



Genetic Improvement in Sheep and Goat Project



BREEDING MANAGEMENT

Virtual Training
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BREEDING MANAGEMENT

- The goal of a profitable sheep operation is a high rate of reproduction and lamb crop. Achieving up to three litters in a two year period should be the norm.

How do we achieve that? ↑↑

BREEDING MANAGEMENT

Profitable Sheep Operation Goals

- High Rate of Reproduction
 - Productive Rams
 - Productive Ewes (Twins)
- Three litters/2 Year Period
 - Steady Lamb Crop
- Lowest Production Expense
 - High Feed Efficiency
 - High ADG

General Outputs



BREEDING SYSTEMS

Pure-Breeding

❖ Goal:

- Rams and ewes of the same breed are mated
- Provide superior genetics to the commercial sheep farmer
- A purebred flock can be managed as a single flock

Crossbreeding

❖ Advantages:

- Rams and ewes of different breed are mated
- **Heterosis** or **Hybrid Vigour** is obtained which is the superiority of the crossbred offspring over the performance of both parents
- **Breed Complementarity** which is based on strengths and weaknesses of each parent breed (Maximize both of the parents' strengths to optimize production)

BREEDING MANAGEMENT

Breeding Systems

Advantages of Crossbreeding

- ❖ **Crossbreeding:** Rec. for Commercial Production (crossing 2 pure breeds or three breeds, etc.)
 1. **Grading up** – Breeding with a selected single breed ram
 2. **Terminal Crossing** – All crossbred offspring are sold to market
 3. **Composite Breeds** – Creating new breeds thru cross-breeding



Grading up to Dorper



Hybrid vigor



Polypays: a composite breed

BREEDING MANAGEMENT

Breeding Systems

Production of Purebreds

- ❖ **Pure-breeding** — Rec. for Production of breeding stock
 1. **Outbreeding** - Breeding within same breed but unrelated no less than 4 or 6 generations
 2. **Inbreeding** — System whereby closely related animals are mated: sire to daughter, son to dam, etc.
 3. **Line-breeding** — System whereby the degree of relationship is less intense than in Inbreeding: half brother to half sister



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General points for Rams

- Body condition score (BCS)
- In good-sound health
- Good masculinity
- Strong legs free from defects
- Good libido
- Both testicles intact in scrotum
- Young ram put to experienced ewes
- Older ram put to younger ewes

General points for Ewes

- Body condition score (BCS)
- In good-sound health
- Genetically highly prolific ewes
- Broad back and rump are better
- Feminine/Good mothering ability
- Good udder development free from defects, ex. Blind teats
- Do not mate below 70% of MBW (Mean Body Weight)

BREEDING MANAGEMENT

Reproductive Parameters

- Breeding age: 6 – 8 months
- 21 days after lambing fertile heat
- Gestation period is 147 days (range 144 – 152 days approximately 5 months)
- Estrus period repeated average every 17 days (range 14 – 19 days)
- Estrus period lasts 24 – 36 hours (range 14 – 19 days)
- Male to Female ratio is 1:30
- Pregnant ewes do not show estrus

Signs of Estrus (Heat)

- Redden of vulva
- Discharge from vulva
- Tail wagging
- Mounting other sheep
- Seeking the male
- Frequent bleating (Wavering Cry)
- Push her back
- Standing for mating (standing heat)

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How to Identify Heat

1. **Using an intact ram**
 - ram allowed to identify the estrus ewes
 - problem that ram will mate if left unnoticed
2. **Use of intact ram with apron**
 - Apronized ram allowed to identify estrus ewes morning and evening about 20 min.
 - Apron tied to cover the penis
3. **Vasectomized ram**
 - Penis deviation by surgical intervention

Ram behavior when ewe in Heat

1. Sniff the vulva of the ewe
2. Extending neck with curling of upper lip
3. Bite the side of the ewe
4. Paw the ewe
5. Mount and mate

What attracts the Ram to the Ewe?

- Smell
- Sight
- Sound

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Technique to Optimize Breeding

Activity/Description

❖ Synchronization Methods

1. Estrus Stimulation

1. Putting vasectomized ram 10 days to 2 weeks prior to start of breeding season

2. Estrus Synchronization

2. Large numbers of ewes in heat at one time (Thru use of vasectomized or apron males)

3. Ram effect

3. Sudden introduction of ram in the ewes' flock after prolonged separation bring more numbers of ewes into estrus (80%)

4. Hormonal method

4. Via use of hormone treatment when done properly brings high percentage of ewes into estrus/heat

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Preparation of the Ewe

- Separate ewe lambs from rams by or before 5 months of age
- Check records of mature ewes to ensure physical soundness (previous fertility, abortions, kidding interval, etc.)
- “Flushing” good for thin ewes 2 weeks before the breeding season
- BCS ewes of 3.0-3.5 no need to “Flush” (may lead to decreased fertility)
- Deworm and give Vitamins 2 wks before the breeding season

Preparation of the Ram

- At 7 - 8 months rams are ready for the breeding season
- Protect rams from heat stress
- Deworm and give Vitamins
- Check feet & legs & trim hooves
- Check testicles, sheath & penis
- A breeding test is recommended
- Ram under 3.0 BCS requires “Flushing” 2 weeks before breeding season
- Mature ram ratio to breed is 1:30

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Flushing

- Feeding of extra concentrate to ewes to prepare for breeding season (2 – 4 weeks before)
- Feed 0.5 lbs. concentrate daily
- Increases ovulation rate (twins, etc.)
- Increases lambing rate by 20%
- Better effect on thin ewes (result in increased fertility- more estrus, ovulation,)
- Ewes over BCS 3.0 have no need for “Flushing”.

Flushing the Ewes



BREEDING MANAGEMENT

Breeding Season

- The programmed timing to get the ewes flock bred by the ram
- Breeding season/period is what determines the lambing season
- It is usually 40 days-period when Group Mating is the practice
- Two breeding seasons are recommended for tropical breeds:
 1. September 1st to October 10th
 2. March 1st to April 10th

Lambing Season

- The programmed timing to get the ewes flock to produce the lamb crop
- The dry months are preferred
- It is timed based on:
 1. Facilities
 2. Weather/climatic conditions
 3. Marketing opportunities
 4. Available labour resources

BREEDING MANAGEMENT

Breeding and Lambing Season Breakdown

PERIOD	Breeding Season	Lambing Season
40 Days	Sept. 1 st – Oct. 10 th	February - March
40 days	Mar 1 st – April 10 th	August - September

BREEDING MANAGEMENT

- **Methods of Mating:**

- 1) Hand Mating
- 2) Pen Mating/Group
- 3) Flock Mating/Pasture Mating
- 4) Artificial Insemination
- 5) Embryo Transfer

HAND MATING

DEFINITION/PRACTICES

- ❖ In this system the ewes are allowed to mate one by one
- ❖ The ram will not be allowed to mate more than **three ewes** in a day
- ❖ Mating is advised to be done **twice** per day for each of the ewes

ADVANTAGES

1. The expected time of lambing is ensured with this method
2. It ensures that ewe was bred
3. Risk of injuries to the animals is reduced
4. Beneficial when mating older ram with younger ewe
5. Improves breeding efficiency of the ram
6. An increased # of ewes are bred in shorter period of time

PEN/GROUP MATING

DEFINITION/PRACTICES

- ❖ In this system the ewes are bred by group mating
- ❖ The ram is put in the group either during the NIGHT time or during the DAY time
- ❖ During the day time the ewes are out grazing

ADVANTAGES

1. No disturbances during **Night** time breeding if practiced, as compared to disturbances to the ewes by the ram during day time grazing hours
2. The ram can be fed better and be given enough rest

DISADVANTAGE

During day breeding the group of ewes are disturbed while grazing

FLOCK/PASTURE MATING

DEFINITION/PRACTICES

- ❖ In this system the ewes are divided into groups
- ❖ The ram is allowed to run with the females throughout day and night on pasture

DISADVANTAGES

1. The ram sometimes develops attraction for a particular ewe in heat
2. Due to unattended ewes during the breeding season Low fertility rate is expected
3. Over exhaustion of the ram
4. The ram may lose most of its body reserves for breeding
5. and the breeding ewes flock may lose their BCS

ARTIFICIAL INSEMINATION (AI)

DEFINITION/REASONS

- **AI:** the process of collecting sperm cells from a ram and to put manually in reproductive tract of the ewe
- Improved breeds of selected superior genetics are used from nucleus flocks
- Cheaper than natural breeding
- No sexually transmitted diseases
- Improved record keeping: lambing dates, etc.
- Fresh and frozen semen is used

Pros and Cons

1. AI Leads to lower reproductive rate than natural breeding
2. Frozen semen gives much lower pregnancy rate
3. For improved conception rate **cervical** insemination is generally recommended

BREEDING MANAGEMENT

General Breeding TIPS:

- 1) Male Female ratio is 1:30
- 2) Put young males with experienced older ewes & older rams to younger ewes
- 3) Inbreeding should be avoided
- 4) Males should be replaced once in two years to avoid inbreeding
- 5) Premature breeding of ewes (too young) result in higher lamb loss
- 6) Estrus detection should be done twice per day to optimize breeding
- 7) The normal recommended breeding season is Sept to Oct and March to April
- 8) Ewes which do not return to estrus after 2 cycles are considered pregnant
- 9) To synchronize ewes in addition to ram exposure, improved hormonal technology may be used

Thank for Listening

