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POTATO SYSTEMS RESEARCH AND TRAINING CENTER *a project of Sunrise Potato Systems Institute*

Chronicles of Transformation



A Thought from: Dr. Peter Vander Zaag SPSI Director



A*gents of change*, what are they? People? New potato varieties?

New Technologies? Saving money for sustainable purposes? Targeted training activities? Yes; all of these are agents of change; however the most significant is that of communities working together to harness the aforementioned and make it happen in barangays, farmer associations and even tribal groups.

Read through this newsletter and you will see all of these as examples and more! I am delighted to be part of this "Transformation Process" in the mountains of Negros! That is what our joint activities are all about!

Local Potato Clones Selected by Farmers 30 years Ago: Indeed A Heirloom to Keep and Multiply

The research on "Exceptional Potato Clones Selected by Filipino Farmers from TPS: Status after 30 years has proven that early involvement of farmers in the evaluation and selection of potato clones from TPS was effective under their agro-ecological conditions. Thirty years ago, the International Potato Center (CIP) introduced TPS to farmers in Pula, Canlaon City mainly to address the problem on bacterial wilt (BW). Mr. Bianito "Choi" Susana, CIP staff selected promising clones together with farmers. The selections were gradually narrowed down to the 4 most preferred clones by farmers.



Research results showed that the local potato production is a dying industry mainly due to BW, tuber moth, and lack of quality seeds. PSRTC did two types of intervention, namely; positive selection and retrieval and clean up of the clones. Gregorio Alquezar, a farmer from Compound did positive selection in his field which is predominantly a mixture of varieties. He gave tubers of positively selected clones of CPF 34 (Choi White) to Leonisa Impil, Chieftess of Cabagtasan Tribe, Sitio Cabagtasan, Codcod, San Carlos City. Plants were relatively healthy with uniform plant stand. From then on, Leonisa continuously multiplied the clone.

Clones retrieved from farmers were multiplied in the greenhouse using Rapid Multiplication Techniques. Two clones CPF 34 (Choi white) and CPF35 (Choi violet) were provided to Mernalyn Cogonon who multiplied them, both in the greenhouse and in the field. Together with other farmers, a total of 931 kg of seed potato were produced in 2017. The seeds were sold to other farmers in Canlaon City. This step was very useful to revitalize the local potato production in the area. At present, more farmers are getting interested in planting potato and hopefully, potato production will continually increase in the future.

The selection of these clones is like a *heirloom* or *treasure* that is handed down by farmers in the 80's to this generation. The tribute we can do is to keep multiplying these clones and use them in many ways such as: breeding purposes and mass production. Special tribute to the farmers, for their efforts and legacy. Special thanks to the late Mr. Bianito "Choi" Susana who worked with farmers and to the late Alfredo Velarde, the 1st farmer cooperator who shared his farm for doing CIP's trials. To the unknown farmers of Compound, Pula that selected these clones . . . **We salute you!**

PSRTC Moving Forward with Technology



The Rapid Multiplication Techniques using apical cuttings is an effective tool in the multiplication of potato and sweet potato. In-vitro materials of different varieties in the form of in-vitro plants or minitubers were planted as mother plants in the greenhouse. The mother plants served as source of apical cuttings that are rooted as new mother plants or rooted cuttings for tuber production or field evaluation. In 2016, a total of 15,000 potato cuttings for on-site and on-farm trials were produced. In the same year, a total of 18,000 sweet potato cuttings were used for on-site and on-farm germplasm trials. In 2017, 23,000 cuttings and 9,000 minitubers of potato and 6090 cuttings of sweet potato clones were used. From this undertaking, farmers were able to select 5 potato clones

(CPF23,26,34,35,40) for further evaluation and 4 clones (CPF1,CPF2,CPF14,CPF15) for multiplication. For sweet potato, the clones Haponita, NSIC 30, Immitlog and Bokagan were selected by farmers.

The Tissue culture laboratory is now fully functional. This is as an added tool for the multiplication of pathogen tested clones for farmers. Special thanks to Northern Philippines Root Crops Research and Training Center, Benquet State University (NPRCRTC,BSU) for providing the start up of in-vitro plants. This year, PSRTC worked towards farm mechanization through acquisition of a tractor, mini rotary tiller, and strip till equipment. Strip till planting reduces soil disturbance and minimize loss of nutrients in the top soil. Hence, it is important for sustainable farming. Two corn seeders are available to mechanize planting of corn. The use of these machineries is being refined at PSRTC so that in the future, the use of this new technology/innovations can be shared with farmers.



Memoirs of the SPSI Board Visit

Sunrise Potato Systems Institute is a nonprofit corporation in Canada that aims to advance education by conducting research in the field of potato farming and disseminating the results of any studies or undertaking. Likewise it aims to relieve poverty and advance education by establishing educational training centers that will provide educational programs to potato farmers in developing countries. The Potato Systems Research and Training Center was established in 2016 because of this mandate. On February 18-25, 2018, The Board of Directors and their wives came to visit Philippines mainly to see the on-going activities and share valuable insights for further development of the programs. The visit commenced with an orientation and presentation of the thematic programs by Vickie Demonteverde followed by Mrs. Herlyn Hernaez, who presented the programs being undertaken by Canlaon Bible Community Church-Lampara (CBCC-Lampara) especially on the child developmental program with Compassion International – Philippines. The courtesy visit to Hon. Jimmy Jayme Clerigo, City Mayor, reaffirmed PSRTC's commitment and the LGU's support to PSRTC's programs.



Traversing through the rough and rugged roads in some mountainous barangays, they were able to experience firsthand the various struggles experienced by farmers when they visited farmers' fields on the 20th. In the afternoon of the same day, they visited the PSRTC and Canlaon Potatoes and Flowers.

In the evening the BOD, PSRTC Team and other workers attended the Prayer Meeting at CBCC-Lampara wherein Ken Rounds share his testimony and Peter VanderZaag shared the Word. Group thanksgiving and prayers followed.





On the 21st, the BOD worked with the different partners and stakeholders. The Roundtable Discussion with the Academe was held in the morning. Attendance was 25 with representative/s from Benquet State University, Central Philippines University-San Carlos City; University of the Philippines College of Agriculture and Food Science, La Granja Research and Training Station; Negros Oriental State University-Guihulngan Campus; and Pula National High School.

The OJT presented their report and the partner organizations presented their insights and/or on-going activities. Board chair, Ralph Kikkert, message was inspiring and participants had in one way or another indicated the desire and willingness to work together to enhance the agricultural education in the island of Negros.



The "Convergence for Agricultural Development" was participated by a total of 110 participants from LGU, cooperatives, and farmers from different parts of Canlaon City. The program started with a Welcome Remarks from PPVFA President, the Hon. Rodolfo M. Dulla followed by presentation of "PSRTC Foundation and Milestones" by Vickie Demonteverde. The farmers were reassured support from local government units as per Statement of Support by the Hon. Jimmy Jayme Clerigo, City Mayor and Mr. Nestor R. Villaflores, the Provincial Agriculturist. Board Chair Ralph Kikkert gave a message to participants. Farmers' queries and comments were answered during the Open forum led by Dr. Peter VanderZaag.



On the 23rd, the BOD visited Sitio Cabagtasan, Barangay Codcod, San Carlos City. A meeting with members of Cabagtasan Tribe, other farmers, and faculty of Cabagtasan Elementary School was held. The 2 groups of farmers from Sitio Cabagtasan presented their on-going activities. Likewise, the Cabagtasan Tribe and the Cabagtasan Elementary School presented their proposal for this year. The BOD shared their insights on the previous activities and future plan of each group.

After the hectic days and meetings, the BOD and PSRTC team went to Whispering Palm, Sipaway Island. The tranquility of the place is a perfect site to reflect on our programs and formulate new plans for the forthcoming year. The Annual General Meeting was held. The BOD also took time to individually discuss with the staff the different concerns in PSRTC's activities. A devotional time was held and each shared about his/her life and expressed commitment to the work.

The BOD visit were busy days, yet it was fun as heartwarming as we shared our work, life, and aspirations. As capitulized by Board Chair, Ralph Kikkert "What makes SPSI distinct from other groups?" Foremost, is our aim to work with mountain people, the tribes and the less privileged. It is exemplified by its people who are committed Christians and workers who are willing to make an extra mile to bring Hope and Light to those who needed it most. SPSI is independent, thus, it has more flexibility on how it operates as an institution and as partner with farmers and various organizations.

Jessica, PSRTC Admin said: "this is a moment that she cannot forget in her lifetime. It inspires her to share and help people in other communities. Regie said that the visit brought about new things to learn and do, nevertheless we will gladly face the challenges as these are urgent and necessary. Joseph said that being with the BOD was full of learning and encouragement to be successful. He also considers that the Farmers fund is a stepping stone for someone who wants to be successful in farming and in life. It is a big help indeed.



PSRTC - Advancing God's Kingdom in the Lives of the Children

"Let the little children come to me, do not hinder them, for the kingdom of God belong to such as these."



This verse manifests of how God loves the children and of how he valued them as part of His kingdom. Geared towards the mission of advancing God's kingdom, the CBCC – Lampara ministry and PSRTC partnered together in sharing the gospel to the children as well as to their parents. Through Compassion International Philippines Inc., the partner of CBCC-Lampara in children sponsorship program, there are 26 farmer's children who are currently in the sponsorship program.

This sponsorship program aimed to develop the children's holistic well-being through weekly learning activity during Saturdays. The children are

having various spiritual activities such as bible stories, memory bible verses, and art activities. In addition, there are lessons and activities for physical, socio-emotional and cognitive development. Bible studies for parents are also done simultaneously with the children's weekly learning activity.

The weekly learning activity and bible studies brought remarkable impact in the lives of the children and to the parents as well, as they came to know Jesus and built a relationship with him. It is so overwhelming to see children singing songs to Jesus and pray simple prayers.

For almost 3 years of partnership, CBCC –Lampara ministry and PSRTC continue to work together in making a difference in the community specifically in the children's ministry; looking forward to serve and help more children to be holistically developed and be released from poverty in Jesus' name.



Potential and Constraints of Planting Potato after Rice



One of the major problems for potato production is the widespread problem on soil borne pathogen as bacterial wilt. A research was conducted to explore the potential of growing potato above ground after rice to avoid the incidence of bacterial wilt. Results were promising as quality of tubers harvested was good and the tuber skin is clean without any blemish. Yields of five potato clones (CPF35, CPF37, CPF39, CPF40, CPF42) planted on January 5, 2017 and harvested on April 10, 2017 ranged from 130-427 grams per plant. The highest yielder was CPF 35. Performance of tubers replanted in the field was good. A second trial was planted on Dec 28, 2017 using CPF 34 and CPF 35. The clone CPF 35 consistently have better performance than CPF34.

Potato after rice is a promising technology to improve tuber quality. Constraints include the availability of enough rice straw for bigger trials. In the end, will it be more profitable to grow potato rather than rice?

Sweet Potato Weevil Pheromones for Management of Weevil Population

Sweet potato weevil (*Cylas formicarius* Fabricius) is a very destructive insect pest of sweet potato. Adult weevil feeds on vines, leaves, and storage roots, while the larvae feeds and burrow into the vines and storage roots. Damaged roots are bitter and unfit for human or animal consumption.



In the field trial, the continuous use of sweet potato weevil pheromones was found effective in the reduction of weevil population. Result showed that the number of male weevil trapped was drastically reduced from 6032 to 277 within 12 days when it was used in February 26 to March 9, 2017. Reduction in the number of weevil trapped was observed in the succeeding months. The number of damaged tubers was also reduced. The sweet potato weevil pheromones was from PhilRootcrops, Visayas State University, Baybay, Leyte.

Sweet potato weevil pheromone is effective in mass trapping of male weevil

Farmer's Association as Channel of Change



The Pula Potato and Vegetable Farmers Association (PPVFA) is an association registered by the Department of Labor and Employment as per Registration Certificate No. NIR-NORFO-2017-06-098 dated June 19, 2017. PPVFA promotes sustainable production and marketing of potato, sweet potato, vegetables, and other rotational crops. It also promotes good agricultural practices and use of technology for the pursuit of its aforementioned objectives. A Farmers Fund was set up initially from funds from Dr. Peter VanderZaag. Additional funds were provided by Ralph Kikkert and Larry Kell. Members are able to avail of loan for agricultural inputs with minimum interest. The income from the fund are channeled back to service more farmers.

The association was organized as a result of the Research Output Presentation and Dialogue with Farmers on "Exceptional Potato Varieties Selected by Farmers from True Potato Seeds: Status After 30 years". The farmers realized the need to organize and address the pressing need to revitalize the local potato industry and to address other needs. The association is actively growing, and from the initial 25 members when organized on December 12, 2016, membership has grown to 122 by April 2018.



Gains and Challenges of Farmers' Training

In line with PSRTC's thrust on Community Empowerment, 11 trainings with 176 participants and 4 trainings with 200 participants were conducted in 2016 and 2017 respectively. The kind of training varied depending on identified needs and interest. One of the trainings was conducted with potato experts from NPRCRTC, BSU. Another training was held in partnership with the Provincial Agriculture Office. Most trainees were farmers and training duration ranged from a day to a week. The goal for each training is for participants to apply the learnings into their own farms. In most cases, potato or sweet potato planting materials were distributed so that trainees can evaluate them in their own farms. Other materials were provided when necessary.



As an outcome, the trainings lead to organization of 3 farmers groups; namely: Pula Potato

Vegetable Farmers Association (PPVFA) in Canlaon City and 2 groups of farmers in Sitio Cabagtasan, Barangay Codcod, San Carlos City. On-farm trials were also conducted in Guihulngan City with the trainees as the pointpersons. Trainees participated in the on-farm selection of TPS progenies and evaluation of potato and sweet potato clones. Selected clones were multiplied in farmers' fields and provided additional income to their families. A greenhouse for rapid multiplication was built in Cabagtasan and this group of farmers multiplied potato seeds for other farmers. Awareness on improved technology on potato production and the need to use sustainable agricultural practices had increased.

The challenge is to have need and impact based trainings. Hence, quality must be the prime consideration. Are the proposed trainings really needed by the community or beneficiaries? Will learnings and insights gained during training be applied by trainees in their own farms? Other factors that can affect their chance of success have to be identified and these conditions be provided collectively with farmers and other stakeholders. Trainings have to be proactive, not only to encourage farmers but also their immediate families especially the children who are the future generation. Ultimately all training programs should be determined by communities and the communities should fund all the costs for such desired training activities too.



PSRTC's 1st Batch of On the Job Trainees

Concomitant to its goal of empowering communities through education, PSRTC has opened its door to student trainees. Five senior students from Negros Oriental State University-Guihulngan Campus held their on the job training at PSRTC from November 2017 to March 2018. The students explored and enhanced their knowledge and skills on various aspects of crop production in the tissue culture laboratory, greenhouse and field trials. They also visited farmers' fields and joined in farmers' meetings to be able to gain insights about the situation and needs of farming communities.



The students had the opportunity to work on different crops namely, potato, sweet potato, cabbage, broccoli, onions, and rice. Individual research on propagation of different species of ornamental plants was done. Virtually, their industriousness had turned empty pavement into a blooming pathway. The trainees also experienced the use of different farm equipment and tools.

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A Coin a Day has gone a Long Way



The value of savings, no matter how small is exemplified in the life of Magdalena Pitulan, one of the workers in the farm. A gift of piggy bank encouraged her to save from her daily income. She saves for several months and she was able to buy a small female goat. Now, she has 3 adult goats and the mother is on gestation period. More goats are coming then. Another worker, Norma Malabagoused her savings from the piggy bank to finance rice production, locally termed as "*halil*". Every crop harvest, Norma earns from her small investment.

Hence, savings, no matter how small can go a long way. This small gift to her is PSRTC's desire

to touch individual lives in a creative and unique way.

God . . . the Provider of Transformational Opportunities

CHANGE is the only constant in this world. Change is here to stay. In an agricultural landscape, CHANGE may occur in a day, months, or years. It may occur abruptly or gradually depending on the intertwining factors that may effect this CHANGE and the positive collaboration of the different key players. It is PSRTC's objective to encourage positive CHANGE through holistic development in the agricultural community.

As I see many changes in the way we work and the people we work with. People change and circumstances change, but in the core is the God that provides that opportunities for transformation. Personally, from the Academe to Agribusiness, God has transformed me to be of help to other farmers. I believe that my work at PSRTC is God's response to my prayers which I wrote in my Journal in March 15 and 17, 2009. God in His wonderful ways, had answered my prayers and changed my life into what I am now. Indeed, God provides transformational opportunities to those with an open heart. There is also a need to desire, seek, and work for it.

We are very grateful to all our partners. As we look forward to the challenges before us, we enjoin our partners, our fellow farmers and community workers to join us in a noble cause to be channel of change for the improvement of individual farmers, their families and communities. May God bless our collective efforts.

Victoria E. Demonteverde, Ed.D.
PSRTC Director

Partners/Linkages

- Canlaon Bible Community Church (CBCC)
- Northern Philippine Root Crops Research and Training Center-Benquet State University (NPRCRTC-BSU)
- Mayor's Office and City Agriculture Office, Canlaon City
- Provincial Agriculture Office (PAO), Dumaguete City
- Bureau of Plant Industry, La Granja, La Carlota City
- Department of Trade and Industry
- Negros Oriental State University-Guihulngan Campus
- Silliman University
- Visayas State University
- University of the Philippines College of Agriculture and Food Science, La Granja, La Carlota City
- Cabagtas Elementary School
- Energy Development Corporation and Villa Iloilo Farmers Association.
- Pula Potatoes and Vegetable Farmers Association
- Cabagtas Tribe
- Balogo Kugihang Kababayan-an
- Regional Organic Agriculture Confederation