



**National Animal Genetic Resources
Centre & Data Bank (NAGRC&DB)**



MAAIF
Ministry of Agriculture
Animal Industry and Fisheries

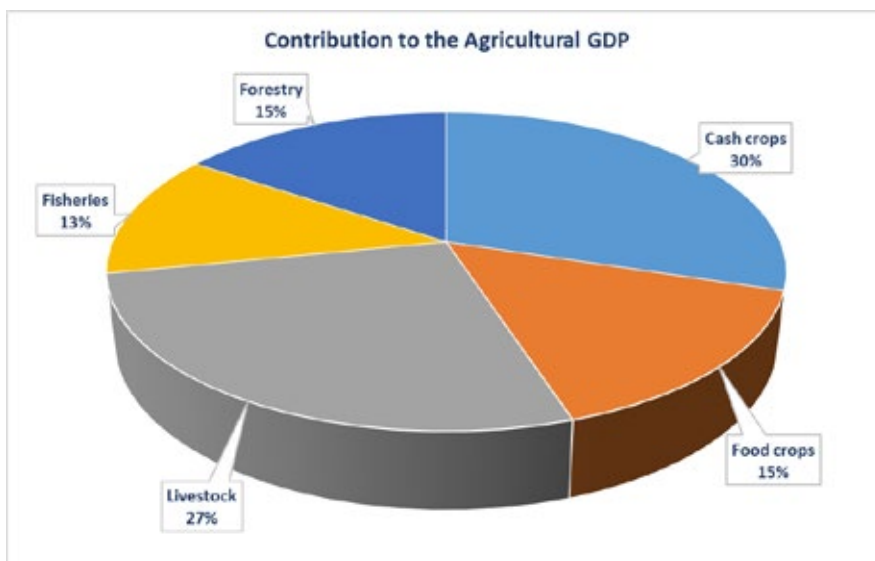
Goat Rearing for Wealth and Improved Livelihoods



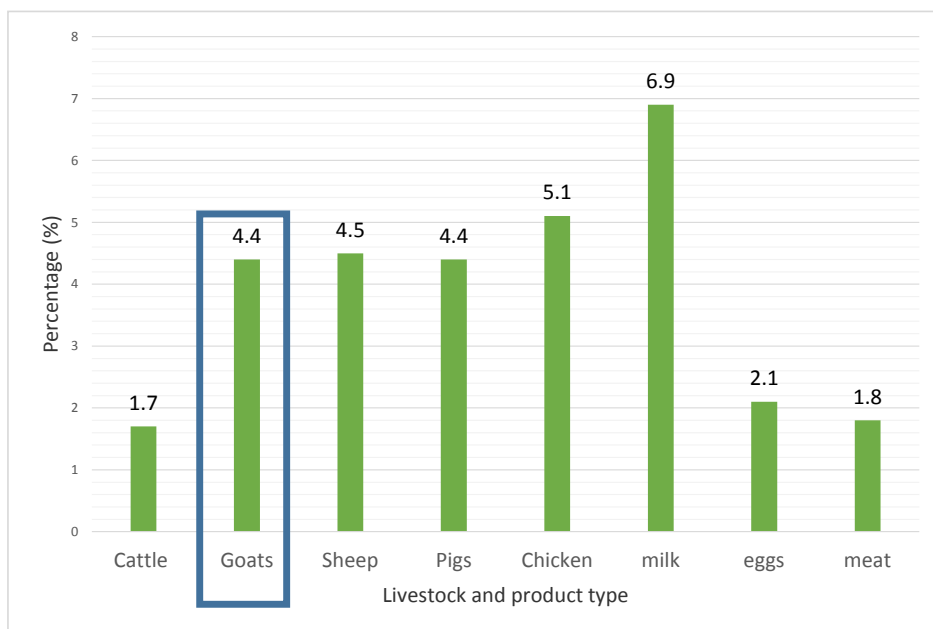
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National Animal Genetic Resources Centre and Data Bank

Contribution of Livestock (Goats) to the Agricultural GDP

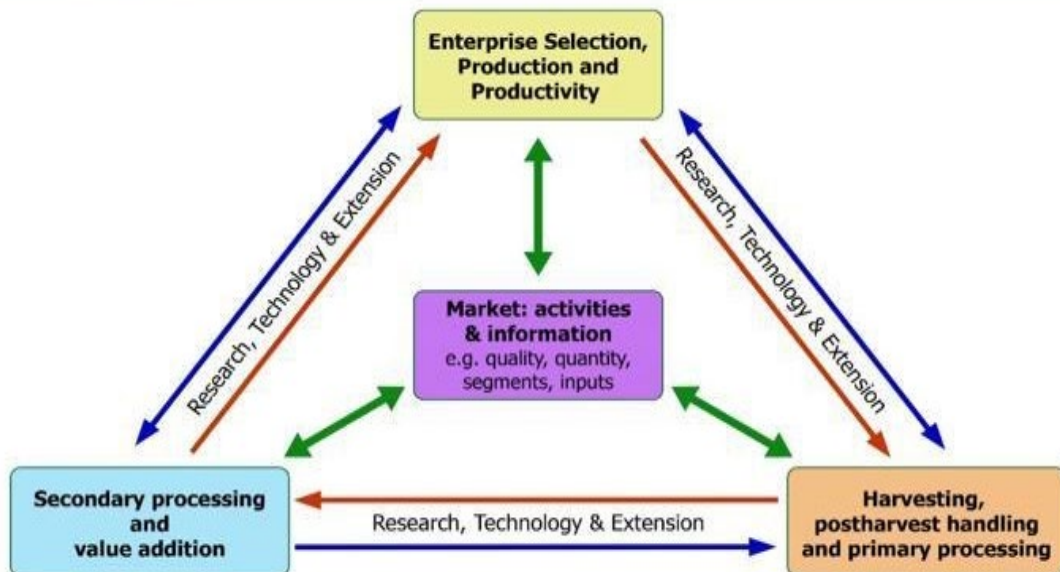


Growth in numbers and livestock products by type during the last 5 years



Source: UBOS Statistical Abstracts (2016 - 2019)

The Agricultural Value Chain Development Strategy



- The AVCDS is anchored on the above framework of the Agricultural Value Chain Triad. The market and market requirements are the determinant factors for all activities of the value chain, determining the volumes and the quality of the produce.
- The Agricultural Value Chain Triad provides a summarized conceptual framework of how the value chain of every commodity/enterprise is constructed.
- It shows how the pillars/stages are linearly interlinked as it is understood/known in the conventional sense.
- It also shows that the value chain can be non-linear depending on the market dictates, uniqueness of a specific commodity as well as production capacities of the farmer (s).
- Understanding both the linear and non-linear models of the Agricultural value chain is key for agricultural planning and development by both Government and private sector actors.

Why goats?

1. Small and can utilize limited feed resources, in terms of quantity & quality.
2. Fast flock buildup due to short generation interval, short kidding interval and a litter size greater than one.
3. Goats are easily convertible into money given their small size.
4. In many places the unit price of goat meat is higher than that of other meat sold on the market.
5. Goat milk is comparable to human milk in terms of quality.

Comes with so many health benefits.

- Calcium
 - Potassium
 - Vitamin B complex
 - Good for lactose intolerant persons
 - Immune booster for HIV patients
 - etc
6. Goat milk can be used to make other products in the cosmetic and pharmaceutical industry (Anti-aging, heals Acne, PH balance, softens and moisturizes etc.)
 7. Goat skin can make good leather especially for the Mubende goat – its hard and shiny.

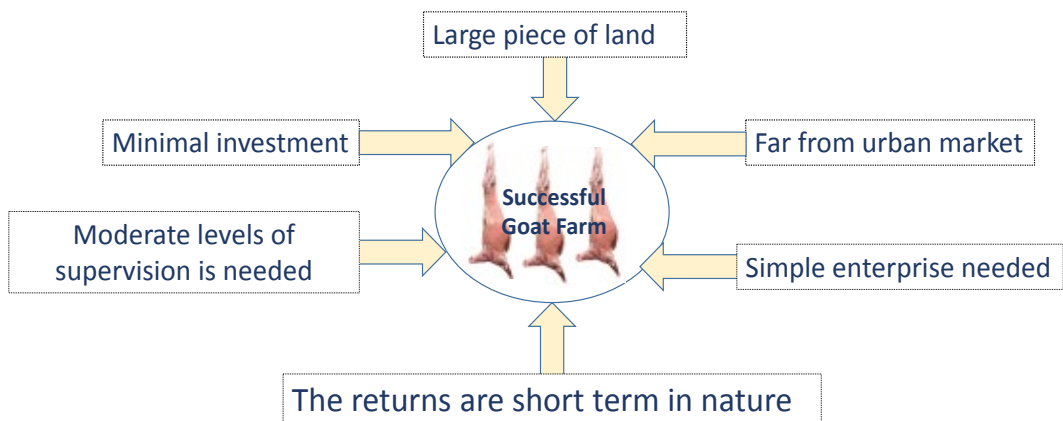


Investor's Profitability calculator

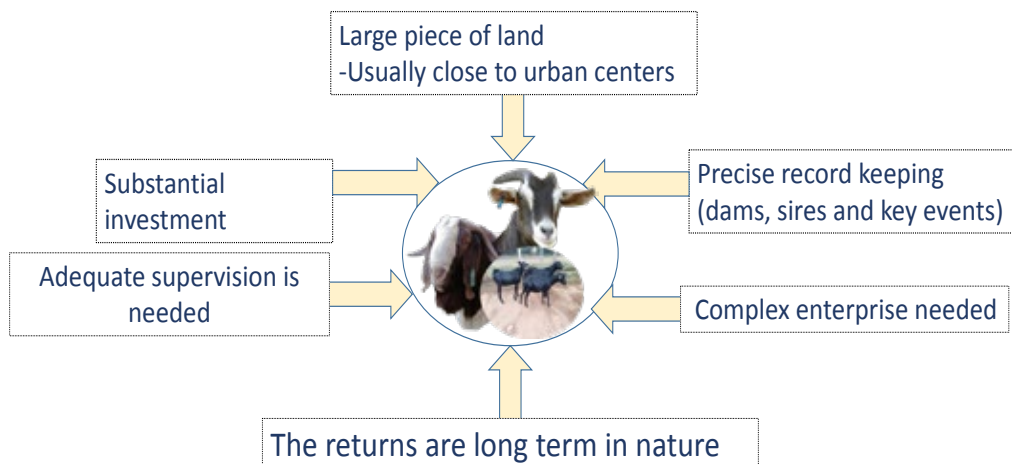
Analysing an enterprise A: Flock projection based on production parameters					
PARAMETER	Year 1	Year 2	Year 3	Year 4	Year 5
Opening stock with bucks					
Opening breeding female stock					
Kidding % (85%)					
Kids (175%)					
Kid mortality (10%)					
Kids alive					
Cull rate (13%)					
No. of male kids					
No. of female kids					
Replacement rate (60% in the first year)					
Adult mortality (3%)					
Closing breeding stock					
Available stock for sale					
Total stock before sales					

Cost of production per goat per year (xx number of goats)			
Key Items	Quantity/year	Unit cost*No of goats	Amount
Deworming (every 3 months)	4		
Vaccination (Assorted vaccines atleast twice a year)	2		
Tick control (weekly)	52		
Grazing land (Capital expense)	0.25		
Supplementation (creep feeding, steaming up, flushing, export feedlot, buck supplementation)	32.25		
Housing (renovations, improvements and repairs)	1		
Water (each goat consumes 0.2litres per day)	73		
Labor (Herdsmen, vets and managers)	12		

Live Goats for Slaughter (Meat and other By-products)



Breeding Stock



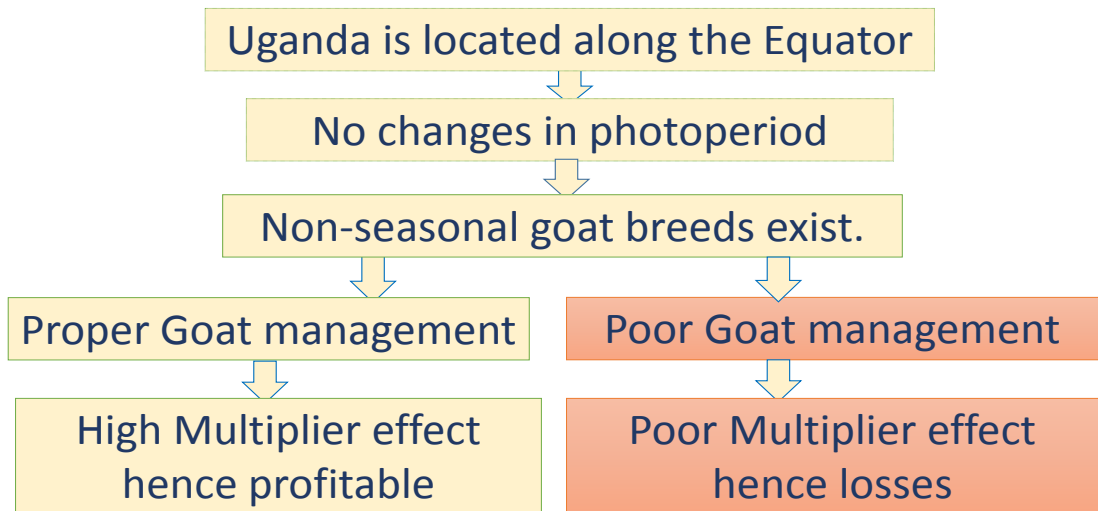
Take note

Goats are efficient biological machines at:

- Converting poor nutrient forage (grass, shrub leaves etc) into nutrient rich products (eg. meat, milk and other profitable byproducts).
- It is recommended that You:
 - Choose the type of production system that fits within your broad objectives
 - Do not copy and paste.
 - Take time and think through your enterprise.

Also, What works for me may not necessarily work for you

The case for goats in Uganda



Proper Goat Management

- Breeding, Selection and Reproduction management
- Proper Nutrition
- Proper Housing
- Proper Herd Health Management
- Record Keeping

It is what you inspect that gets done, not what you expect (Kabushenga, 2021)

Breeding and Selection

a) Set the objective for which you are rearing the goats.

This is highly linked to the value chain you would like to follow.

Different value chains include,

Milk and milk consumer products

Pharmaceutical products e.g. Immune booster tablets

Hospitality (Nyama Choma) e.g. Kumbuzi, Restaurants, road side nyama eating points etc

Abattoirs and slaughter facilities

Niche markets for export e.g. Middle East

Cosmetic products e.g. Soap, Lotions etc

b) Choose the correct breed of goats and manage them appropriately.

Available goat breeds in Uganda are categorized as:

1. Local Goats
2. Exotic Dairy Goats
3. Exotic Meat Goats

Types of goats kept in Uganda

Local Goats

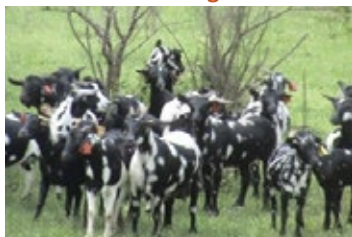
Merits

- Tolerant to worms
- Good disease resistance
- Adapted to local climate
- Fair meat conformation
- Highly prolific

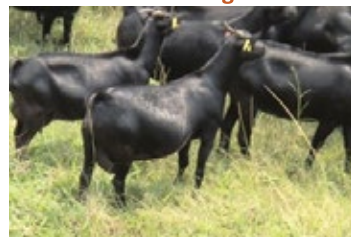
Demerits

- Very little milk
- Milk dries quickly
- Slow growing

Mubende goats



Mubende goats



Small East African goats



Kasolwe Goats



Exotic Dairy Goats

Merits

- Milk lasts many months
- Fast growing
- A lot of milk (2 – 4ltrs per day)

Demerits

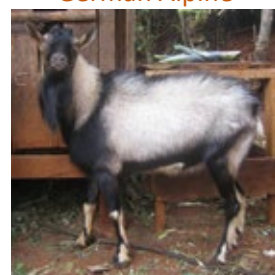
- Susceptible to worms
- Poor disease resistance
- Suffer from heat
- Thin

Toggenburg



Saanen

German Alpine



Anglo-Nubian



Exotic Meat Goats

Merits

- Very little milk
- Fast growing
- Good meat
- Good body conformation



Demerits

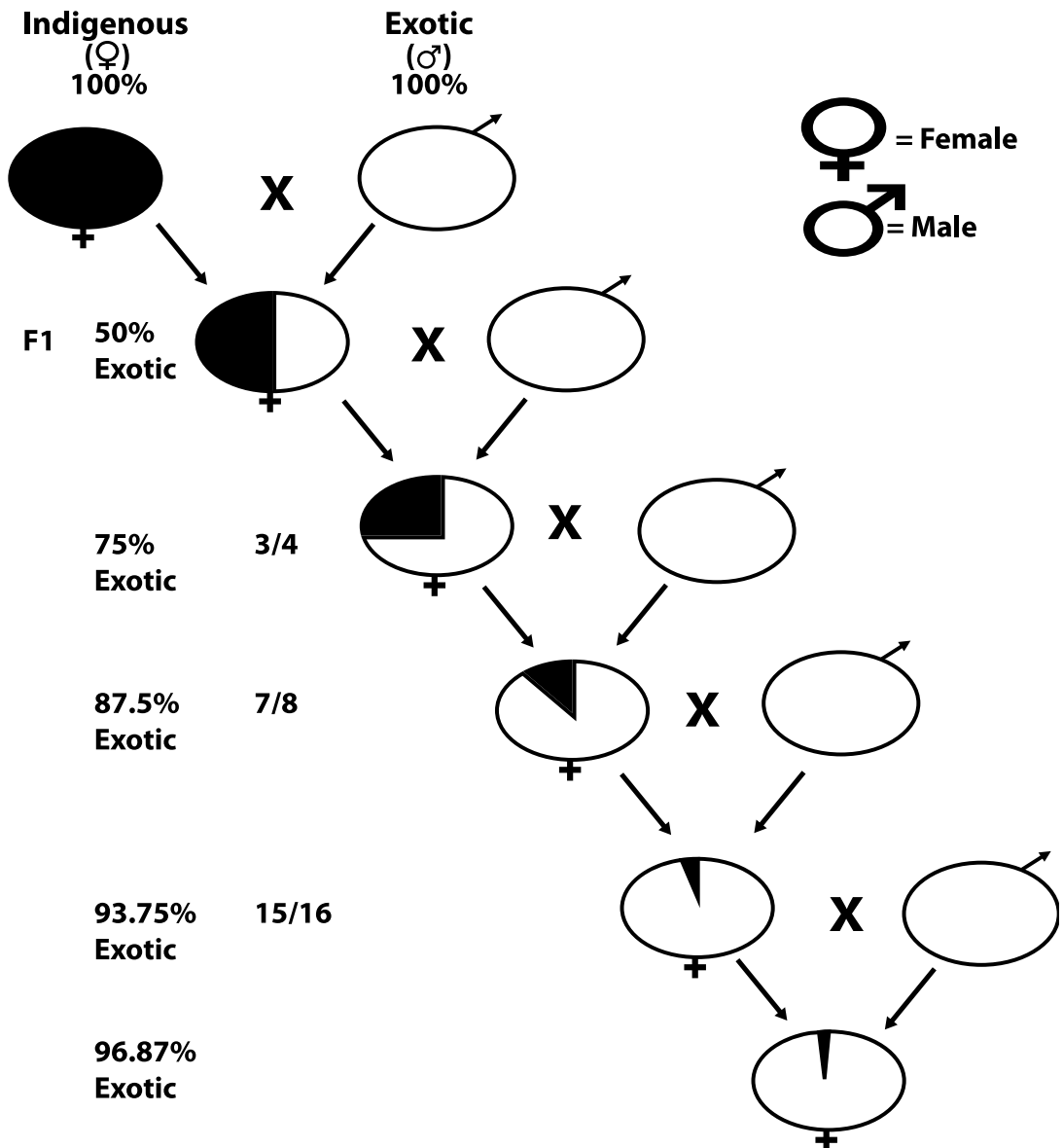
- Susceptible to worms
- Suffer in wet conditions
- Poor disease resistance
- Milk dries quickly

C) Select the initial stock carefully –

1. Avoid obtaining initial stock from open markets
2. During selection of initial stock, look out for
 - Age at sexual maturity,
 - Prolificacy,
 - Litter size,
 - Economically important traits,
 - Crop size (%) etc
3. Does and bucks should be examined before the breeding season to optimize the likelihood of reproductive success. Breeding soundness evaluation should also be performed by a veterinarian before paying for any buck.
4. Breeding animals should be in overall good health since poor health can lead to loss of libido and/or infertility.
5. **Sire daughter relationship** - There is a strong genetic relationship between the male goat and the daughters it produces. Therefore, always be mindful of the type of buck that mates with your goats. You may end up introducing undesirable traits in your herd due to careless mistakes at buck selection.

d) Cross Breeding With improver Breeds

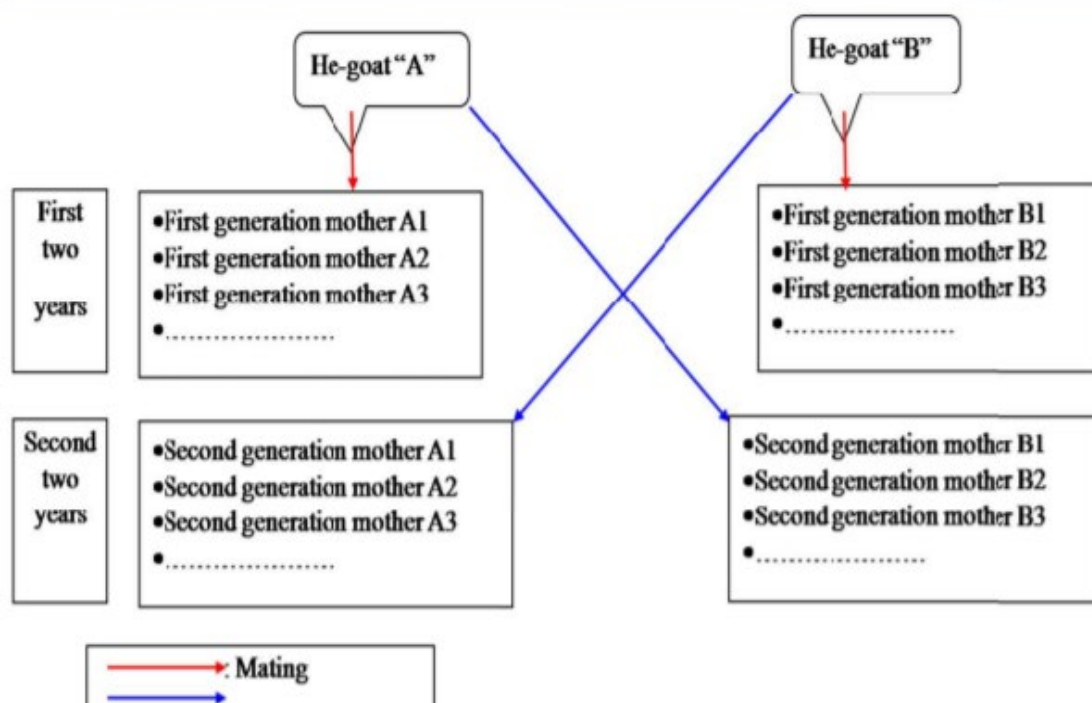
The quickest way to improve traits of interest is by crossbreeding. If done well in a scientifically controlled manner, it can be a very good way of genetic improvement. But when it's not controlled, it can kill the genetic improvement program or even the existing good traits in the local population.



Goat Rearing for Wealth and Improved Livelihoods

Do not cross F1(50%) together: *If you cross F1(50%) together you will most likely end up with **genetic segregation** which kills the improvement. That is what lots of farmers would do, attracted with the good results of F1. Usually when you have your F1(50%), if it's a male, you castrate and fatten it or sell for slaughter. If it's a female, you cross again with an improved breed. By F3(75%) or F4(87%) you are close to 100% of improved breed (even if you never reach the 100%).*

Goats- Breed Improvement Model



Source: JICA Project

Reproductive Efficiency

In order to achieve the multiplier effect of goats the numbers must grow and in order for the numbers to grow, the goat flock must be efficient in terms of reproduction;

1. Do not rush the young goats into engaging in reproductive activities before they are sexually mature. For females that are well fed, at least 8mo to 1yr, for males 1yr.
2. Feed the pregnant goats adequately especially in the last 6 weeks of pregnancy. The reproductive function of a female goat is developed before birth. The muscle cells that allow the males attain the potential mature weight are formed before birth.
3. Wean the Male kids earlier than the female kids to prevent inbreeding – they tend to mature quite early
4. Feed the buck for at least 8 weeks before engaging it for mating especially during synchronisation. Spermatogenesis takes at least 56 days.
5. give special feeding to female goats a few weeks before mating, but this has to be maintained after ovulation to increase embryo survival.
6. There is also need to supplement the nannies/does towards the end of pregnancy in order to improve milk and colostrum production as well as facilitate muscle cell development for male kids.
7. There is need to strategically supplement does/nannies with high-level proteins during the organ development phase of the embryo.

Natural Synchronization

Natural Synchronisation is done by farmers in order to harmonise the kidding and other critical activities at the farm. It involves sudden introduction of a male into a group of females following total separation of 3 to 6 weeks at a minimum distance of 500 meters apart. The sudden reunion will make the females to come on heat and hence mated within 3 – 18 days. This is done for the following reasons.

- **Choose the best mating time to maximise fertility.** For instance, during the period of abundant and cheap balanced feed resources.
- **To maximise on critical farm supervision.** The goat farm owner may choose to schedule their leave dates during the critical periods of the production cycle such as kidding, weaning, marketing, etc.

- **Produce according to the market requirements** and consumer demand. For instance, during Eid days or to fulfil some contractual obligations for supply of breeding goats to other farmers, NGOs or Government.
- **Upgrade your flock by breeding:** Some farmers tend to access original breeding stock from poorly defined sources (no records) and use them as wombs to produce the base population whose parameters can be measured from day one. Once the first batch of the base population are produced, they are recruited as the mothers while the original undefined batch is sold off as culls gradually until we have mothers whose parameters such as birth weights, prolificacy, etc. are known.
- **Synchronising the workforce.** This helps the farmer to save on the costs of maintaining the workforce that's redundant most of the time when the activities are not critical.

Strategic Nutrition

Goats should be fed enough in terms of quantity and quality

Quantity –

- 3% of its live body weight in terms of dry matter in case they are being stall fed. The feeder designs should imitate the browsing behavior of goats.



- At least 6 hours of effective browsing daily for those in extensive rearing.



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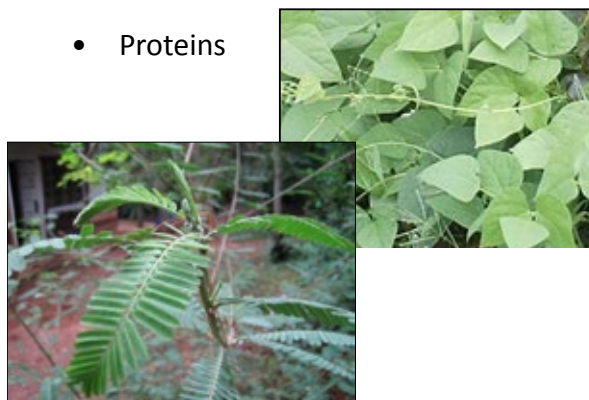
- Water provided ad libitum – each goat needs at least 0.2ltrs of water per kg of the live body weight daily
- Should have enough mineral licks all the time

Quality

- Carbohydrates



- Proteins



- Vitamins
- Trace elements – mineral licks
- Clean and uncontaminated

Utero undernutrition stress -A goat which is under fed during pregnancy, gives birth to a female kid with a risk of a non-functional reproductive tract and a male kid with fewer muscles cells. Therefore, no matter how you feed them later in life they will not grow accordingly, let alone attain their full potential.

Focus or Strategic Feeding

Creep feeding - Supplementation of the young kids, just before the weaning to accelerate growth and alleviating the mothers from milk production.

Flushing - Improvement of feeding level before mating. Improving nutrition 2 weeks before improves ovulation rate and maintaining it at least 2 weeks after mating minimizes embryo losses.

Steaming up - Supplementation at the end of pregnancy to improve fetal growth, and colostrum and milk production and mammary



glands. This also facilitates the development of muscle cells in male kids to assure attainment of their full potential once they are born.

Special feeding of the buck - Spermatogenesis and maturation of sperms takes more than 56 days. So, to produce more sperm, you must feed the buck for 8 weeks before engaging it for mating especially during synchronization.

Goat Housing

It is important to house goats in order to protect them from adverse climatic conditions, predators and thieves. The type of house required depends on the management system and the environmental condition where the goat enterprise is. The house may need to be insulated either against cold or heat. A good goat – house should ensure the following;

- Should be well ventilated
- Should be well lighted
- The house must have an exercise yard
- Should be easy to clean
- Should be drought – proof (Strong winds should not blow through it especially at the level of the goats).
- Should be well ventilated.
- Should provide efficient drainage – the floor must be dry at all times and at times slated and the roof must be water proof.

It should be born in mind that the materials used are realistic, practical and suit the local conditions.

The housing area must be large enough to keep all animals comfortable. In general, the space requirement per animal in square meters is as follows; kids 0.5, non-pregnant nanny 1.5, pregnant nanny 1.9, and buck 2.8. An exercise yard of 2X5 meters must be provided for the bucks and 1.5X4 meters for the nannies.



Example of a goat housing structure in a semi temperate agro-ecological zone.

Care For The Kid

As soon as the kid is sucked dry by the mother, you have to decide on the rearing system. The alternatives are:

1. You leave the kid with the mother.
2. You separate the kid from the mother at night. The rest of the day the kid goes with the mother and suckles through.
3. You separate the kid completely so that you give it milk in a bucket or bottle with a nipple.

There are some farmers who separate the kids with their mothers in the afternoon when they take them for grazing and are re-united in the evening after grazing. In this case the herdsman must ensure that all the kids in the flock suckle enough before their mothers are taken away for grazing and in the evening when they are brought back. For the does that have a tendency of rejecting their kids; they ought to be marked and surrogate mothers identified for the rejected kids

Separating the kids completely with their mothers is most suitable for commercial dairy goat farming. However, this requires a high standard of management. Many times, cleanliness, hygiene, accurate work and overall management are not up to the required standard. This results into high mortality rates and low growth rates of kids.

In the 3rd week, the kid should be introduced to good feeds and concentrates. Clean water should always be at its disposal and in plenty. At 2 and half months, the kid's daily intake is reduced by a half and after another 2-4 weeks the kid can be weaned. To increase the survivability of the kids does can also be vaccinated against clostridial infections about 3 weeks prior to parturition.



During periods when many does kid at the same time, care must be taken to ensure that the kids receive the right quantities of milk to avert cases of mortality due to hypoglycemia.

Goat Herd Health Management

The production and productivity of the goats depend entirely on the health status of the animal, which in its turn is affected by husbandry practices, breeding programs, nutrition and stress among others.

Every morning the herdsman must visually observe his herd.

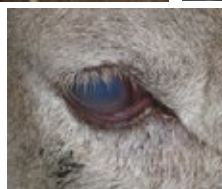
A healthy goat should;

1. Have good appetite.
2. Have a shiny hair coat.
3. Have a normal or optional milk production.
4. Walk normally. (Normal gait).
5. Chew cuds when resting.
6. Pass out normal faeces (peleted droppings).

How about a sick goat?

The signs are of a sick goat are;

1. Loss or reduced appetite.
2. Does not chew the cud.
3. Dullness.
4. Loss of body conditions.
5. Rough or standing/erect hair coat.
6. Reduced or loss of milk production.
7. Unpelleted faecal droppings



NB. Any or a combination of the above may indicate sickness of the goat.

Tips to remember about goat health

- General animal care, which includes: good feeding, shelter, breeding, care of hooves, treatment and prevention of diseases is necessary.
- Ill health leads to reduced growth in the young and productivity in adults, which in turn increases production costs as well as veterinary costs.
- Failure of kids to suckle, poor sanitation and poor feeding make the animals more susceptible to disease/infection.

- There is need to identify and isolate sick animals and give them special care until recovery.
- Release the sick animal to join the rest of the animals, only after its feeding has returned to normal and signs of disease have subsided.
- Routine health care including good management practices must be practiced and these include among others; treatment against diseases, de-worming and vaccination

Annual Health Calendar

Vaccinations include;

1. Clostridium perfringens – twice every year
2. Pasteurelosis and others (cocktail)
3. PPR once every year
4. FMD once every year
5. CCPP – once every 3 years
6. Brucella mellitensis – all Nannies and bucks before mating
7. Any other disease as might be determined following the feasibility assessment

Drenching / Prophylactic treatments

1. Deworming – every 3 months – regular faecal egg counts to determine the type dewormer to use at any one moment
2. Coccidiostats – to be given to all goats between 1 – 6 months of age. The dose involves a 7 days course
3. Hoof care by trimming and immersion into copper sulphate or formalin (whichever is accessible)

Ecto parasite control

1. Weekly dipping of goats
2. Regular analysis of the dip wash will determine which acaricide to use at any one moment avoid development of acaricide resistance

Record keeping

1. Record keeping is the backbone or basis for selecting goats for export and for recruitment as parents of future generations.
2. Selection of kids to become parents depends on their own performance and that of their parents.
3. The information got from herd recording generates records of animals and is used for traceability purposes.
4. Proper record keeping begins with effective identification. It can be by use of ear tags or any other identification method.
5. There is need to have a database of all individual goats in a flock to track any losses that may occur due to theft or negligence.
6. Ear tags can be printed right from the manufacturer using indelible ink and in a groove.
7. The system of numbering needs be logical for ease of management



Goat Markets

- Currently, the market for goats is highly informal and middlemen dominate transactions.
- There is also a general lack of market information and so sales are predominantly at farm gate level for most goat producers

Potential Market for Goats and Goat products

- **Individual traders:** This market comprises individual buyers who buy goats for resell in high value urban markets.
- **Private sector companies (Abattoirs, butcheries and others):** These normally require huge volumes of goats to serve both the local market and the export market. This market emphasizes on quality, consistency and timely supply.
- **Government and Non-Governmental Organizations:** These are usually involved in restocking and livelihood programmes and so they provide a market for breeding stock. They pay competitive prices.
- **Export market:** The export demand is found in the gulf states and other African countries. This market is more demanding in terms of requirements. However it is envisaged that with time the export market will expand to venture into the European and US markets. This will be achieved by ensuring quality in the production process and ability to trace the processes along the entire value chain.

Collective production and marketing

1. Cooperation among goat farmers enables them to have enough goats to sell to a given market
2. It is easy to sign contracts with high end markets such as restaurants, industries, oil sector etc.
3. It is easy to enforce standards among the participating farmers
4. Enables collective value addition to target a specified market segment
5. Members are able to access high quality inputs and services at affordable costs due to economies of scale



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