# Livestock Genetic Improvements in the Commonwealth of the Northern Mariana Islands

## Final Report for FW07-307

Project Type: Professional + Producer
Funds awarded in 2007: $29,974.00
Projected End Date: 12/31/2010
Region: Western
State: Northern Mariana Islands
Principal Investigator:

Dr. Allan Sabaldica
NMC-CREES

## Project Information

Abstract:

The Northern Marianas College Livestock Extension Specialist, together with three CNMI ranchers, joined forces in adopting Artificial Insemination technology for cattle and swine this 2010. This is the second time that CNMI tried to upgrade swine breeds since 1986 through ADAP funding and the very first time to successfully cross old genetics with pure breeds for cattle. Two professionals and one producer underwent Artificial Insemination Training in Texas. A series of workshops was led by the producers in the islands of Tinian, Saipan and Rota. Both lectures and practical insemination were demonstrated to almost 50 producers. The three producers initiated the AI and so far twenty three (23) calves were produced from purebred Red Angus and Senepol and six piglets (two male and four females) from pure Landrace breeds.

- AIpp.ppt
- Cattle in the Island of Rota
- typical local cow
- typical working chute in the islands
- Swine pics

### Introduction

Cattle ranchers, as well as swine raisers, in the U.S. Commonwealth of the Northern Mariana Islands (CNMI) are considered subsistence in their operation. The livestock sector is still in its developing stage. There has been no slaughterhouse and processing facility in Saipan for quite a long time and that impedes its livestock potential growth. Inbreeding is the primary concern for most ranchers and producers. No matter how you feed the remaining livestock present in the CNMI, they can not provide the expected production potential due to the limited genetic capability. That is the reason concerned ranchers came up with the project on

improving genetic make-up through Artificial Insemination. With the assistance from USDA Western SARE, the group was guided with Bovine Elite, LL Artificial Insemination training certification under Texas A & M University AI protocol. A group of ranchers from Saipan, Tinian and Rota joined forces with NMC CREES Livestock Improvement Program Leader and came up with this project. Funding was received late 2008 and project was terminated December 2010.

From January to April 2009: Preparation of AI Facility at Obyan, Saipan at Capt. Ernest Torres ranch. Working chute was installed (in-kind contribution). Purchases of AI kit, supplies and materials were ordered at Bovine Elite, Texas.

From May to July 2009: cattle and swine AI certification were received by Capt. Torres, Dr. Allan Sabaldica and Dr. Manuel Duguies at Bovine Elite at College Station and for Swine AI refreshers Course at Bureau of Animal Industry's Swine Farm in Batangas, Philippines.
Marianas Grazing Academy: A group from University of Hawaii, University of Virgin Islands and University of Guam joined the CNMI to assist ranchers to improve their operations. These included lectures in soil, animal husbandry and Forage-Pasture improvements. A series of workshop trainings is expected to assist the ranchers until 2013 under USDA Cooperative Assistance to Non-Advantageous Farmers funding.

From August to November 2009: Some delays of import permits, handling and shipping protocols for the semen and AI tanks. All materials and supplies arrived in September 2009. Actual AI being performed by Capt. Torres to his cows by October to December 2009.

December 2009: Cattle and Swine AI demo and workshop were accomplished. Participants from different islands such as Rota, Tinian, Guam and Saipan attended the event.

Out of the 32 cattle inseminated 28 were positive. To date there are only 23 calves on the ground. Some were culled and died. Cattle AI workshops in January 25-29, 2010 at Saipan World Resort
Schedules for Rota, and Tinian cattle AI service happened in March 2010 and swine AI at Jose Lifoifoi Swine Farm in As Theo, Saipan in May 2010.

Swine and cattle semen are stored at eight-month liquid nitrogen and needs to maintain LN level by April 2010.

Additional workshop/training in regards to Artificial Insemination was also scheduled on March 18, 2010 on the Island of Rota during the Agricultural Fair 2010.

- AI Workshop for Swine
- Sperm Test

Project Objectives:

The objectives and performance targets that have been met were:

*Two professionals and one producer got their certification from Bovine Elite and Texas A & M University and were able to perform the Train the Trainers program in Saipan, Tinian and Rota on 2009 and 2010;

*Capt. Ernie Torres became a Certified Bovine AI specialist, through the Bovine Elite in College Station, Texas (May 2009);

*Dr. Allan Sabaladica finished the Swine AI refreshers course (May 2009);

*Dr Allan Sabaldica and Dr. Manuel Duguies both received certification from Bovine

Elite and Texas A & M University (July 2010);

*Performed AI workshops with eight other participants from Saipan, seven producers from Tinian and four ranchers from the island of Rota;

*Documentation of the AI workshop as well as the AI demo into video (video copy was mailed to Western SARE office);

*Eight ranchers learned AI knowledge and skills;

*Ranchers were able to perform actual inseminations and 23 cows and six pigs were the results of successful AI;

*Capt. Torres was encouraged to sustain the AI business in the CNMI and provide services to island ranchers for a fee.

- Swine AI workshop in Saipan
- Capt. Ernie Torres lecturing Saipan participants for Cattle AI
- Cattle AI Practical Workshop with Capt. Torres and Dr Allan Sabaldica
- AI palpation demo by Instructor

## Cooperators

- Thomas Fleming

  Rancher

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- Brian Mendiola

  Rancher

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- Allan Sabaldica

- Ernest Torres

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## Research

Materials and methods:

Materials: All materials and equipment were purchased from the U.S. mainland. Additional cost from shipping was a significant factor due to geographical location. Because of this, time and planning are of essence in the delivery of goods. One producer was in charge of logistics. All items ordered were delivered to the island of Saipan due to accessibility and practicality.

Educational methods: A series of lectures were offered to other producers in the three islands. Lectures were presented through oral, power point and video modes. After which, participants were given a chance to do the hands-on practical test. The three main producers were given cattle and swine semen to perform insemination at their farm. A field tour was offered during the actual insemination.

Location of Training Events: Both lectures, actual insemination and field tours were performed in each island.

Project design: Ranchers were trained to do selection and culling of cows and sows. Good traits were selected among these, and they are included in the participant's pool for insemination. Heat signs were recorded and AI was planned. Different AI protocols were tested such as timed AI and estrus synchronization.

- AI
- Palpation Test
- Rancher doing AI palpation technique
- AI Demon in Lifoifoi's Farm
- Demo
- Improvised AI portable chute made in Rota

Research results and discussion:

Some demonstrable impact:

a. Having a certified AI specialists on island who happens to be a rancher and a animal scientist supports the project in a sustainable manner;

b. It created an awareness to upgrade broodstock and emphasize the ill effects of inbreeding;

c. Imparted knowledge and skills to 50 ranchers in the CNMI regarding Artificial Insemination;

d. It created possible alternative business opportunities for Capt. Torres to offer AI services to CNMI which happens to be in a sustainable manner;

e. News Articles that created awareness and community involvement and the documentation of AI protocol through video as a resource for other interested ranchers;

f. It opened doors for political leaders to focus on agriculture sustainability by setting priorities with marketing;

g. Additional outreach such as workshops, field days and farm demonstrations in other islands other than Saipan;

h. Genetic improvements of cattle and swine breed by 30% by 2012;

i. AI complements the project of livestock forage improvement and feed production for a better animal production;

j. Changing the outlook of most ranchers and producers towards improving genetics

and improving animal health and production.

**Participation Summary**

## Educational & Outreach Activities

### PARTICIPATION SUMMARY:

Education/outreach description:

1. A video CD is available for a refresher course that contains lectures as well as information on practical insemination;

2. Several news article were published in local newspapers such as Saipan Tribune (www.saipantribune.com) and Marianas Variety (www.mvariety.com);

3. The project was featured in the 2010 SARE Calendar;

4. A power point presentation was available in series of workshops;

5. A field day and demonstration center was offered to selected ranchers and producers in the three islands;

6. a brochure and flyers were created and distributed.

- 2010 SARE Calendar

## Project Outcomes

Project outcomes:

The project was able to accomplish the following:

*Capt. Ernie Torres was given Certification for AI, the only rancher/AI specialist for the CNMI, through Bovine Elite at College Station in Texas (2009);

*Dr. Allan Sabaldica and Dr. Manuel Duguies became Cattle and Swine AI certified;

*50 interested ranchers joined the AI workshops in Saipan, Tinian and Rota;

*Documentation of the AI workshop into video and prints; final draft copies of the video will be disseminated via CREES website;

*Successful results: Actual insemination to 50 cows and 28 positive pregnant and 23 cattle alive to date and six pigs at Torres Ranch and Lifoifoi Swine farm.

Recommendations:

### Potential Contributions

It is viewed that with the improvement of livestock genetics in the CNMI, there will be an improved livestock industry in the future. Trained personnel will sustain the technology throughout the islands in the Western Pacific. With this, importation of pork and beef, as well as chicken, will be lessened.

## Future Recommendations

1. Due to distant location, most of the materials and supplies are available only in the mainland U.S. and need time to process. Purchasing from a foreign country is also possible but will require lots of documentation. Distance and time compounded the delays of the projects.

2. To attain sustainability, a rancher must continue to offer services for a reasonable fee. An annual order of semen from the mainland is necessary and practical. Ordering of liquid nitrogen must be carefully planned.

3. Better animal health services as well as good source of livestock feeds must complement with Genetic Upgrading, otherwise less impact will be attained.