

## **Nunoa Project Program to IMPROVE HEALTH AND REPRODUCTION IN ALPACAS**

Department of Puno, Peru

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Submitted by Gerardo Diaz R. Ortiz, DVM to Stephen R. Purdy, DVM

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### **GENERAL INFORMATION**

1. The team was composed as follows:
  - a. Coordinators: Dr. Jane Wheeler (CONOPA), Dr. Steve Purdy (Nunoa Project)
  - b. Field Veterinarians: Gerardo Diaz R. Ortiz, Jesus Vilca Turin
  - c. Field Veterinary Assistant: Gerald Urbano Morales
2. Place and producers involved: The project was carried out in 4 communities in Pucara and 1 in Lampa involving a total of 58 producers:

<b>Community</b>	<b>Number of Producers</b>
La Union	9
Pucarayllu	16
Alto Pucarayllu	13
Sapamccota	7
Coarita (Lampa)	13

### **PROPOSED OBJECTIVES**

1. Prevention of death due to enterotoxemia in alpaca crias through a vaccination program.
2. Improving the production and quality of fiber flecks in participating community alpaca herds through lending of superior quality breeding males and through training programs for producers.
3. Investigation of diseases that cause mortality in alpaca herds through field and laboratory diagnostics.
4. Improving the health status of flocks through training alpaca producers and community animal health technicians and providing veterinary advice.

### **ACTIVITIES PERFORMED**

#### **1. Seminars and training**

- a. 8 combined presentations were given in Pucara and 1 was given in each of the five participating communities
- b. CONOPA instructional videos were presented, reinforced by workbooks for each producer; Power Point presentations were used and printed material was distributed for each producer.
- c. presentations in Pucara: "Alpaca Health and Breeding Management ", "Selection and Breeding of Alpacas" and " Alpaca Pastures and Nutrition "
- d. presentation in Sapamccota: "Prevention of Enterotoxemia Using Vaccine"
- e. presentation in La Union, Pucarayllu, Alto Pucarayllu and Coarita: "Health Problems in Adult Alpacas"
- f. 3 CONOPA manuals were given to all producers: "Caring for Breeding Alpacas", "Health in Adult Alpacas" and "Techniques for Improvement in Raising Alpacas"

#### **2. Identification of pregnant females with ear tags**

- a. A total of 1073 pregnant females were tagged:

<b>Community</b>	<b>Number of Females</b>
La Union	381
Pucarayllu	62
Alto Pucarayllu	196
Sapamccota	390
Coarita (Lampa)	44

### 3. Enterotoxemia Vaccination with Enterotox®

Community	Breeding Female 1 <sup>st</sup> Vaccine Dose	Breeding Female 2 <sup>nd</sup> Vaccine Dose	Newborn Crias Vaccinated
La Union	452	286	22
Pucarayllu	159	88	42
Alto Pucarayllu	258	70	68
Sapamccota	458	233	0
Coarita (Lampa)	169	60	75
TOTAL	1496	737	207

- a. The reason for the lower number of pregnant animals vaccinated with the 2nd dose was because the birthing had begun before a second dose could be administered.
- b. The cria vaccination was not completed during the duration of the project because birthing season was not completed by the end; vaccine was given to each community so that community technicians could complete the vaccinations.

### 4. Selection of breeding females and loan of Nunoa Project superior breeding males

- a. Selection was made by team members and producers: 314 white Huacaya females and 58 white Suri females
  - i. Pucarayllu 63: 28 Mr. Hernan Huaracallo Quispe and 35 Ms. Carmen Morales Zea.
  - ii. Alto Pucarayllu 79: 27 Mr. Fidel Apaza Quispe, 31 Mr. Juan Jara Ccama and 21 Mr. Braulio Morales Ccama
  - iii. Sapamccota 93: 31 Mr. Marcelino Choque Ramos, 33 Mr. Francisco Torres Huaman and 29 Mr. Javier Ramos Arela
  - iv. Coarita 115 community alpacas: 57 Huacayas and 58 Suris
  - v. La Union 22: Mr. Felix Jara Gutiérrez.
- b. The ear tags used to identify the females were red and were given to producers by Nunoa Project. These females will be checked for pregnancy with ultrasound by a Nunoa Project veterinary team in July 2016.
- c. The loan of 11 white Huacaya breeding males and 2 white Suri males was for an average time of 3.5 months
  - i. 2 Pucarayllu: Male No. 01 for Mr. Macho Hernan Huaracallo Quispe and No. 02 for Ms. Carmen Morales Zea
  - ii. 3 Alto Pucarayllu: Male No. 04 for Mr. Fidel Apaza Quispe, Male No. 11 for Mr. Juan Jara Ccama, and No. 39 for Mr. Braulio Ccama Morales.
  - iii. 3 Sapamccota: Male No. 05 for Mr. Marcelino Ramos Shock, Male No. 06 for Mr. Francisco Torres Huaman, and Male No. 08 for Mr. Javier Ramos Arela
  - iv. 4 Coarita: Huacaya Males No. 07 and 09, and Suri Males No. 10 and No. 14, for community herd alpacas
  - v. 1 La Union: Male No. 13 for Mr. Felix Jara Gutierrez

### 5. Veterinary services

#### a. 10 necropsies were performed:

- i. 1 Pucarayllu (Mr. Quispe): moderate catarrhal enteritis; field diagnosis colibacillosis- not be confirmed in the laboratory because the animal was deceased for too long.
- ii. 4 Sapamccota (Mr. Francisco Huaman Torres): first case- catarrhal enteritis, field diagnosis colibacillosis; confirmed by laboratory isolation of E. coli in mesenteric lymph nodes; second and third cases- severe catarrhal enteritis; fecal content analysis succeeded in identifying high loads of small coccidia; fourth case- severe catarrhal enteritis; field diagnosis coccidiosis, could not be subjected to analysis to confirm.
- iii. 5 in La Union: 1 Mr. Enrique Idme- severe hemorrhagic enteritis, diagnosed with enterotoxemia, which could not be confirmed in the laboratory because the animal was deceased for too long; it should be noted that this cria was not vaccinated with Enterotox; and 4 Mr. Federico- severe hemorrhagic enteritis with concomitant respiratory symptoms; field diagnosis pneumonia and enterotoxemia.

#### b. Community treatments

- i. La Union 1 enterotoxemia outbreak for Mr. Federico Idme: controlled with antibiotics, anti-inflammatories and vitamins in 2 doses in approximately 30 crias; consequently vaccinate healthy crias. 1 outbreak of diarrhea in animals for Mr. Enrique Idme: controlled with antibiotics, anti-inflammatories and vitamins in 5 doses in approximately 15 crias.

- ii. Coarita 1 breeding animal presented with skin trauma and infection; treated with antibiotics and anti-inflammatory medications.
  - iii. Sapamccota 1 outbreak of coccidiosis in animals of Mr. Francisco Huaman- controlled with sulfamethoxazole and trimethoprim via 5 IM doses, in addition to the anticoccidial Toltrazuril applied in 2 doses in a total of 50 offspring; in addition rotation of pastures and cleaning was performed.
  - iv. Alto Pucarayllu 1 outbreak of diarrhea in most producers- was controlled with a single dose of sulfamethoxazole intramuscularly in a total of 15 crias; sporadic cases of diarrhea in animals of Mr. Braulio Ccama that was controlled with antibiotics and anti-inflammatory in 2 doses, approximately 10 crias.
  - v. Pucarayllu 1 outbreak of keratoconjunctivitis in animals of Mr. German Huaracallo was controlled with Clindamycin IM and ophthalmic ointment in 2 doses; approximately 10 animals.
- c. **Causes of cria mortality in neonatal alpacas: 2015-2016 birthing season**

Community	Total Cria Mortality %	Enterotoxemia %	Multifactorial Diarrhea %	Pneumonia %	Predation (foxes) %	Hypothermia Starvation %
La Union	40	30	20	20	15	15
Pucarayllu	20	0	50	10	30	10
Alto Pucarayllu	25	0	40	20	20	20
Sapamccota	30	0	60	20	20	20
Coarita (Lampa)	15	0	-	10 with diarrhea	40	30

#### OBJECTIVES ACHIEVED

1. Trained approximately 50 producers and community animal health technicians in the 5 communities on crucial issues for the production of alpacas: selection and breeding, alpaca health management in adults and crias.
2. Identification ear tags installed in almost 100% of pregnant females to facilitate the future implementation of breeding and birthing records in 4 communities; Coarita already has this program implemented.
3. Approximately 80% compliance with the enterotoxemia vaccination program, which along with climatic factors (low rainfall) effectively controlled the disease as only one isolated case occurred in the 5 communities in an unvaccinated group.
4. Loan of Nunoa Project superior breeding males benefited producers in addition to the selection and tagging of 372 quality females in the 5 communities to which they were bred. Approximate ratio of 25-35 females per male. The pregnancy rate is expected to increase in these groups to an average of 80% as it has in past trials. This will demonstrate to producers the benefit of proper female to male ratios to increase cria production.
5. A preliminary report was generated on the causes of death in crias which serves as a starting point for future studies. This should be verified in a year with average climatic conditions (regular rainfall).
6. 10 necropsies were performed which served to diagnose the causes of mortality in those crias; 6 disease outbreaks were controlled decreasing cria mortality in the 5 communities.

#### CONCLUSIONS AND SUGGESTIONS

1. Beginning objectives were fulfilled, with the main shortcoming being occasional ineffective coordination with producers due mostly to problems with telephone communication, poor access to communities during inclement weather, and occasionally multiple community projects occurring during scheduled project time.
2. It is suggested to implement the enterotoxemia vaccination program in 2016 starting in October and the breeding season from mid-December 2016, since by field experience the birthing season in these communities starts earlier than it was revealed (early December).
3. Additionally it is suggested to implement the use of breeding and birthing records, as communities already have identified most females who serve as dams.
4. Finally it is suggested to follow up the results of the project and provide periodic support of a field veterinarian field to enable more producers to make this a self-sustaining project and achieve long-term goals over time.