First Seed Saving Trials

March 2016-December 2016
Status Report

I. INTRODUCTION

10,000 years ago, humankind learned to sow the seeds of the plants that they wanted to eat. A few hundred years after learning to plant and select seeds, man started domesticating animals. Early farmers gathered and saved the seeds of the plants whose characteristics they preferred. The varieties that showed traits that were not favorable were not replanted. From the early stages of agriculture up until a few decades ago, farmers practiced seed saving. The crops that are available today are the products of thousands of years of genetic selection.

In the Philippines seed saving was practiced by indigenous peoples since the pre-colonial times. The storage of seeds differed from area to area and from tribe to tribe, depending on the type of crop. This knowledge was passed on from generation to generation until a few decades ago. Today, after years of using hybrid seeds, many farmers have formed a dependence on agri-businesses or farm supply stores for their agricultural needs. Small-holder farmers spend, at minimum, PhP 5000 (over $100) annually on seeds alone. In the Philippines and under extreme poverty, PhP 5000 can go a long way. To put this number in perspective, according to the Philippine Statistics Authority, a family of five can subsist on a PhP 6,329.00 or approximately $127.85 US as a monthly food budget.

The introduction of hybrid seeds by agro-chemical companies has compromised the age-old practice of seed selection and storage. More and more farmers find seed saving challenging. The main reasons for this are:

A. When the seeds of a hybrid plant are planted, the resulting plants do not have the same characteristics as the parent plant.

B. Farmers are under the impression that seed saving is a difficult, labor intensive, and financially unsustainable endeavor.

In December of 2015, Ms. Sherry Manning, the Founder and Executive Director of Friends of ENCA Farm conducted a one-day Seed School in Tublay, Benguet, Philippines. An eager group of 70 farmers participated in this Seed School. From that batch, a group of seven dedicated farmers decided to join the first seed saving trials in 2016 with Friends of ENCA Farm.

II. THE FIRST SEED TRIALS

A. Objectives

The main reasons for initiating the seed trials are for organic and natural farmers to have a source of organic seeds in the country and to remove dependence on hybrid and non-open pollinated seeds readily available by big agrochemical companies in the Philippines. The secondary objectives are: to promote the practice of seed saving to farmers; to debunk the myth that seed saving is difficult and financially taxing; to test which crops are viable and adaptable to the country; and to ensure the diversity of crop varieties in the country.

It is important to note that the primary objectives could not be achieved without also achieving the secondary objectives. These objectives were developed and changed over the course of the initial trials, as more information was gathered, and more farmers became involved and interested in the seed saving trails and seed saving in general.

B. Distribution of Seeds

From the Seed School in a Day activity in December of 2015, a group of seven farmers became interested in joining the Seed Savers Program. Friends of ENCA Farm distributed over 50 varieties of seeds to this group the last week of February 2016. The seed varieties were shown to the farmers and each selected up to 10 kinds. This is the list of the farmers and the seeds they chose:

NAME OF FARMER	SEED VARIETY	SEED COMPANY SOURCE
Andrew Bandiwan	Marvel of Four Seasons Lettuce	Baker Creek Heirloom Seeds
	Red Russian Kale	Seed Savers Exchange
	Heirloom Tomatoes	
	Scarlet Emperor Beans	Underwood Gardens
	Speckled Lettuce	Baker Creek Heirloom Seeds
	Wild Hot Chiltepin Pepper	Botanical Interests
	Dwarf Grey Sugar Peas	Underwood Gardens
	Winter Squash	Bounty Beyond Belief
	Empress Beans	Seed Savers Exchange
Ester Caga	Brunswick Cabbage	GMO Free USA
	Dwarf Grey Sugar Peas	Underwood Gardens
	Indian Garbanzos	Baker Creek Heirloom Seeds
	Marvel of Four Seasons Lettuce	Baker Creek Heirloom Seeds

NAME OF FARMER	SEED VARIETY	SEED COMPANY SOURCE
	Thai Long Bean	Baker Creek Heirloom Seeds
	Wild Hot Chiltepin Pepper	Botanical Interests
	Five Color Silverbeet	Seed Savers Exchange
	Lemongrass	Underwood Gardens
Cesar Galvey	Marvel of Four Seasons Lettuce	Baker Creek Heirloom Seeds
	Red Romaine Lettuce	Baker Creek Heirloom Seeds
	Speckled Lettuce	Baker Creek Heirloom Seeds
	Bibb Lettuce	Lake Valley Organics
	Cauli Flower Erfurter	Baker Creek Heirloom Seeds
	Red Deer Tongue Lettuce	Bounty Beyond Belief
	Genovese Basil	Garden City
	Brussels Sprouts	Underwood Gardens
Boaz Philip	Bibb Lettuce	Lake Valley Organics
	Early Wonder Beet	Baker Creek Heirloom Seeds
	Five Color Silverbeet	Seed Savers Exchange
	Tennis Ball Lettuce	Baker Creek Heirloom Seeds
	Brussels Sprouts	Underwood Gardens
	Wildflower Mix	
	Winter Squash	Bounty Beyond Belief
	Red Russian Kale	Seed Savers Exchange
	Celery	Underwood Gardens
Jeffrey and Connie Sotero	Tennis Ball Lettuce	Baker Creek Heirloom Seeds
	Ruby Red Swiss Chard	Garden City
	Bulls Blood Beet	Underwood Gardens
	Creeping Thyme	
	Romanesco Fennel	
	Dukat Dill	

NAME OF FARMER	SEED VARIETY	SEED COMPANY SOURCE
	Giant Nobel Spinach	Underwood Gardens
	Bambina Carrot	Underwood Gardens
	Atomic Red Carrot	Baker Creek Heirloom Seeds
	White Sonora Wheat	Seed School
Alex Pomegas	Chinese Red Noodle Beans	Baker Creek Heirloom Seeds
	Boston Pickling Cucumber	Bounty Beyond Belief
	Glass Gem Corn	Seed School
	Pakchoi	Baker Creek Heirloom Seeds
	Squash	Underwood Gardens
	Wild Hot Chiltepin Pepper	Botanical Interests
	Mustard	Underwood Gardens
	Zucchini	Baker Creek Heirloom Seeds
	Little Marvel Peas	Underwood Gardens
Evelyn Cosalan	Parsley	Garden City
	Chives	
	Genovese Basil	Seed Savers Exchange

C. Farm and Farmer Requirements

Prior to the distribution of seeds, the farmers were required to complete a application form to join the program and their respective farms, at minimum, needed to:

1. Either be an existing Organic or GAP (Good Agricultural Practices) certified farm or has qualities for Organic / GAP certification.

2. Have available physical space / area in the farm that is suitable and can be reserved and devoted to seed trial production.

3. Have available source of clean irrigation water.

4. Have available worker who has time to care for the seed trial planting and saving project from start to finish.

5. Farmer agrees to return at least 1/4 of successfully propagated seeds to the central library (of Benguet Tivangdal) for shared access and / or sale of seeds to the larger community.

The above-mentioned requirements were evaluated during the farm visits conducted by the Friends of ENCA Farm program manager, Karen Lee Hizola, with the help of Mr. Cesar Galvey, Mr. Boaz Philip and Mr. Andrew Bandiwan, who are inspectors for the organic farming practitioners' group, LaTOP and members of the Seed Savers Program initial group of farmers.

***Note that at that time (Feb. 2016), Benguet Tivangdal was the planned caretaker and curator of the seed library. Based on the conversations with the farmers who are a part of the Seed Savers group, it has been agreed that they will be formalized and legally registered within the first quarter of 2017 as an association. The Seed Savers will then be responsible for the management, care taking and curating of the planned seed library in close collaboration with Friends of ENCA Farm.

D. Soil Test

1. Andrew Bandiwan's Farm

Farm Location	Tublay, Benguet
Texture	Silty clay
Color	Dark, yellowish brown
pH	6.4
Rating	Slightly acid
Nitrogen Content	Low
Phosphorus Content	Low
Potassium Content	Deficient

2. Cesar Galvey's Farm

Farm Location A	Shilan, La Trinidad, Benguet
Texture	Silty clay
Color	Dark, yellowish brown
pH	6.7
Rating	Neutral
Nitrogen Content	Low
Phosphorus Content	Medium
Potassium Content	Deficient

Farm Location B	Shilan, La Trinidad, Benguet
Texture	Silty clay
Color	Strong brown
pH	6.4
Rating	Slightly acid
Nitrogen Content	Low
Phosphorus Content	Medium
Potassium Content	Sufficient

3. Jeffrey and Connie Sotero's Farm

Farm Location A	Tublay, Benguet
Texture	Sandy clay
Color	Yellowish brown
pH	6.55
Rating	Slightly acid
Nitrogen Content	Low
Phosphorus Content	Medium
Potassium Content	Deficient

4. Boaz Philip's Farm

Farm Location A	Atok, Benguet
Texture	Sandy clay
Color	Dark, yellowish brown
pH	6.9
Rating	Neutral
Nitrogen Content	Low
Phosphorus Content	Medium
Potassium Content	Deficient

E. Trial Results

Please see Appendix A.

III. CONCLUSION

Based on the information and results gathered in the initial seed trials, it can be concluded that some plants that grow in temperate climates are able to survive and reach the seeding stage in the subtropical highland climate of Benguet on Luzon Island in the Philippines. These are the crops that can grow and reach the seeding stage in the country (based on what was tested during these trials): swiss chard and beets (amaranthaceae); lettuce (asteraceae); peppers and tomatoes (solanaceae); corn (poaceae); beans (leguminosae); and cabbages, kale, and brussels sprouts (brassica oleracea).

According to Mr. Bill McDorman (Founder of The Rocky Mountain Seed Alliance and a leading resource on seed saving), one of the reasons that plants may not reach seeding stage here is because some of these crops need to vernalize. He suggested that certain varieties like parsley and celery be earth-balled, with its roots intact in some soil wrapped in plastic, and placed in a cold temperature environment to artificially expose the plant to "winter" conditions. This step could trigger the flowering stage of some biennials that often need the cold months to allow their seed to prepare for spring. Another suggestion from Mr. McDorman was to lengthen the daylight artificially for some plants because some crops are affected by the length of day.

In Atok, Benguet, where Mr. Boaz Philip's farm is located, a parsley plant has reached flowering stage as of mid-December 2016. It should be noted that this area is known to experience the coldest temperature among the locations of the seed saver farms. Red Russian and Toscana kale varieties thrive here, though only Red Russian kale has been known to reach the seeding stage.

Another important point to note is that Mr. Andrew Bandiwan's farm,, which has the most diverse crop varieties relative to area, has seen the most success in terms of getting the trial crops to seed. His only non-successful plant was the speckled lettuce, which was infected by fungi during the rainy season. Mr. Bandiwan's space has over 30 varieties in a 250 square meter area.

It is worthy to note, also, that based on this first seed trials, the soil test results do not reflect the success or failure of plants to grow and reach the seeding stage. Based on the soil sample studies by the Provincial Agricultural Office of the soils of the participants, the healthiest soil can be found in Mr. Cesar Galvey's farm and Mr. Bandiwan's soil is less ideal but based on the outcome of the trials, Mr. Bandiwan's farm has seen the most success. It should be worthy to note that Mr. Galvey and Mr. Bandiwan planted different crops with a couple of exceptions: speckled lettuce and marvel of the four seasons lettuce. Both farms were successful in getting the marvel of the four seasons to seeding stage but both farms Other factors seem to have played a bigger role.

It can also be concluded that planting during the dry season would result in some plants reaching the seeding stage during the wet season, and thus get affected by typhoons and heavy rains. This should be avoided especially in a country where humidity is always high. On average, humidity in the Philippines is 70%.

IV. RECOMMENDATIONS

Based on the results of the initial trials, here are some recommendations that may help in future seed saving trials:

A. Seasons should be taken into consideration. It has been concluded that it is best for plants to reach the seeding stage during the dry season. In the initial trials, a number of plants that were either growing or in the flowering stage did not survive the damage caused by the heavy rains.

B. Soil testing should be done before, during and after the trials to see if there are changes and to check whether the acidity, the percentage of phosphorus, potassium and nitrogen play a big role in getting a plant to reach the seeding stage.

C. Seeds that did not germinate in one farm should be tested in other farms.

D. Life cycles of the plants to test should be studied to ensure that the plants reach seeding stage during the dry season.

E. Rotate the plant varieties that were successful among the other farms to better aid in the plant adaptation to the climate.

F. And lastly, should there be an academic interest in the topic, a more controlled testing should be done. Example: beans can be tested in Farm A and cabbages in Farm B. And then the following planting season, beans can be tested in Farm B and cabbages can be tested in Farm A. This and the aforementioned recommendations should be followed for a more academic approach.

IV. NEXT STEPS

The initial seed trials can be deemed successful for the reason that:

A. Plants that can grow and reach the seeding stage were identified.

B. The farmers who participated in the seed trials were encouraged to start saving more and more varieties of seeds. They have started saving even those varieties that were not provided by Friends of ENCA Farm.

C. The myths that seed saving is labor intensive and financially taxing were debunked. And more and more farmers have grown interested in seed saving.

D. The trials have sparked interest from farmers in other areas, not only in Benguet but also in the lowland areas.

E. The farmers who participated in the seed trials were inspired to form an association particularly for education on seed saving and environmental causes, and for managing a seed library.

F. Farmer groups in other areas in the country have been inspired to start seed libraries of their own.

After the seed trials, trainings and activities in 2016, the next steps involve conducting trainings in other areas, following up with the participants (farmer groups in Panay, Aurora, Rizal, etc.) in the Seed Saving and Farmer Capacity Building seminar regarding their plans to start seed libraries and conducting further seed trials.

Another main focus this 2017 is to start a seed library to be housed in the Municipal Agricultural Office of Tublay, Benguet. A Memorandum of Agreement was already approved by the municipal councilors and was passed on to the mayor of the town.