

A SERIES OF FACT SHEETS ABOUT

Seed Saving &



Plant Propagation

Developed by IDEP Foundation
With support from the Seed Savers Network

Would you like to grow the healthiest, most nutritious varieties of seeds while saving and making money?

For thousands of years farmers have collected and produced their own seeds.

While providing food for their families, gardeners save seeds from the healthiest and tastiest plant varieties.

Working together with the natural processes of the forest, seed savers around the world have created a vast and diverse catalogue of useful and nutritious plant varieties.



These days large businesses produce seeds to make a profit on the world market.

These businesses have engineered new, chemically dependant seeds by hybridizing and genetic engineering. Worldwide, local varieties of food crops are disappearing as they are replaced by “engineered” varieties. In the last century, $\frac{3}{4}$ of all garden varieties have disappeared.

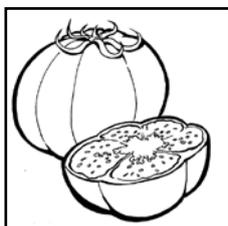
While small farms go bankrupt, these companies are making huge profit in a business which once belonged to the small farmer. Why not reclaim it?

Protect your community's inheritance. Grow and save your local plant varieties!

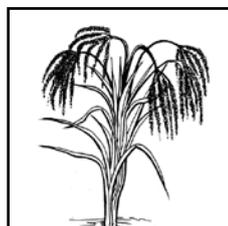
Many people around the world recognize the need to conserve local and heirloom plant varieties. Start a seed bank and join the worldwide network of seed savers today!

Four methods for propagating tropical plants:

1. Wet Seeds
(like tomatoes)



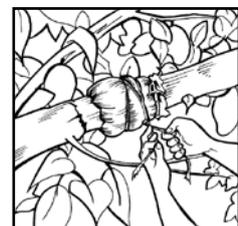
2. Dry Seeds
(like rice)



3. Grafting
(like mangoes)

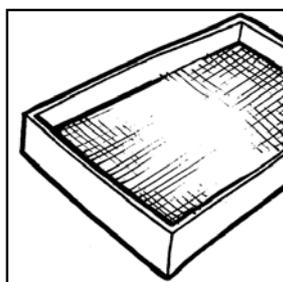
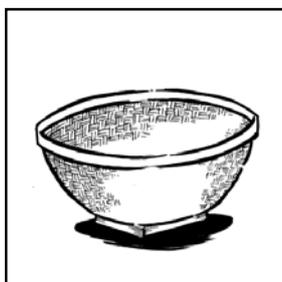
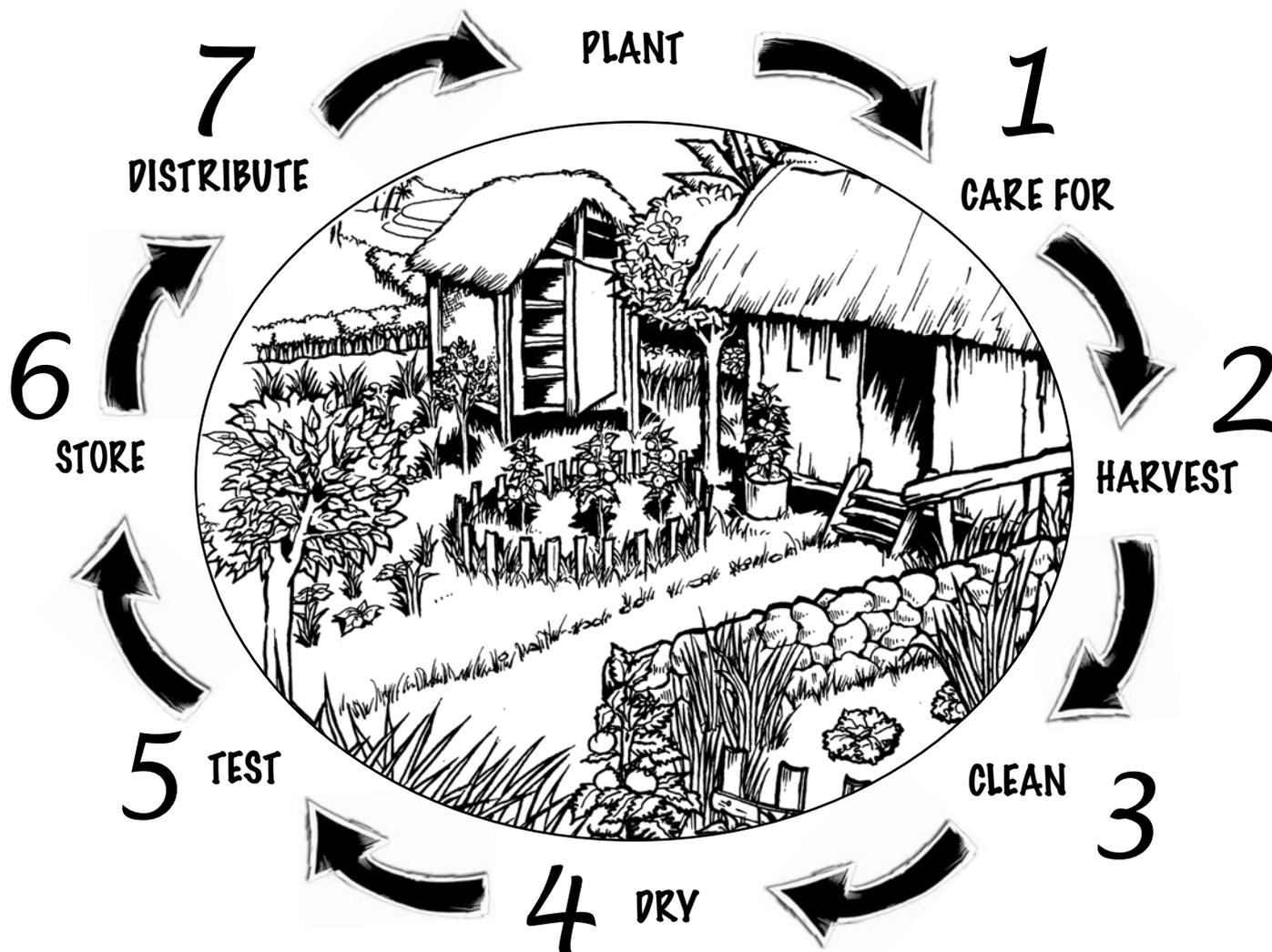


4. Root Cuttings
(like cassava)



The Seed Saving Cycle

Seed saving is a continuous cycle of activities which follows the natural cycle of plants. When learning seed saving, nature is the best teacher.

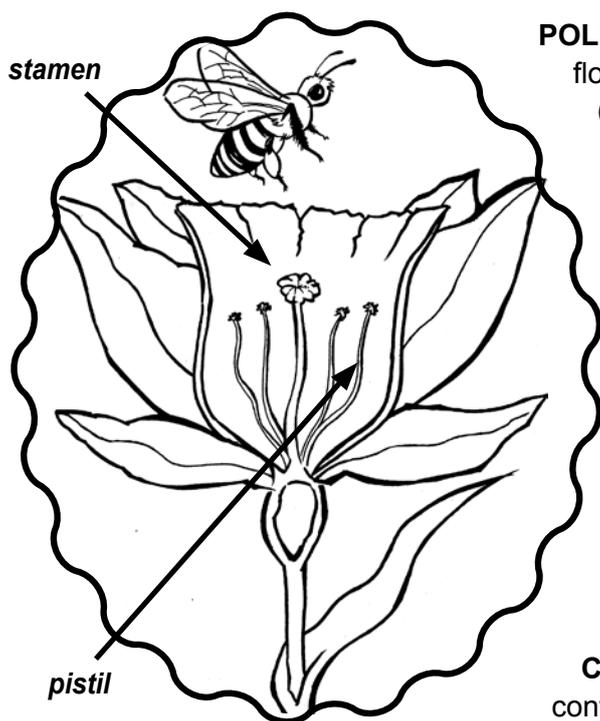


There are a few basic tools you will need for seed saving, such as:

- A cool dry room
- Water source
- Buckets or tightly woven baskets
- Cloth or paper for drying
- Air-tight containers
- Desiccant (silica gel or wood ash)
- Sieves or screens for winnowing
- Notebook and pens for record keeping
- Labels (bamboo or re-used plastic)
- Weather-proof markers for labels

Flower Structure & Pollination

Understanding how plants reproduce...



POLLINATION HAPPENS WHEN pollen from the male parts of the flower (stamen) comes into contact with female parts of the flower (pistil). Once a flower is pollinated, it begins to create seed. Depending on the type of plant, pollination can happen in several ways:

SELF POLLINATION – Most vegetable flowers have both male and female parts on the same flower. These species can pollinate themselves.

INSECT POLLINATION – Some varieties such as squash, need insects or birds to carry pollen from one flower to the next.

WIND POLLINATION – Some species such as corn, allow the wind to spread their pollen to other flowers.

CROSS POLLINATION – When pollen from one plant comes into contact with the pistil of another.

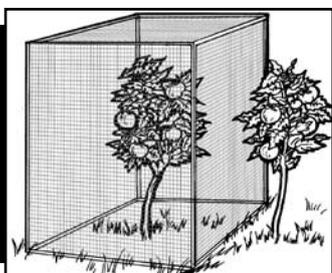
Dioecious plants such as asparagus, have male and female parts on different plants.

Monoecious plants such as corn, have male and female parts on the same plant, not on the same flower.

Perfect flowers have both male and female parts and are capable of self-pollination.

1 Caring for Plants

In order to conserve a particular variety of plant, it is important to isolate flowers to protect them from cross-pollination by other varieties. There are several ways to do this, for example, plant different varieties far enough away from each other so that pollen cannot travel from 1 to the other. The distance needed will depend on how that variety of plant pollen travels and any blockades that it might encounter.



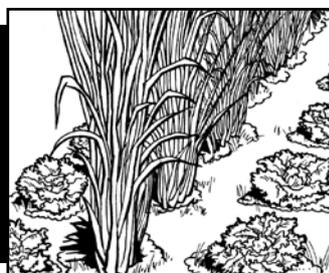
CAGING

Plants that are pollinated by insects can be caged on alternative days to allow insects access to 1 variety at a time.



BAGGING

Flowers of self-pollinated plants can be covered with a paper bag or gauze to discourage insects and floating pollen.



BLOCKADES

Place rows of tall, dense plants in between 2 species to block the movement of pollen between them.



HAND POLLINATION

Cut the stamen of the male flower and rub it against the stigma of the female flower.

2 Harvesting & 3 Cleaning Seeds

Collect only the best seeds from the best plants!

Roguing—is the process of removing plants with undesirable characteristics before they pollinate other plants and spread these characteristics. This should be done often to ensure good seed crops.

Mid-morning is the best time for seed collecting.

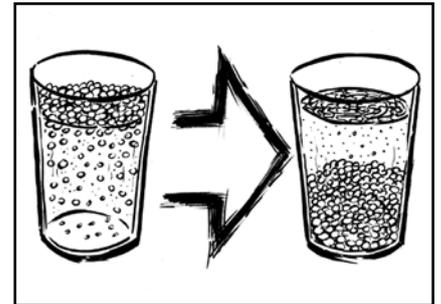
For wet seeds:



Pick fruits when they are soft and fully ripe (past eating stage).



Scoop seeds out of the fruit and onto a screen. Run water over them to clean them.



Soak in water for 24 hours, until fermented.

For dry seeds:



For small seeds such as onions, bag the whole seed cluster and break it off at the stem. Then hang under a roof to dry. Seeds are already bagged for storage. Remember to protect against critters.



Hand pick large seeds such as beans.



4 Drying & 5 Testing Seeds

Drying - Spread seeds out on dry cloth or paper. Air dry in the shade for 1 day, then move to bright sunlight. Covering seeds with winnowing screens can help guard against wind and pests. Plants like onions can be hung to dry in paper bags under a roof.

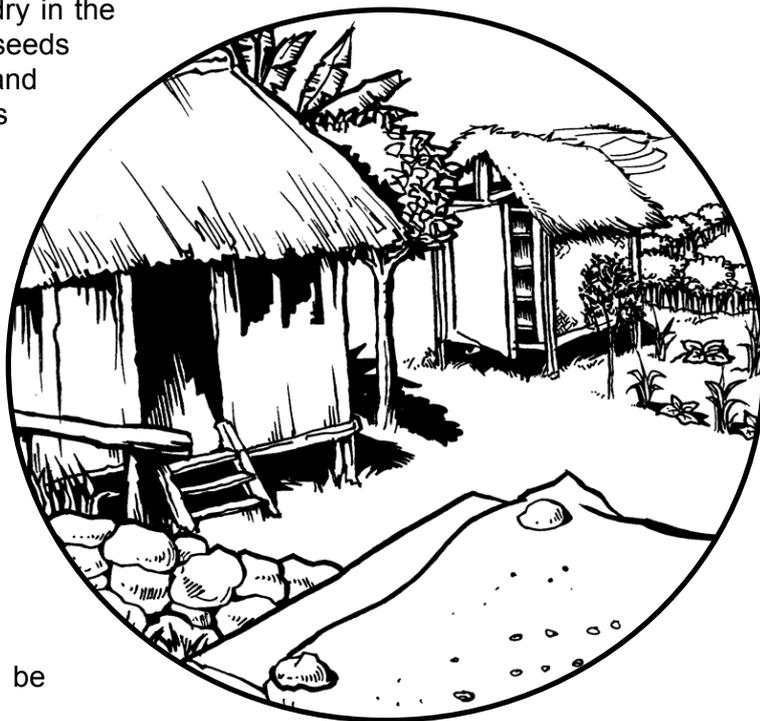
Big seeds like beans and corn take 1-2 weeks to dry. To test, bite into 1. If your teeth leave an indent it is not dry yet.

Medium seeds like pumpkin and chili take about 1 week to dry. Dry seeds will snap when bent.

Small seeds like eggplant and lettuce take 2-3 days to dry.

Dry seeds must be carefully stored. Moisture will shorten the life span of your seeds drastically.

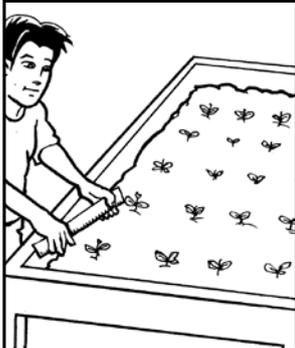
Note: Some tropical seeds cannot be dried and must be planted right away!



Germination testing

Test 1 seed for every 10 harvested, but no more than 500 seeds. Record the number of seeds that germinate and divide by the number that were tested to get a germination percentage ($75/100 = 0.75 = 75\%$). Label well.

Nursery testing (for small seeds)



- Use compost as a medium.
- Soil can be mixed with the compost, but it must first be sterilized by boiling it in water.
- Water lightly to begin with, but keep constantly moist.

Bowl testing (for large seeds)



- Soak in water overnight.
- Fold seeds in paper and sprinkle with water until damp.
- Maintain moisture daily.

6 Storing Seeds



Tropical climates cause seeds to rot quickly, but if stored well they can last 2–10 years.

- Wrap seeds in paper packets.
- Place in an air tight container.
- Add a 2cm layer of wood ash at the bottom of the container to soak up excess moisture.
- Add neem powder to discourage pests.
- Label everything clearly.

7 Distributing Seeds



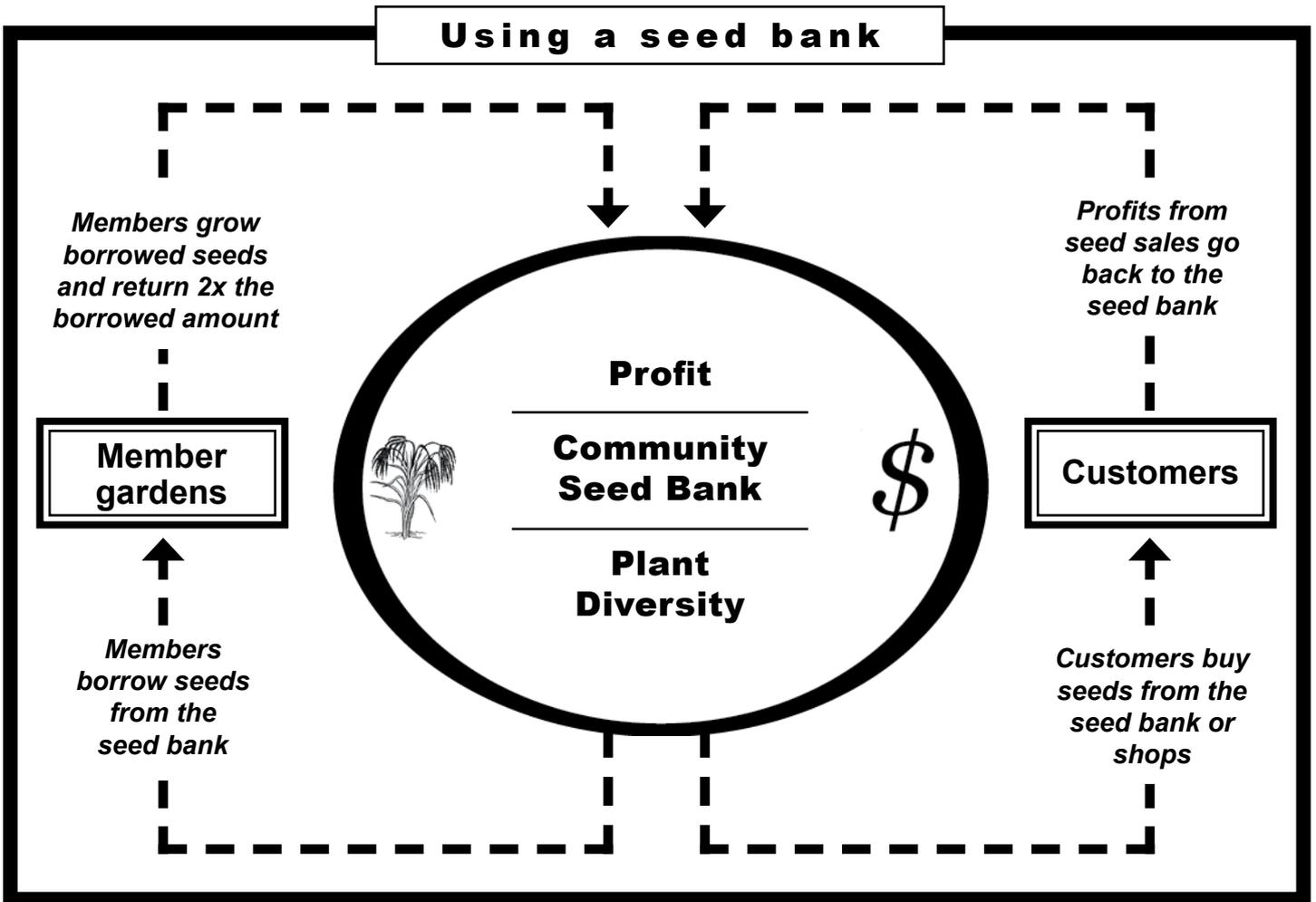
Community seed banks...

The more seed varieties you have in your seed bank the better! Working together with friends and neighbors is a good way share the workload and the increased profits! Community seed banks connect and organize knowledge, resources and skills of local farmers. Once your seed bank is started, you can even connect to nationwide and worldwide seed saving networks! The first thing to do is to hold a meeting and make a few decisions...

Who are the members?
Where will seed be stored?
Who will keep records?
How will seeds be traded?
Where will excess seed be sold?



Using a seed bank



For a successful seed bank, you need to keep accurate records!

NAME	VARIETY	USES	TIME TO HARVEST	TIME IN NURSERY	DISEASE RESISTANCE	RATE OF GERMINATION	AMOUNT OF SEED	
							STORED	DISTRIBUTED
Spinach	Local	Vegetable	4 weeks	Directly	Grasshoppers	2,700 / 3,000	500	2,200
Papaya	Sunrise Solo	Fruit, medicinal	1 year	3 weeks	Fungi	850 / 1,000	700	150
Papaya	Sunset Solo	Fruit, medicinal	10 months	3 weeks	Fungi	770 / 1,000	170	600
Cucumber	Local	Vegetable	2 months	Directly	Leaf spots	1,200 / 1,500	1,000	200

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More information: www.idepfoundation.org / www.seedsavers.net