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BACKGROUND INFORMATION AND PROJECT OVERVIEW

The Commonwealth of the Northern Mariana Islands joined the United States political family through an approved joint resolution adopted by the U.S. House of Representative on July 21, 1975 and the U. Senate on February 24, 1976. President Gerald Ford signed the resolution which became Public Law 94-241. Under the great American flag, the Commonwealth grew in number and strength with the technical and financial assistance of the United States in developing its economy through the increase of its tourism industry, manufacturing and agriculture and fisheries development. The Commonwealth have been receiving numerous financial aids from the United States in the form of loans, grants and other financial assistance some through the United States Department of Agriculture (USDA), the Agriculture Marketing Services (AMS) and other federal agencies.

The Specialty Crop Block Grant Program in particular have been a tremendous asset to the Commonwealth and through its various programs from its inception in 2012-2015 it has benefited tremendously many of our school students, farmers, stakeholders and the community in general. While the overall goals and objectives of the SDBGP is first and foremost to “Enhance the Competitiveness of Specialty Crops,” the continuous presence of the program will have a lasting positive overall impact on the economy of the CNMI. There will be benefits in the manpower resources through the development of new technological skills, new knowledge, and hands on experience gained by students from the school garden and hydroponics programs, the chemical residue testing helps in advancing safety and cleanliness in the harvesting of crop, protection of our tourist and guests to our islands and the overall community by insuring wholesome and chemical residue free local produce.

This report will focus on the three community programs namely, the School Garden Program, Hydroponics and the Chemical Residue Test under the Specialty Crops Block Grant Program USDA AMS 12-25-B-450.

PROJECT REVIEWS: FY 2012-2013

Project Title I: Chemical Residue Testing

To test for Chemical Residue on locally grown fresh fruits and vegetables sold at the farmers’ market, stores, or farmers location. Partner with the Division of Environmental Quality and the Northern Marianas College-Cooperative Research Education Extension Service

PROJECT SUMMARY:

Mr. Manny Pangelinan initiated the program from October 01, 2012 to September 30, 2013 as the Specialty Crop Block Grant Program Project Coordinator. The first year of the program was focused in logistical coordination including partnering with various government agencies such as the Bureau of Environmental Health (BEH), the Northern Marianas College-Cooperative Research Extension services (NMC CREEES), the Division of Environmental Quality (DEQ), the Department of Lands and Natural Resources, the Sabalu Farmers Association and the Community at Large. Also, test kits for the residue testing were ordered in preparation for the implementation of the program.
COMMENTS:

This program was new to the staff and management of DNLR and the Division of Fish and Wild Life who were running the program running under Manny Pangelinan. A few obstacles were encountered including late ordering and shipment of supplies needed to conduct the residue testing. Purchase order was processed in January 09, 2013 for 250 test supplies although despite several follow-ups on the status of the order, the shipment actually arrived in August of 2013, a seven months delay on the project implementation.

PROJECT APPROACH:

Several meetings were conducted amongst the partner agencies on how to go about with the program first on the island of Saipan where the major population resides. Roughly 90% of the population in the CNMI lives and work in Saipan, which is also the major tourist destination. As part of the program development, Waiver forms for the residue testing were developed in February of 2013 and surveys were conducted on crops grown and pesticides used for pest controls around March of 2013.

Staffs from both BEH and DEQ were trained on the residue testing process and the technique in conducting tests on locally grown produce. Staffs were also oriented on how to approach farmers when requesting for testing of their produce and the necessary protocols that they have to do when dealing with the farmers.

COMMENTS:

Despite the fact that the test kits arrived for the implementation of the residue testing program, necessary preparatory work was accomplished while waiting for supplies. Demonstrations were conducted by DEQ key staffs and trainers, to train local partner agencies such as, DLNR staff, DOA and BEH, and some local farmers as stakeholders as resource personnel to get them ready for the program. Several trials were conducted to get hands on experience on the testing of the local produce.

GOALS AND OUTCOMES ACHIEVED:

The goals and objective of the Chemical Residue Tests on locally grown produce is to assure that consumers are purchasing chemical residue free products at the local markets and that the produce are clean and safe for consumption. During this short period of time for the test as of this writing, only a few tests were conducted by the partner agencies at the Sabalu market. Only four farmers were reached at this time for the testing with three crops per farmer or a total of 12 crops tested. All locally grown crops tested produce negative results for chemical residue. All crops tested were cleared clean for consumption.

COMMENTS:

While only a few farmers were reached and their crops tested at this time due to the late arrival of the test kits, results of the tests so far have been very encouraging. It tends to show that farmers are probably avoiding using chemicals for pest control (as some farmers are using herbs such as the plant neem leaves for their repellent quality). Also, for those farmers who are using chemicals for pest control are following instructions by the book in the harvesting dates and the care in the washing and cleaning their vegetables in preparation for the market place.
BENEFICIARIES:

The overall impact of the chemical residue tests benefit the entire community on the island of Saipan as consumers of fresh local fruits and vegetables. They benefitted in the sense that their health and livelihood are protected from the potential exposure to chemical toxins from the use of pesticides on locally grown produces by the farmers. Tourists and outside guests to the islands also benefitted from the program in that they are also protected from the potential exposure to pesticides toxicity by purchasing and consuming locally grown fruits and vegetables from the open Sabalu farmers market. The local farmers and producers directly benefitted from the program as they continue to market their products as a result of consumer confidence from reports of the residue testing showing negative results of chemical residue from continued random testing of their fruits and vegetables as the market site.

COMMENTS:

Up to this point and time, continued voluntary and random chemical residue testing on locally grown fruits and vegetables at the Sabalu market have shown encouraging signs of good farming and marketing practices are being observed and applied by our local farmers. These farming practices by our local producers only further enhance the competitiveness of specialty crops.

LESSONS LEARNED:

It was quite a challenge taking over a project for another person especially when there was no prior exposure to the project or the individual overseeing the project. A more prepared transition period through better communication and coordination would have produce a smoother transition in the job that needs to get done. Patience and understanding is important and proper guidelines from higher ups would have helped.

PROJECT REVIEWS: FY 2013-2014

Chemical Residue Testing Transition Period January to March 2014

COMMENTS:

No report received from this period – however, On January 01, 2014, the Secretary of Lands and Natural Resources, Mr. Arnold Palacios, pursuant to his letter to Ms. Trista Etzig dated December 27, 2014, assigned me to take over the Special Crop Block Grant Program, from Mr. Manny Pangelinan. Mr. Pangelinan was a bit reluctant to turn over his record until finally on March 2014, he turned his records over to me. In the meantime, I was already reaching over to NMC CREEES, PSS, DEQ and our counterparts in both Rota and Tinian explaining to them the importance in continuing on with the SCBGP.

NOTE: I was assigned as the program coordinator by Secretary Palacios effective January 1, 2015. Three months was lost as I was not provided all the necessary records of the ongoing SCBGP held by the previous Project Coordinator. This period of time, however, was utilized in setting up meetings with partner agencies to explain to them the importance in continuing and maintaining the ongoing SCBG Program.
Project Title III: Chemical Residue Testing (Rota, Tinian and Saipan)

Project Summary:

Tinian was the last outreach programs that we worked with a little late into the school period. Travel arrangements and scheduling was sometime a problem when trying to reach people. For both Rota and Tinian Islands, a one-on-one meeting with our partners and stakeholders is a must in order for us to know who we are dealing with, their potential needs and also an opportunity for us as managers to see the real situation that these islands and people are faced with. Travel is therefore a must is most situation although we are also faced at times with the transportation challenges.

Partner with the Department of Environmental Quality (DEQ), now Bureau of Environmental and Coastal Quality (BECQ), NMC CREES, Rota and Tinian (DLNR) and DLNR/DOA. The Objective is to monitor the presence of Chemical Residue in Locally Grown Produce (Specialty Crops) for the protection of the consuming Public.

Very little activity was done on the Chemical Residue Testing program due to several extenuating circumstances. Supplies for the Chemical Testing was running low and our Tinian partners ran out supplies first and thus were unable to continue the program with the local farmers, restaurants and hotels. The Rota Bureau of Environmental Health (BEH) still has some supplies leftover and was able to do some testing at various local farms and stores. With the remaining test kits available in Rota, the Bureau of Environmental Health (BEH) under the Division of Public Health were able to conduct Chemical Residue Tests on five local companies namely: JB’s Local Produce, Island fresh, Rota Resort Farm, Happy Farm and FA Produce. Tests were conducted on Cucumber, Hot Pepper, String Beans, Okra, Egg Plant, Passion Fruit and Tomatoes. All the test results were devoid of chemical residue. Several follow-ups were made until supplies were exhausted. No Chemical Residue test was accomplished in Tinian. All supplies were exhausted and there was not enough test kits to go around. Tests were concentrated in Rota and Saipan.
In Saipan, we were able to work with some hotels and do some testing for a short period of time. We conducted Chemical Residue Tests with the following Hotels: Kanoa Resort (224 rooms), Fiesta Resort (416 rooms), Grand Rios Hotel (425 rooms), Hyatt Regency Hotel (318 rooms) and the Pacific Islands Club Hotel (308 rooms). We reached and conducted several Chemical Residue Tests on a total of six major hotels in Saipan with a total combined rooms of 1,691. We also contacted four other major hotels namely; Marianas Resort (118 rooms), Aqua Resort (91 rooms), World Resort (265 rooms), and Coral Ocean Point Hotel (193 rooms), to make arrangements for the testing before the arrival of typhoon Soudelor in August 2\textsuperscript{nd} and 3\textsuperscript{rd} of 2015.

We tested a variety of local produce at all the above hotels to include: Cucumber, Watermelon, Squash, Pechai Cabbage, String Beans and other that were sold to the hotels by local vendors. To our relief and satisfaction, and more importantly to the hotel Managers, all the results of the tests turned negative to presence of chemical residues. One only one sample test turned out suspect but after a repeated test on the same produce, the result turned out negative as well. We ran a couple of follow-ups on some hotels before the Super typhoon Soudelor struck Saipan.

It is important to note also that during the months of May to July, there were a few typhoon warnings and inclement weather bringing in high winds and heavy rainfall. Rota was hit with Tropical Storm Bavi in March and Typhoon Dolphin in May of 2015. During the month of July also, the fiber optic cables were destroyed by heavy surf and undersea turbulence. Our entire communication system was down including telephones, cable TV services, Internet access and all other communication services associated with IT&E, DOCOMO and other companies. All forms of communication virtually ceased locally.

In August 2\textsuperscript{nd} and 3\textsuperscript{rd}, the following month, the Commonwealth of the Northern Marianas experienced the worst typhoon condition that ever struck the Island in 25 years. Super Typhoon Soudelor, later classified as a Category Four typhoon, struck the CNMI destroying everything in its path including plants, trees, houses, buildings and government and private infrastructures, rendering the entire Island not only blackout in communication, but power and water services as well. The entire Island was declared a natural disaster area by President Obama on August 6, 2014 Presidential Declaration. FEMA, the Military and many other Federal Agencies associated with natural disaster issues were immediately dispatched to Saipan.

This disaster practically stopped all our Chemical Residue Testing for the rest of the year and as there was no locally grown produce left to test and people including hotels personnel were much occupied cleaning and rebuilding what's left after the typhoon. All our other programs in both Rota and Tinian were also temporarily stopped and set back. Some of the schools managed to recover some of their work but all programs were seriously affected. More detail information on the effect of Super Typhoon Soudelor can be found if you google --- \textbf{Typhoon Soudelor, Saipan, August 2\textsuperscript{nd} and 3\textsuperscript{rd}, 2014}. 
Comments:

During the aftermath of Super Typhoon Soudelor all our projects were affected and virtually stopped. There was a complete blackout for the entire island, some water well were back in operation about a week after the typhoon, all communication facilities, phones, internet, cable television stations was totally down, power poles were blown away the entire island was literally destroyed. Our main offices were without power and water and only the Airport Quarantine office had power and water. We moved temporarily to our office at the Airport Quarantine and worked from there. In October, we moved to our Kagman Office where we use generators for power and had to truck in water for our water uses. As reported earlier, while we have generator power to work with, the office atmosphere was very uncomfortable as it was often overcrowded, very noisy and lots of traffic making it extremely difficult to concentrate in our work. Only early November where when our city power and water were turned on, the internet worked better and badly missed office comfort was fairly in place.

Project Approach:

As a matter of good practice, we approach every single project with a lot of preparation. We run through a checklist of things that are required for the projects, prepare, purchase, design and even fabricate things that we need for the project before any visits are made. Meet with the partners and stakeholders in advance and explain to them about the project(s) and what are expected of them, responsibilities and other relevant issues. Make contacts to all stakeholders either by phone, fax or email or letters to explain the program and finally schedule a personal one-on-one meeting with all stakeholders. With both outreach programs for Rota and Tinian, we made all the necessary communication before flying over to meet with them such as the Mayors, the DLNR Resident Directors and the Principals and staffs of the various schools we work with. We also met with the students for orientation purposes.

For the Chemical Residue Testing in Saipan, prior to the typhoon, in July we contacted all the major hotels by phone and managed to schedule meetings with all the Managers from the Food and Beverages Department. We met with them on a one-to-one basis and explained to the Managers the importance and necessity of having to conduct Residue Chemical Tests on the local fruits and vegetables that they are procuring from the local farmers and preparing meals for their hotel guests and staff. We provided them with a waiver form and voluntary consent to conduct the testing at their sites. All the hotels we visited this time understood the importance and benefits of the Chemical Residue Tests and finally they consented to cooperate with us. As part of the preparation, BECQ our partner agency conducted a couple of Chemical Residue Testing Training to our DOA staff (10) in Saipan and (4) in Rota and (2) in Tinian. This was a huge help especially in Saipan where the Major Hotels are located.

Comments:

Our work in both Islands for the implementation of the outreach programs have been very challenging but yet rewarding. All the stakeholders that we worked with were very supportive with the programs and have requested continuity of the programs especially schools in Rota and Tinian. Both Islands have been traditionally producing agriculture products for exports to Saipan and Guam and this as a business and a means of living and this trend and practice should be encouraged. Rota and Tinian are both less dependent from importation of fresh produce as they are able to produce locally and compete with foreign imports. Fuel and transportation, however, has been a perennial problem with both Rota and Tinian and we hope that future programs would be able to address and alleviate this
problem. Recently, prices for fuel have been in the decline in the Marianas and we hope this trend will continue into 2016.

Goals and Outcomes Achieved

A total of 10 staff from the division of agriculture were trained and cross-trained in the Chemical Residue Testing program. Additionally, four staff from the Rota DLNR including one from BEH and two from the Tinian Resident DLNR Staff were trained in Chemical Residue testing. This was a tremendous increase in our manpower resources and a big help during the latter part of the program. We also managed to penetrate major hotels in Saipan and restaurants and farm sites in both Rota for the Chemical Residue Testing.

LESSONS LEARNED:

It was quite a challenge taking over a project for another person especially when there was no prior exposure to the project or the individual overseeing the project. A more prepared transition period through better communication and coordination would have produce a smoother transition in the job that needs to get done. Patience and understanding is important and proper guidelines from higher ups would have helped.

PROJECT REVIEWS: FY 2012-2013

Project Reviews: School Garden Project

Partner with the Northern Marianas College – Cooperative Education and Extension Services, the Public School System and Private Schools.

PROJECT SUMMARY:

The School Garden Program was designed to assist the young students, Middle Class and High School Level, in the art of gardening and farming and actual learning from hands on experience working with the seeds and soil, weeding, cultivating and planting. A staff from NMC CREES or DOA was always there to supervise the students. Instructions on the art and science of gardening were conducted by the staff prior to actual demonstration on seedlings, transplanting of seeds and actually preparation and planting of seeds in the soil or plant boxes. Science and agriculture classroom instructions were conducted by the assigned science teachers. The students were also equipped
with all the necessary hand tools and implements utilized in conventional and traditional farming such as, hoes, sickles, spades, gloves, and others.

**COMMENTS:**

NMC CREES took the lead in this project and proceeded with contacting several schools to explain the project purpose and objectives. Leaning materials were prepared and staff from MNC particularly assisted in the actual hands on programs with the students.

**PROJECT APPROACH:**

The project approach was to prepare the school staff and the student’s mindset on agriculture and farming as a way of life. This was done through meetings, lectures and the use of pamphlets and other learning materials. The approach was also to conduct the program with the grade school and middle school level working with both the Public and the Private Schools.

Public School System and the Private Schools. Seven schools were visited: Three private schools: Seven Day Adventist, Whispering Palm and Brilliant Star Montessori; and Four public schools: Dandan Elementary School, Chalan Kanoa Elementary School, William S. Reyes Elementary School and San Vicente Elementary School.

**COMMENTS:**

There were some problems encountered by the various schools during the course of the program. Only one Private School participated with the assistance of NMC CREES. Seven Day Adventist School were just relocating to a new site and by the time the plants are ready, it was already the end of the fourth quarter. NMC CREES installed a hydroponic system at the Dandan Elementary School and this was follow-up by the school staff. The other three Private Schools – San Vicente Elementary School, William S. Reyes Elementary School and the Garapan Elementary School were not able to participate either they were not responsive to the project or have other prior commitments.

**GOALS AND OUTCOMES ACHIEVED:**

Only one private school actually participated on the School Garden Program and 20 students went through the training process in with hands on experience in gardening. The school was provided with all the necessary implements such as planting boxes, seedlings, top soil and necessary hand tools for cultivating the plants. Unfortunately none of the other schools fully participated for one reason or another. Continuation of the program was accomplished with a very high school participation and collaboration with both staff and students.

**COMMENTS:**

A lot of problems were encountered during the initial stages of the stages of the project as perhaps in most new programs. I believe there was insufficient preparatory work done by most participants in the program. The participating agencies were seemingly not interested or were not ready to work with the program and thus student participation were also affected. Schedule conflicts with the school as well as classes was also a factor with some schools as well as physical problems with relocation to other sites.
BENEFICIARIES:

Definitely the school students benefitted from the project by learning the art and science of agriculture and by increasing their knowledge and developing new skills from practical hands-on experience. The parents, teachers and staff also benefitted by having an increase in skilled manpower development in the community and finally the state also benefit from the potential increase in the work force of skilled people.

COMMENTS:
Better planning and more one-on-one contact with the partner agencies and the students to discuss in full detail the objective of the program, the responsibility of each party and the kind of support expected for each party in order for the program to succeed.

LESSON LEARNED:

1. Planning for the program must all be done in advance of the program where all parties involved must share information and input.
2. There should be ample support from the sponsoring agency in terms of providing physical and monetary support to the target recipients such as tools and supplies for the students project;
3. Surveys should be conducted to determine whether adequate interest can be generated by participants as well as other stakeholders.
4. Follow-ups on a regular basis and constant monitoring of the program and generating new ideas for improvement of the programs is a must.


Project Title: 1. School Garden Program

To teach elementary and middle school level students the importance of agriculture and the role it plays in the overall economy of the CNMI. Partner with Public School System (PSS), Northern Marianas College (NMC CREES), DLNR, Division of Agriculture.

Project Summary:
After several months of inactivity, we finally convince the Kagman Middle School to participate in the program. After several meetings with the Kagman Middle School Principal, Mr. Vince Cruz and the Science teacher, Mr. Joshua Villagomes, they were satisfied from what they hear as a result of our discussion and finally agreed to be the first school to venture into the program. The students of Kagman Middle School were just as anxious to go into farming as part of their curriculum.
Comments:

Since this program has just been resurrected, we were a little skeptical at times on how to proceed with the program. We learned from past experience that a few schools have shown a little or no interest at all in the school garden program thus holding back or delaying the SCBGP as planned. Also, there are other programs under the SCBGP that are just as important and critical that we proceeded slowly but surely.

Project Approach:

We discovered from experience that the best approach to gaining support from our partner agencies was to constantly visit them to meet and fully explain the full impact of the programs and the benefits that they can derived. There should be advanced planning on how the program is to be developed and what are the requirements. There are objectives that should be put in black and white and making certain that the partner agency are fully aware of what they are getting and should be involved in the planning stages with full transparency. As part of our planned approach to the program, we conducted a simple survey on the students at Kagman Middle School basically asking three simple questions:

Q No. 1 – Are you or your parents buying local produce or supporting local farmers?
Q No. 2 – Have you or your parents visited the local market place?
Q No. 3 – How many times you visited the local market place?

Comments:

Patience and understanding is important when trying to understand a problem or trying to convince people on something that could be beneficial to them. In the case of the School Garden Project for the Kagman Middle School, We were very fortunate that both the Principal and the Science teacher were both exposed to farming and the agriculture life. They were both very supportive of the program which they also believe was lacking in their curricular activities and which was badly needed by the students. This made our job a little easier and also with the type of material and financial support that we can offer from the grant program, they were more than supportive and willing to proceed with the program.

Goals and Outcomes Achieved:

Our immediate goal is to enhance and improve the students' skills in conventional agriculture and to expose them with hands on experience in farming. The main objectives remains the enhancement of the competitiveness of specialty crops. Our student's survey results showed that 87% of the 197 students surveyed answered YES to the first question regarding support to local farmers, 88% also answered YES to question No. 2 and 93% answered YES to visiting the local markets at least once. One can interpret the results from the survey that majority of the students are aware of the existence of local markets and local fruits and vegetables. If we can at the least convince 10 students to be interest in agriculture science and farming in the future, then we would have achieved something. During this period also, the program provided 60 hours of practical instructions reaching a total of 156 students, or a total of 15 hours per student for the entire six period of classes.

Comments:

Development of local skills and improving and advancing one's knowledge about conventional and practical agriculture is something that we also hope to accomplish from this program. Any new
addition to our human resources with new developed skills and technical knowledge in agriculture would be a welcome accomplishment. It will be time, funds and resources well spend

**Beneficiaries:**

The immediate beneficiaries from this programs would be the students themselves. The knowledge gained from both classroom lectures and the actual hands on experience on plant care and culture will provide a lasting benefit for them in their future career. The immediate parents, the teachers and staff and the entire CNMI community and the state benefitted from the program for the added quality of human resources to its assets.

**Comments:**

The School Garden Program under the SCBGP should be continued as long as funding is available and grants can be provided to the states. From past experience with some government projects that do not work well, the failure of the project or programs has always been either 1. Lack of funding and more often than not, the lack of continuity of the project or program. How much time can we allow a program to continue or go on in order for it to a success?

**Lessons Learned:**

Lessons learned from this project and the exposure from some of the homemade problems and issues are as follows:
1. Always be prepared.
2. Learn your topics and subjects that you will be working on.
3. Learn to be patient when working with others on a join interest
4. Plan ahead of time and be certain that your counterparts (partners) are part of your team
   Especially when you are developing new ideas.
5. Be transparent when working with others.

**PROJECT REVIEWS: FY2014-2015** – Outreached to Rota and Tinian
Partner with Public School System, NMC CRees, DLNR Rota and Tinian.

1. **Project Title II: School Garden**

Rota and Tinian Outreach. Partner with Public School System (PSS), NMC CRees, DLNR Rota and DLNR Tinian, and DLNR/DOA. To teach and expose students to two methods of farming; one, the conventional agriculture or farming the land and two, the application of hydroponics system (farming without the use of soil) by comparison.
Project Summary: Rota School Garden

The School Garden Program continue during the 2014-2015 with concentration on Rota and Tinian Schools. On Rota, we partner with Public School System (PSS), NMC CREES, DLNR Rota Resident Director, Mr. Nick Songsong and DLNR/DOA for both the School Garden and the Hydroponics Programs.

In Rota, we collaborated with the Principal of Sinapalo Elementary School, Mrs. Daisy A. Quitugua, and Mrs. Annette Calvo, Principal of Dr. Rita Inos, Junior Senior High School, who provided classroom instructions on the science and value of agriculture and gardening. Rota DLNR staffs, on the other hand, provided hands on experience to students in the culture and care of specialty crops from seedlings to planting to harvest. The Rota DLNR staff with the help of PSS staff and students helped build their makeshift garden behind their classroom area on selected sites. The schools used planter boxes for their initial planting and also utilized top soil provided by DLNR. DOA provided all the necessary implements, seeds, fertilizer, and all necessary garden tools.

PROJECT REVIEW: FY2012-2013

Project Title III: Hydroponics

Partner with the Northern Marianas College – Cooperative Research Education and Extension Services (NMC CREES) – To Develop a Hydroponic System to Grow Fruits and Vegetables as an Alternative Method of Growing Plants using Mineral Nutrient Solutions, in Water, without the use of Soil.

Project Summary:

The Project has a slow start due primarily to the lack of hydroponics materials and accessories locally and local vendors have to place order for materials outside of the CNMI. The projects essentially have to be put on hold to wait for materials. As of this time, the project manager decided to move the project into FY 2014 and DLNR will have to make as assessment on how to continue with the future of the project.

COMMENTS:

On January 01, 2014, the Secretary of Lands and Natural Resources, Mr. Arnold Palacios, pursuant to his letter to Ms. Trista Etzig dated December 27, 2014, assigned me to take over the Special Crop Block Grant Program, from Mr. Manny Pangelinan. Mr. Pangelinan was a bit reluctant to turn over
his record until finally on March 2014, he turned his records over to me. In the meantime, I was already reaching over to NMC CREES, PSS, DEQ and our counterparts in both Rota and Tinian explaining to them the importance in continuing on with the SCBGP.

TRANSITION PERIOD: (BREAK)

NOTE: I was assigned as the program coordinator by Secretary Palacios effective January 1, 2015. Three months was lost as I was not provided all the necessary records of the ongoing SCBGP held by the previous Project Coordinator. This period of time, however, was utilized in setting up meetings with partner agencies to explain to them the importance in continuing and maintaining the ongoing SCBG Program.


Project Title II: Hydroponics

To teach students a different method of modern day farming as opposed to conventional farming using new methodology and technological development. The students will learn to grow plants in water as opposed to growing plants in soil. Partner with NMC CREES, Public School System (PSS), Department of Lands and Natural Resources/Division of Agriculture.

Project Summary:

In collaboration with NMC CREES, and the Public School System several meetings were conducted to discuss strategies on how to proceed with the program. We help set up the first circulating system, Nutrient Film Technique (NFT), at the Kagman Middle School. A second site was selected for the demonstration unit which was constructed at the Kagman Agriculture Station for the farmers, visitors including scheduled visits by students from other schools, tourists and the general community. Farmers farming around the Kagman area frequently visit the site to see the progress of the hydroponics system although once monthly farmers meeting is also held at the Kagman Agriculture Station.

Comments:

Regular schedule visits were made by the NMC CREES staff to check on the hydroponics system, the pumps situation, water level and the nutrient supplies to the growing plants and to stabilize the system. Visits were made on May 6th, 9th and 12th of 2014. Pre-planted seedlings of lettuce in jiffy pots and other growth media were provided by the college staff for both the Kagman Middle Project and the Kagman Station demonstration site. Hands on training with the students were provided including the proper placements of the growth media, the water level and the placement of the
nutrient solutions. Students were also provided with pamphlets and other educational materials on the hydroponics system. At the Kagman Demonstration Farm site, our DOA staff assist in taking care of the hydroponics system and at the same time provide needed information and answer question about the program from visitors.

Project Approach:

Again, we enlisted the assistance of the Principal and the Science teachers, meet and plan on several occasions about the program. The site for the project was selected, schedule for students were worked out as well as the schedule for the NMC staff for recurring visits to the site. Materials for the NFT system were provided by the NMC staff although all the students involved in the project participated in constructing the system and putting it together under the capable tutorship of Mr. Mike Ogo who is also an expert in the hydroponics system.

Comments:

One way of getting the interests of the students in the program is to have them involved in the implementation of the program from day one. Both the classroom instruction by the science teachers on the academic side and the hands of experience and actual demonstration and participation from the very beginning of the program helped enhance the knowledge and skills of the students. Daily visit and monitoring of the plants by the student in their free schedule also helps better understanding of the process involved in the hydroponics system.

Goals and Outcomes Achieved:

The goal of the hydroponics program is to expose student to a different method of farming by growing plants in water in lieu of growing plants in soil as the conventional farmer does. New knowledge and skills are gained by the students for potential future implementation. A total of 156 students for the Kagman Middle School eight graders participated in the program. NMC provided the seedlings of romaine lettuce which was planted by the students using the NF technique. The lettuce reached maturity during the course of the program and the students were allowed to harvest their plants and share the salad with their families. At the Kagman Agriculture Demonstration unit, some thirty farmers are actively farming conventionally in the Kagman Commercial Farm Plots. They have the opportunity daily to visit the demonstration site and watch the progress of the hydroponics system. From the general population visiting the demonstration site, some house wives have shown interest in growing vegetables using the NFT system. Questions were asked and answered by our DOA staff as well as brochures by the college were provided as ready reference. We encourage house wives in their free time to explore gardening in their garage or backyard using the NFT system as it occupy very little space and its relatively clean gardening.

Comments:

Listening from some comments by students and visitors alike, continuous exposure to NFT farming will eventually gain interest by some people to a points of having them actually farm. Financing and setting up the system is perhaps the stumbling block to some potential entrepreneurs. Perhaps with even dealing with a small interest group and develop a comfort zone and confidence with the assistance of both NMC and DOA should be explored.
Beneficiaries:

Students who participated in the program benefited from the program by learning new knowledge and skills in farming using the hydroponics system. Parents, teachers, staff also benefited from the program by increasing their knowledge and skills learning along with the students on the benefit of hydroponics farming as opposed to conventional farming. At the end of the program, all participants, teachers, staff, parents and students alike also benefitted from their hard work by sharing and consuming the harvest from the crops they produce in the hydroponics farm.

Comments:

Partner agencies, NMC CREES, PSS, and DLNR/DOA work hand in hand to make this program a success. Each agency did its job in carrying over the responsibility for the preparation of learning materials, arrangement of supplies for the hydroponic system, getting all the necessary implements and finally working with the students in putting the system together at the school site. Staff from NMC and DOA were there to provide the necessary support to the students as well as the farmers and visitors as well and continuous visitation and monitoring of the program.

Lessons Learned:

Resources and willingness to explore other methodology proofs beneficial in more ways than one. However, with the hydroponic system, have limited species of plants, recommended as ideal crops farmable. Early planning and constant meetings with all partner agencies and stake holders is very important in the success of this program. Early review and proper assessment of available resources needed for the smooth implementation of the program is a must and a continuous cooperation with all stakeholders is a good prescription for success.

PROJECT REVIEWS: FY2014-2015

Project Title III: Hydroponics

Rota and Tinian Outreach. Partner with Public School System (PSS), NMC CREES, DLNR Rota and DLNR Tinian, and DLNR/DOA. To teach and expose students to two methods of farming; one, the conventional agriculture or farming the land and two, the application of hydroponics system (farming without the use of soil) by comparison.

The School Garden Program continue during the 2014-2015 with concentration on Rota and Tinian Schools. On Rota, We partner with Public School System (PSS), NMC CREES, DLNR Rota Resident Director, Mr. Nick Songsong and DLNR/DOA for both the School Garden and the Hydroponics Programs.

In Rota, we collaborated with the Principal of Sinapalo Elementary School, Mrs. Daisy A. Quitugua, and Mrs. Annette Calvo, Principal of Dr. Rita Inos, Junior Senior High School, who provided classroom instructions on the science and value of agriculture and gardening. Rota DLNR staffs, on the other hand, provided hands on experience to students in the culture and care of specialty crops from seedlings to planting to harvest. The Rota DLNR staff with the help of PSS staff and students helped build their makeshift garden behind their classroom area on selected sites. The schools used
planter boxes for their initial planting and also utilized top soil provided by DLNR. DOA provided all the necessary implements, seeds, fertilizer, and all necessary garden tools.

**Project Summary: Rota Hydroponics**

In Rota, NMC CREES and our DLNR/DOA staff constructed and installed two units of hydroponics Nutrient Free Technique (NFT) on November 13, 2014. One NFT System was installed at the Sinapalo Elementary School and one Unit was installed at the Dr. Rita Inos Hocog Junior Senior High School. We partner with PSS Rota- Dr. Rita Hocog Inos, Junior Senior High School Principal, Mrs. Annette Calvo and their science teacher, Mr. Marvin Tamangided. NMC CREES prepared all the plantings for the hydroponic system and distributed them to both schools at the same time demonstrating and explaining to the students the benefits of the hydroponics system.

**Comments:**

The Rota PSS, Principals and staffs were very supportive in the implementation of both the School Garden and the Hydroponics programs that we outreach to the Island. Rota is considered an agricultural community and many produces are grown on the island both for local consumption and for export to the neighboring islands such as Saipan and Guam where the larger consumer population is located.

**Project Summary: Tinian School Garden and Hydroponics**

In Tinian, we also partner with the Public School System (PSS), DLNR Tinian, NMC CREES and DLNR/DOA. We collaborated with Ms. Lucy Manglona, Principal of Tinian Elementary School and Ms. Jennifer San Nicolas, Principal of Tinian Junior/High School in the implementation of the school Garden Program. The DLNR Resident Director, Mr. Guillermo Borja, was very supportive with the program and volunteered his staff to assist in the overall operation of the programs.

The students were provided sites for the gardening where planter boxes were utilized to grow some plants and also areas where top soil was utilized. The area for planting was cultivated utilizing a soil tiller where weeds and unwanted plants were removed in preparation for the planting. DLNR/DOA provided all the necessary implements and tools needed for the gardening including also seeds and fertilizer. Short term crops such as beans, okra, eggplant, cucumber and peppers were provided the students. Students' parents sometimes helped also in providing local vegetable seeds for the students to plant.

On the hydroponics program, NMC CREES were there to provide the technical support as well as to initiate the construction and installation of one unit Nutrient Free Technique (NFT) system at the Tinian Elementary and High School headed by the Principals. Materials for the hydroponics system were provided jointly by NMC FREES and DOA. Some materials both for the school garden and hydroponics were brought in from Saipan during the initial implementation of the programs. We started a little late into the school semester due to some inclement weather and thus some classes though have shown interests in the program were not able to participate.

**Comments:**

Both Rota and Tinian School Garden and Hydroponics projects were fairly successful despite that several small storms and high winds have been sweeping the Northern Marianas the past several
months. Our unscheduled visits to both Islands though surprised us to see that the schools have been very resilient in recovering from minor with damages and were back in operation in no time. Only the last typhoon Soudelor that destroyed Saipan in August left everything waste in its path. Some farmers, however, are slowly coming back to production after four months or so with of mending typhoon damages.

Lessons Learned

People in general learned a lot from the devastation of Super Typhoon Soudelor and perhaps would be more prepared in the future in protecting themselves. It was very fortunate, however, that there was no fatal casualty experienced during the Super Typhoon and no live was lost. No one can correctly predict the strength of any typhoon and the type of devastation it could bring. People should learn to be prepared for the worst to come and perhaps farmers should have tentative plans on what to do should typhoon destroyed their crops. Farmers should have already applied for Federal Crop Insurance which was opened several months ago.

SUMMARY AND CONCLUSION

Overall the Specialty Crop Block Grant Programs awarded the Department of Lands and Natural Resources and administered by the Division of Agriculture has produced a very significant impact to the Commonwealth of the Northern Mariana Islands. Three important programs that were designed and implemented in the schools, with the local farmers and the general community were the following: 1. The School Garden Program, 2. The Hydroponics System, and 3. The Chemical Residue Testing Program. Since the inception of this SCBGP in 2012, and under the School Garden and Hydroponics programs, we have outreach and work with a total of eleven (11) schools, seven in Saipan, two in Rota and two in Tinian with a total of approximately 563 students participating in the various programs. Under the hydroponics program, we were able to construct and installed a total of Seven Hydroponics demonstration units, Nutrient Free Technique (NFT) two units in Rota (one each at the Dr. Rita Inos, Junior Senior High School and one at the Sinapalo Elementary School), two (2) units in Tinian (one at the Tinian Junior/Senior High School and one at the Tinian Elementary School), three (3) units in Saipan, one each at the Kagman Middle School and one at the Seventh Day Adventist School. One demonstration unit of the NFT system was installed at the Kagman Agriculture Station for the local farmers and the overall community in general.

For the Chemical Residue Tests, numerous and repetitious tests were conducted at the Sabalu Market, for several months every Saturday. The Saturday Market is an open air farmers market that hosts a large population of both local consumers and visitors. In addition, fifteen farms sites in Saipan were visited and crops tested in the field. Also, ten local markets and vendors were visited and produce tested. A total of 72 varieties of fruits and produces were tested on these locations. During July of this year, a follow-up with the hotel was conducted and five major hotels responded positively to the program. Due to the limited time only five major hotels hosting a total of 1,809 rooms were tested for the presence of Chemical Residue on the produces purchased for consumption of both hotel guests, employees and the general public. It was a huge relief to find out that of all the tests that we conducted over the period of the program, not one produce tested positive to the presence of Chemical Residue a very significant impact to the trust and confidence in the clean and good farming practices by our local growers. The trend for farming practices now is to go Organic.
We would like to take this opportunity to give gratitude and thanks to our most precious partners in the design, construction and implementation of these important program under the Specialty Crops Block Grant Program. Our thanks to the Public School System (PSS), the Northern Marianas College – Cooperative Research Education and Extension Services (NMC CREES), the Bureau of Environmental and Coastal Quality (BECQ-Formerly DEQ), the Department of Lands and Natural Resources and the Schools, Principals and participating Students in Saipan, Rota and Tinian.

Our Special Thanks and Acknowledgement goes to our Grantor Agencies, the United States Department of Agriculture (USDA), Agriculture Marketing Services (AMS) and all the Staffs for their guidance and patience in leading us throughout the project period. The CNMI Government and the people of the CNMI benefitted substantially from economic infusion of the program, the advancement and gained in new knowledge and skills by the students and stakeholders, and the increase in skilled human resources implanted by the program. We are confident that we have delivered our mandate by the SCBGP is to “PROMOTE AND ENHANCE THE COMPETITIVENESS OF THE SPECIALTY CROPS.”