

Improving Breeding Success for Alpaca Farmers in the Southern Peruvian Highlands



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Nunoa Project

Our Mission

To give back to the country of Peru for their gift of alpacas to the US and other countries in the world.

To make a positive difference in the lives of herders and townspeople of Nuñoa, Peru

To address immediate needs through humanitarian aid and veterinary support for the animals in the region.

To exchange information and preserve the rural traditions of herding for future generations in Nuñoa.

To establish self sustaining programs in the areas of: support for underprivileged children and herding families, veterinary assistance for livestock, and medical training and assistance for the people of the Nuñoa area.

Breeding Improvement Program

- The purpose of this program is to improve the following traits in Nunoa alpacas
 - Fiber
 - Size/stature
 - Meat
 - Pregnancy rate
 - Genetic quality

Communities Involved



Community A

- Elevation: 15,000 ft / 4600 meters
- 4 families and approximately 27 members
- 800 alpacas
- Breeding males: 10
- Breeding females: 350
- Male to female ratio: 1:35
- Pregnancy rate: 70-80%

Community Building and Animal Working Pens





Farmer's House →

Community buildings →

Community birthing area

Community B

- Elevation: 13,700 ft / 4200m
- 20 families; 110 members
- 600 alpacas
- Breeding Females: 300
- Male/female ratio: 1:60
- Reported Birthing Rate: 34%
- Starting group: 24 females and 2 Nunoa Project males



Potato and Quinoa Fields

Animal Working Pens

Animal Holding Area

Community Buildings



Animal Grazing Area

Community Buildings



Community C

- Elevation: 13,400 ft / 4100m
- 23 families 130 members
- 400 alpacas
- Breeding females: 260
- Planned starting group: 30 females with 2 Nunoa males.
- Community Plan: females behavior tested daily; breeding allowed if receptive.



Farmer's House



Community Buildings

Uphill Animal Pastures



Farmer's House

Community
Buildings

Farmer's House

Uphill Animal Pastures



Community D

- 100 members
- 1800 alpacas
- Breeding Females: 800
- Breeding males: 8
- Male/female ratio: 1:100
- No records, no animal identification, and no fencing

Initial Breeding Plan

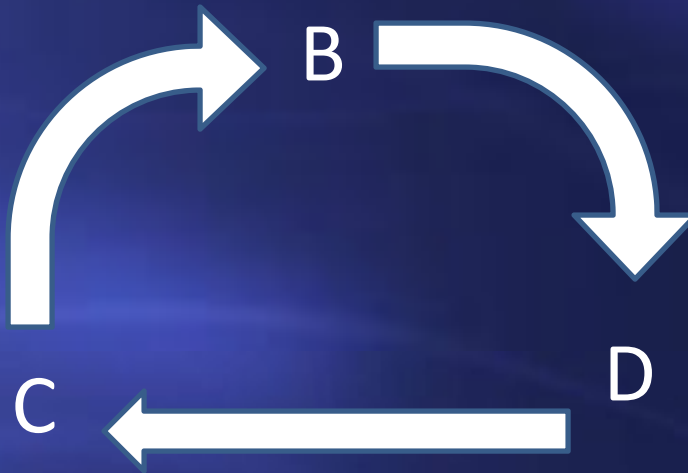
- 6 males chosen at Community A by a team of veterinarians from the Nunoa Project were given in pairs to Communities B, C, and D.
- These communities were to breed these superior males to a select group of females only.
- Production records would be used to continue to improve herd genetics.

Separation into small herd

- Each of the communities is required to separate the identified females into a small “breeding” herd so that records can be kept of who has been bred to new males

Rotate males 2 years

- Every 2 years the males are to be rotated between the 3 communities to promote genetic diversity



Record keeping

- Records of what females have been bred to Nunoa Project males are to be kept.
- Pregnancy exams via ultrasound will be performed in July of each year.
- Records of offspring produced by breedings are to be kept.

ID of females

- As per the Nunoa Project agreement the communities are required to ID the females so that accurate records can be kept



Selection of males

- Males were selected from Community A
- Selection was determined by examining:
 - Age
 - Fiber
 - Conformation
 - Breeding history
 - Testicle size
 - Semen evaluations





Selection of communities

- The three communities receiving animals were selected by the mayor on a need basis
- All three of the communities are very poor and their herds need significant improvement in wool quality and quantity and birthing rate.

Results/Update: Community B

26 July 2012

- 3 females in the original group of 24 not available for examination:
 - 1 was sent to slaughter because of osteomyelitis of the mandible
 - 1 had escaped from the alpaca group and was in with the female llama group
 - 1 had died, etiology unknown



| Red Ear Tag No. | Age (years) | BCS 11 Jan | BCS 26 July | Pregnant | Notes |
|-----------------|-------------|------------|-------------|----------|---|
| 01 | 3 | 3 | 3 | yes | |
| 02 | 5 | 2 | 3 | yes | |
| 03 | 4 | 2 | N/A | N/A | slaughter |
| 04 | 3 | 3 | 4 | yes | |
| 05 | 3 | 3 | 4 | yes | |
| 06 | 2 | 3 | 4 | yes | |
| 07 | 5 | 2 | N/A | N/A | escaped |
| 08 | 6 | 3 | N/A | N/A | dead |
| 09 | 4 | 3 | 3 | yes | |
| 10 | 3 | 3 | 4 | yes | |
| 11 | 3 | 3 | 4 | yes | |
| 12 | 3 | 3 | 5 | yes | |
| 13 | 4 | 3 | 4 | yes | |
| 15 | 2 | 3 | 3 | yes | |
| 16 | 3 | 3 | 3 | yes | |
| 17 | 6 | 3 | 2 | yes | |
| 18 | 4 | 3 | 2 | yes | |
| 19 | 4 | 3 | 3 | yes | |
| 20 | 3 | 3 | 3 | no | |
| 21 | 4 | 3 | 4 | yes | |
| 22 | 4 | 2 | 2 | no | had a cria by a previous male in March |
| 23 | 4 | 3 | 4 | yes | |
| 24 | 3 | 2 | 2 | no | had a cria by a previous male in March |
| 25 | 2 | 3 | 4 | no | small vulva, mounts other females, culled |

- Of the 4 out of the remaining 21 females found to be not pregnant:
 - 1 was a 3 year old- she will be re-exposed in January-March 2013
 - 2 had crias in March
 - were actually already pregnant when the Nunoa Project males were put in with the female group 12 January 2012
 - assumed they had insufficient time to be bred back since the males were removed April 1
 - 1 was noted on 26 July to have a defective vulva (very small opening) and will be culled from the breeding group
 - 17/18 were pregnant = 94%! pregnancy rate
 - Pregnancy rate for the entire community under previous management scheme was reported at 34%!

- Body Condition Score

- increase in BCS for 52% (11/21) of females since 11 Jan 2012

- 39.5 % same BCS

- 9.5% (2/21) decreased in BCS

- better grass and nutrition during the rainy season will allow animals to get in better condition if they are managed properly on pasture

Community C

29 July 2012

- The community president did not follow the agreement from January 2012
 - The 2 Nunoa Project males were placed in with 2 different groups of females
 - One group had approximately 30 females some of which were llamas
 - The second group had 40 females with 3 other studs, one of which was a Suri alpaca
 - None of the females had been ear tagged as was agreed to in January
 - We selected two individual farmers to use the 2 males with 40 females starting in January 2013

Community D

- The municipality has decided to remove Community D from the Nunoa Project Alpaca Breeding Improvement Program.

Lessons Learned Thus Far

- Follow-up by the municipality (Nunoa) to assure compliance with the breeding program is necessary
- They established the Proyecto Alpacas Nunoa in March 2012 with a veterinarian and animal technicians to help with this program and to carry out other herd improvement programs
- Plastic ear tags with embossed numbers are needed to identify all animals- marking pen numbers fade quickly



Future Work

- 10 more males will be selected and purchased in January 2013 to enter the program- total of 16 males
- The municipality will select farmers to work with who will comply with the breeding plan with their assistance and monitoring
- Will use 1 male per 20 females with a maximum of 2 males per group
- All females and males will be identified with embossed plastic ear tags

Revised Breeding Plan

- Breeding period will be January 1 through April 1, starting in January 2013.
- Nunoa Project males will be removed from the select female group after that time and will not be used with any other females
- Program females will not be exposed to any other males
- Crias will be tagged yearly at weaning time ~ 4-6 months of age
- Females and males (crias) will be evaluated for use as breeding animals
- Females will start breeding at 2 years of age and males at 3 years of age if they are of good quality

Production Records

- Are not being used at present (at B,C,or D)
- Are critical to future success
- Females which have not produced a cria after two breeding seasons will be removed from the select herd and replaced by other qualified females
- This select herd and its offspring will be used to increase wool quality and quantity >>
 - ↑ farmer income = more food, more crops, more meat animals for sale= better quality of life for the farm families

Thank You

- People and Farmers of Nunoa Peru
- Cloud Hollow Farm in Maine
- Dr. Norman Evans
- Dr. Gisela Marcoppido
- The Nunoa Project

