



## Seed Saving



**ECHO Asia Impact Center**

ECHO'S partner farmer, Chiang Mai Province, Thailand



## Question 1

- Question 1: I currently save my own seeds
- A: Yes, I save all of my own seeds
  - B: I save most of my own seeds
  - C: I save a little bit of my own seeds
  - D: I do not save my own seeds

## The benefits of seed saving for this farmer are that:

- It saves money
- Allows her to share seed with the community and ECHO
- Allows her to grow healthy organic food
- Promotes a sustainable way of life
- Preserves biodiversity on which agriculture depends

## Why is seed saving important?

- Uses locally available resources
- Saves money
- Preserves genetic and cultural diversity
- Develops self-sufficiency
- Local acclimatization
- Empowers others
- Decreases dependence on hybrids
- Promotes good health

## Question 2

- It is estimated that what percent of all crop genetic diversity in the world has gone extinct in the last century (100 years)?
- A: 12%
- B: 25%
- C: 54%
- D: 75%



## Heirloom (OP) seed

- Disease and pest resistant
- Adapted to the local environment
- Don't need chemicals
- Safe for customer and farmer
- 10,000 years of history
- Food security and the preservation of biodiversity

## Hybrid Seed



- Do not produce 'true to type' seeds
- Saved seed not viable
- Loses 'hybrid vigor'
- Saving seeds is not recommended and often illegal
- Loss of biodiversity
- High input expenses

## Characteristics of Good Seed

- Pure lineage
- Can trace the crop history
- Clean and new
- High viability
- Low moisture content



## Advantages of Good Seed

- Better yield
- Needs less resources
- Produces healthy plants
- Maintains pure line
- High germination
- Adapts well



## Disadvantages of bad seed

- Less and lower quality yield
- More labor-intensive less cost effective
- Low germination
- Unable to be sold at market

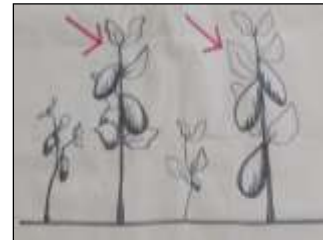


## Criteria of Selecting Seed

- From strong and healthy plants



- Good flavor and color
- High productivity
- Avoid plants that are too young, too old or sick





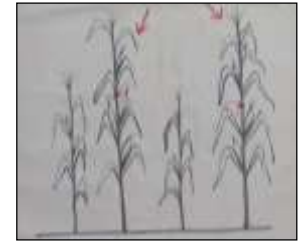
- Vigorous growth



- Adapted to your farm



- Mark the healthy plants to remember which ones to collect seeds



- Try to prevent cross-pollination



## Principles of Harvesting Seed

- Harvest from desired plants or plant parts
- The goal should be genetic diversity so plants can adapt to changing conditions
- Label bags or containers
- Harvest at the right time

## Harvesting Variations

- Chili
- Cucumber
- Eggplant
- Pumpkin
- Papaya





## Varieties that should be harvested before pods disintegrate

- Amaranth
- Winged bean
- Rice bean, cowpea
- Sesame
- Horse gram



Too late for  
harvesting



Right time for  
harvesting



## Varieties that can be propagated by cuttings

- Sweet potato
- Chaya
- Cassava
- Katuk
- Fern



## Propagation

With soil in container



Submersion in water



Directly in the ground



## Cleaning seeds: why do it?

- Chaff and stems make it harder to get an accurate seed count
- Debris can harbor insects
- Removes any insects and diseases that come in from the field

## Tomato Cleaning



1. Scoop out the seed



2. Soak with water and ferment

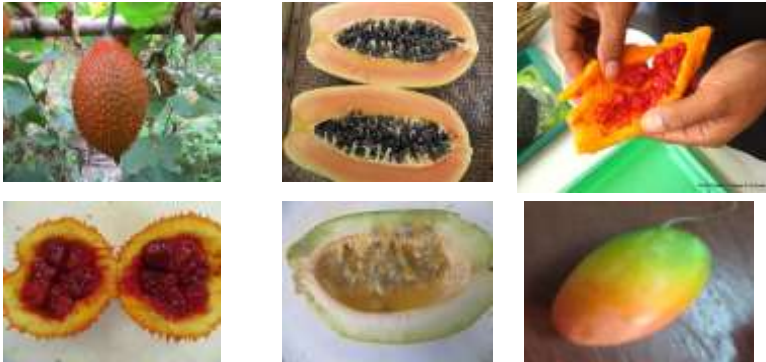


3. Wash with water and strain



4. Dry

## Seed Cleaning by Sand



## Papaya Cleaning





## Dry Pod or Husk Seed Cleaning

Yard long bean, horse gram and green bean



Remove seed from pod by hand



Remove debris and separate  
good seed from bad

## Seed Drying

- Ideal seed moisture content for storage is 3-8%
- Be sure the temperature does not exceed 41C (105F) for tree or high-oil seeds and 54C (130F) for most other orthodox seeds

## Some Appropriate Drying Methods

### Drying in the Sun



### Drying Above Fire





## Drying Shelves



## Seed Dryer





## Storing Seeds

- Seed should not be exposed to ambient moisture in storage
- Don't let them be exposed to high humidity again!





## How to Store Seeds:

- Label your seeds!
- Climate controlled environment
- Use desiccant
- Airtight containers
- Vacuum seal



### Rule of 100:

The combination of the temperature (F) plus the relative humidity (%) of the ambient environment where seeds are being stored should not be greater than 100

### How to overcome?

- Climate controlled environment
- Desiccant
- Airtight containers
- Vacuum sealing

## Some Appropriate Storage Methods



## Vacuum Sealing



## Some Appropriate Storage Methods

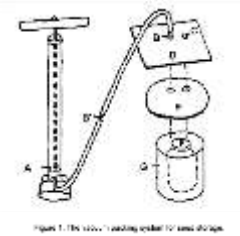


Figure 1. The seed storage system for seed storage.



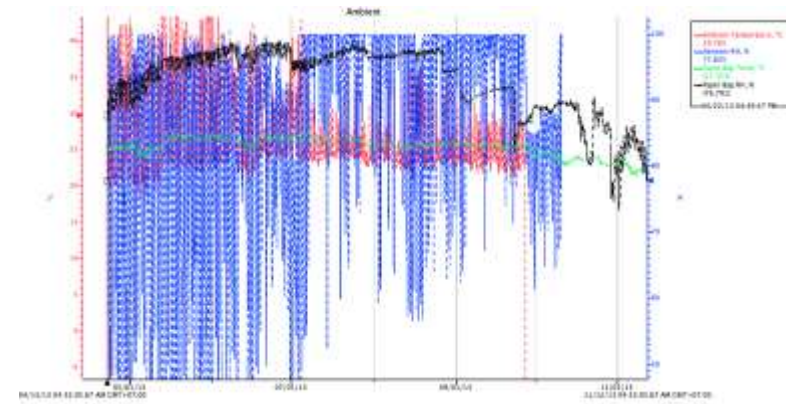
## Climate Controlled Room





## Data logger Data

AMBIENT TEMPERATURE VERSUS TEMPERATURE IN EB HOUSE



## Why Should We Do Germination Testing ?

- Selective
- Reduces wastage
- Maximizes use of space
- Improves community relations

## Germination Testing Process: Petri



## Germination process: Rag Doll



## Germination Process: Soil





## Germination Data Recording

Seed Viability Testing													
Seed Germination Data Collection and Calculation													
Replication	Seed Type	Starting Date	Number of Seeds	Days After Beginning the Test							Total Germinated	Germination Rate (%)	Mean Days to 50% Germination
				2	4	6	8	10	12	14			
1	Lablab	20-Jun	100	33	20	18	10	7	3	0	91	91	4.54
2													
3													
4													
1													
2													
3													
4													

## Seed Saving Main Points:

- Increases food security
- Increases food sovereignty
- Preserves diversity
- Helps promote community relationships

## How will seed saving improve your community?



Thank you!

