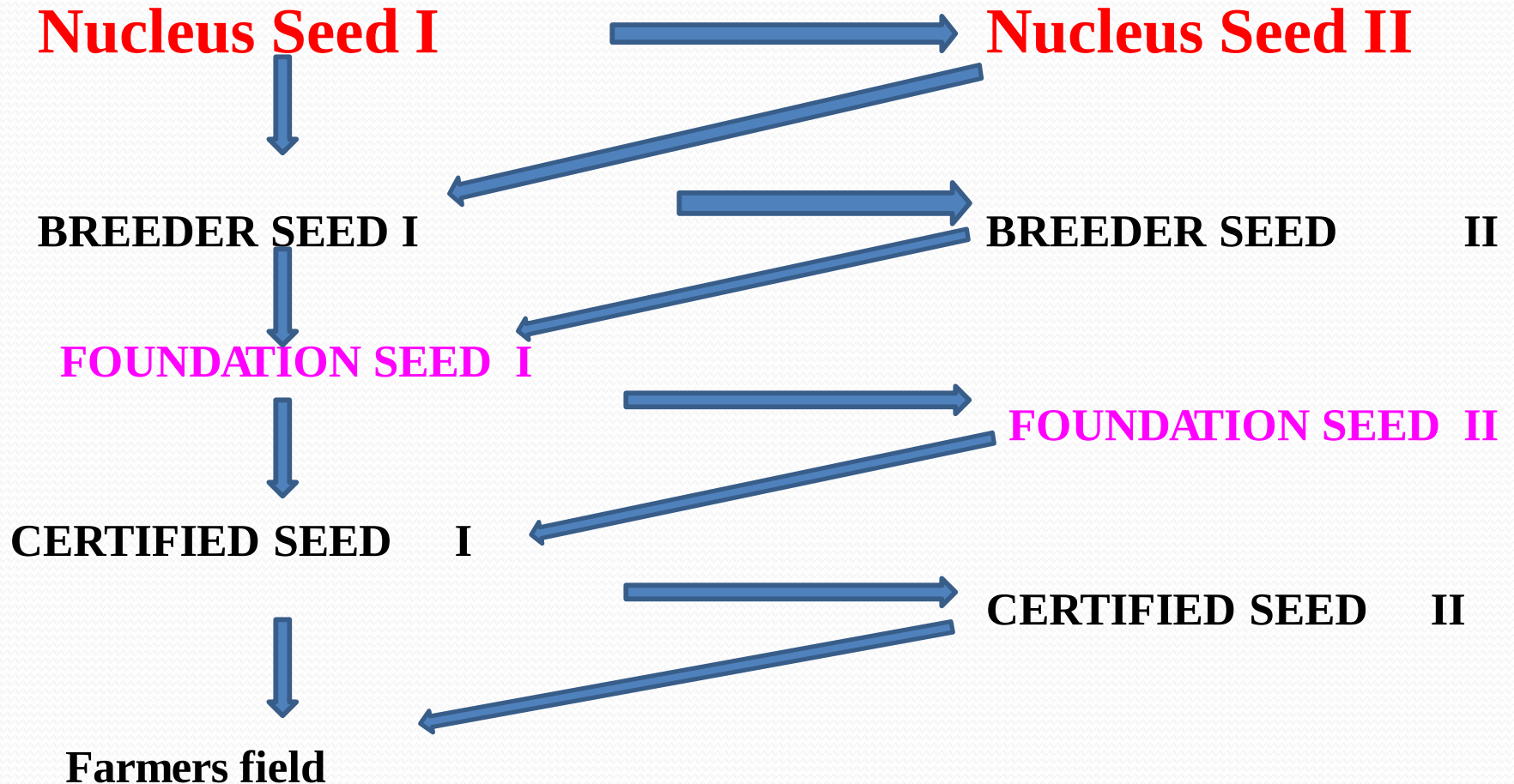


CERTIFIED SEED



Farmers field

Stages II of Seed production



Seed multiplication system

- **A. Three - Generation model**

Breeder seed - Foundation seed - Certified seed

- **B. Four - Generation model**

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

- **C. Five - Generation model**

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

Generation system

- ❖ Seed production is restricted to four generations only
- ❖ Starting from breeder's seed, the seed can only be multiplied up to 3 more generations i.e. Foundation, Registered & certified



Thank You