



The story of a seed

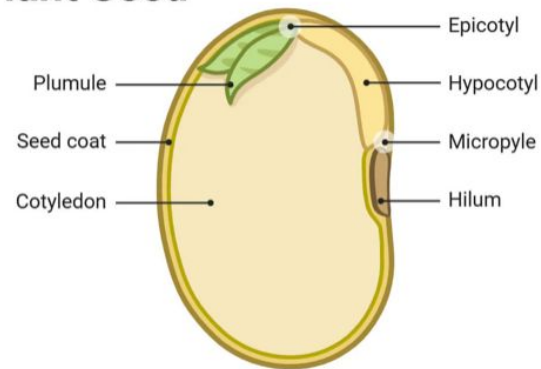
From plant to plate



What is a seed?

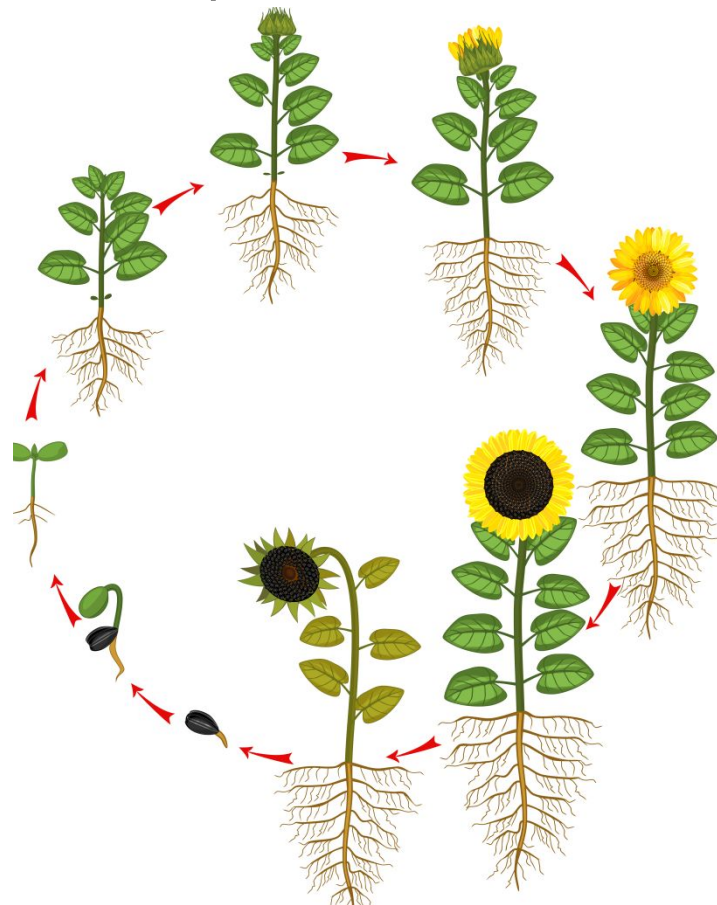
- A seed is a plant structure containing an embryo and nutrients in a protective coat
- Most plant species on Earth today have seeds — In Angiosperms seeds develop inside of fruit while in Gymnosperms, such as pine trees, the seeds are on the surface of hard cones

Plant Seed



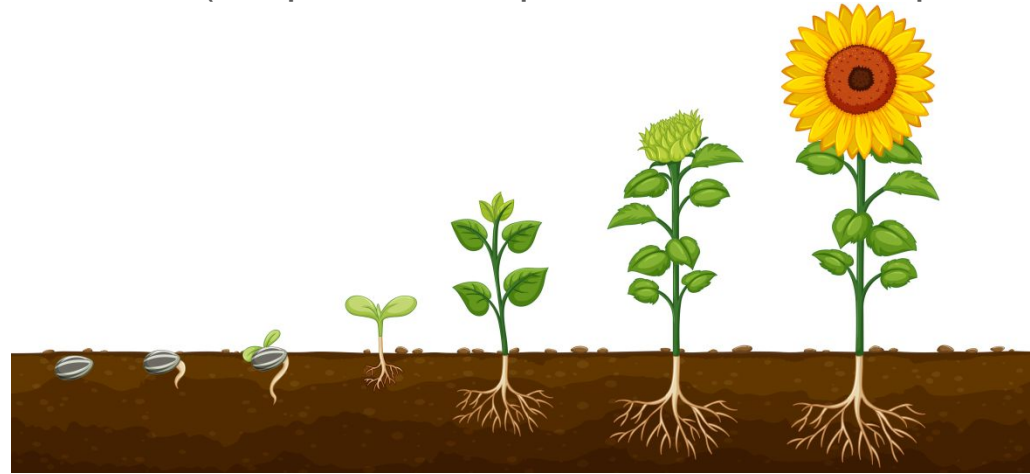
Circular: Each seed grows into a plant and produce more seeds

- Each seed has the power to grow into a new plant and then produce more seeds in the future. The whole process is circular
- Seeds can be either consumed as food or used to grow plants that you eat. The first category includes your daals, grains like rice, wheat and millet, spices like cumin/ jeera, fennel/ saunf, dhaniya/ coriander, sarson/ mustard and so on. The second category includes vegetables and fruits
- If you let any plant complete its lifecycle it can produce more seeds



Seed germination

- Imbibition (water absorption)
- Metabolic activation (enzymes activate and cellular activity resumes)
- Respiration (the embryo uses stored food for energy)
- Radicle emergence (the first root grows downward)
- Shoot emergence (the shoot grows upward)
- Seedling establishment (the plant develops leaves and starts photosynthesis)



Where can we find seeds?



Business of seeds

- Commercial seeds: hybrids, GM seeds. The problem with these seeds is that they can lead to biodiversity loss and also impact organisms that depend on them for food. There are fears that their consumption can lead to allergies in humans
- Traditional seeds: native landraces that are often stored in seed banks. These are seeds that farmers have preserved because of their unique qualities like high yield, resistance to pests or adaptability to adverse environmental conditions



Seed banks

- Seed banks are similar to our piggy banks and financial banks. But instead of money, you deposits seeds in them
- Seed banks can operate at the global, national or community level
- They are all complementary and help preserve agro–biodiversity and build the resilience of food systems
- These preserve genetic diversity for future use, acting as an insurance policy against the loss of these resources due to climate change, environmental degradation, and other crises



Svalbard Global Seed Vault, Norway



Community seed banks



Community seed banks

- Community seed banks play the most vital role in protecting local biodiversity as these conserve local crop/tree varieties and related knowledge and is under direct control of the community.
- Seeds and seedlings are collected from farmers' fields and home gardens, and sometimes from the wild
- Community seed banks conserve crop varieties best adapted to local conditions



What do community seed banks do?

- There are many models across the country. Let me give you an example of a seed bank that I visited recently in Dharwad district of Karnataka. This is Bibi Fatima Swa Sahaya Sangha, Karnataka which earned the Equator Prize this year
- In Karnataka, millets used to be the mainstay for food security for long but over years, focus shifted to cash crops such as maize and cotton
- In the last few years, farmers have tried to shift back to millets for food security. But they did not have good quality seeds fit for the changed climate of the area
- The SHG is working with farmers who are growing pure lines of the traditional seed varieties. This is the seed that is provided to farmers



What do community banks do?

- Farmers who take the seeds are supposed to return double the amount of seed back to the SHG
- This returned seed is either processed by the women to produce value added products or sold to the FPO, Processing millets takes time and requires special machines as the grain is very small. The grain goes through a series of machines till the small dehusked grain is available. The broken seeds are collected separately as semolina which is used to prepare value added products such as vermicelli
- Farmers can use the processing unit to process their yield for consumption
- The SHG also provides farm implements
- Despite the crucial role community seed banks play in seed sovereignty and sustainable agriculture, they face several financial, technical, and social challenges that threaten their sustainability



Activity 1: Grow a plant from seed



Activity 2: Food biodiversity



Activity 3: Wild seed collection



Thank you!



vibha@cseindia.org/ September 29, 2025

