



# **National Agricultural Youth Show**

## **Milk Goat Manual**



[www.nays.co.za](http://www.nays.co.za)

## Index

South African Milk Goat Breeding Society.....	4
History of the Milk Goat in South Africa .....	4
1. Saanen .....	4
2. Toggenburg .....	5
3. Brish Alpine .....	5
Economic attributes of the milk goat .....	6
a. Produces milk of an outstanding quality .....	6
b. Efficient food conversion capability ....	6
c. Large market .....	6
d. Longevity and early sexual maturity .....	6
Management .....	6
1. Mating season.....	6
2. Lambing season .....	7
3. Dehorning and Identification .....	7
4. Housing .....	7
5. Bedding .....	8
6. Feeding .....	8
7. Record keeping .....	8
8. Milking process .....	9
Health program .....	9
Internal parasites .....	9
External parasites .....	9
a) Lambs .....	10
b) Ewes .....	10
c) Rams .....	10

Foot care .....	11
Useful information .....	11
Youth show.....	12
Guidelines for washing .....	12
Guidelines for preperation .....	13
Guidelines for showman.....	14
General rules .....	14
Individual showman .....	15
There are different tasks the handler must be able to do .....	15
What are the different levels? .....	15
Guidelines for the group show class .....	16

## South African Milk Goat Breeders Society

Like many other activities, animals or organizations Milk goat breeders also has an Association of their own, namely the South African Milk Goat Breeders Society.

The goal of the SA Milk Goat Breeders Society is to provide Milk goats of superior genotype and phenotype (breed standards) for the national milk goat herd.

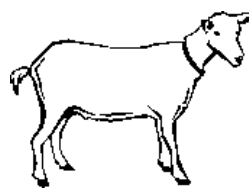
SAMBS achieve their goals by doing the following

- ↳ Examiner service
  - ~ through a panel of qualified inspectors from SA Milk Goat Breeders Society.
    - Stud Breeders - Annual classification of animals for registration in the stud book.
    - Classification of commercial herds.
    - Selection of all animals that part in auctions under the auspice of SA Milk Goat Breeders Society.
    - Selection of rams whose semen is sold for AI purposes.
- ↳ Courses
  - ~ Technical training as well as training of judges
- ↳ Information days
  - ~ Will be presented according to demand and need
- ↳ Provincial and National shows as well as auctions
  - ~ Presented regularly

## History of the Milk Goat in South Africa

In 1898 the Cape Department of Agriculture imported 3 Saanen rams and 12 ewes from Switzerland. The Breeders Society was founded in 1926. During this time, several breeders imported Saanens , Toggenburgers and British Alpine were imported from England . Today there are four accepted Milk goat breeds in South Africa, namely:

1. Saanen
2. Toggenburg
3. British Alpine
4. Bunte Deutsche Edelziege (BDE)



The three most popular breeds will be briefly discussed next:

### 1. Saanen

Of the three breeds the Saanen is the most common in South Africa and most South African milk goat farmers choose this breed.

The Saanen is a Swiss breed and originally comes from the Saanen valley in the south of the Berne Canton of Switzerland. It's a white goat, preferably with black pigmentation on the skin, visible as spots or patches on the udder, ears and nose / upper lip.

- 1.1.1. Adult ewes weigh about 70kg and mature rams around 90-100kg.
- 1.1.2. Both females and males have horns, but dehorning has for practical reasons become a common practice. The goats can injure themselves or damage fences.
- 1.1.3. Goated beards and tassels (or wattles) are quite common on both rams as ewes, but not one of the two is essential characteristics of the breed.
- 1.1.4. The Saanen is one of the best milk goats and it's not uncommon for a female to deliver between 1500kg and 2000kg of milk per lactation.
- 1.1.5. A Saanen female holds the world record for milk yield for goats. She delivered 3506 kg of milk during her second lactation.
- 1.1.6. The average yield that can be expected in commercial Saanen Milk goats are 900kg to a 1000kg per lactation period.
- 1.1.7. The fact that the Saanen is such a docile and calm goat makes it particularly suitable for intensive farming.

## **2. Toggenburg**

- 2.1.1 The Toggenburg comes from the St. Gallen - Canton in Switzerland
- 2.1.2 The breed is light to dark brown in color with white stripes over the face, white lower legs and white around the tail.
- 2.1.3 Rams, and sometimes ewes, have beards and both have horns. It's general practice to dehorn them.
- 2.1.4 It's a bit smaller goat than the Saanen. The females weigh on average 60kg and the rams 75kg.
- 2.1.5 Their milk production is slightly lower than that of the Saanen, but they are generally good milk goats and are selected for the quality of the milk in terms of butterfat and total solids products.
- 2.1.6 Because the breed does not have the same docile nature as the Saanen, the Toggenburg is not usually the first choice for large-scale commercial units.

## **3. British Alpine**

- 3.1.1. This breed was bred from a single Swiss female ewe in Britain.
- 3.1.2. The British Alpine has short, shiny black hair with distinctive white stripes on the face, lower legs and is white around the tail.
- 3.1.3. This breed is generally considered slightly hardier than other breeds from Switzerland and therefore better suited for less intensive enterprises.

## **Economic attributes of the Milk goat**

### **a. Provide milk of outstanding quality**

With good management and optimal nutrition 3,5ℓ milk per day, can be produced with a butterfat of 3.4% and proteins of 2.6% over a lactation period of 305 days by a well-bred and selected Milk goat ewe of any of the four breeds.

Goat's milk is ideal for babies and people who need easily absorbable nutrition. Goat's milk is excellent for raising any small mammal (calves, lambs, deer, horse foals, cheetahs, etc.) because of its high and easy digestibility.

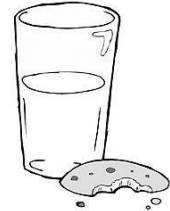
### **b. Efficient feed conversion capability**

As a result of the Milk goat's better ability to convert roughage quickly into milk, makes it an extremely appropriate and competitive milk producer.

### **c. Large market**

Goat's milk is multipurpose and can be processed into a variety of products such as

- ~ cheese
- ~ yoghurt
- ~ sweets
- ~ ice cream
- ~ soap
- ~ butter



There is a great demand for these products and consumers will make an effort to acquire them. There is also an increasing demand for fresh milk.

### **d. Longevity and sexual maturity**

Well kept milk goat ewes lamb at the age of 12 to 14 months and have a productive life of up to 8 years.

Multiple births are no exception to milk goats

## **Management**

The discussion that follows is generally on the Saanen breed, because it is the most common breed in South Africa.

### **1. Mating**

Vaccinate ewes for enzootic abortion 6 weeks prior to mating.

Use selective mating. Use rams of dams with official milk figures and positive qualities that can address a deficiency or problem in your herd.

- ⇒ Goats are seasonal and breed in Autumn, from February to April.
- ⇒ The gestation period last 150 days, and in South Africa the ewes usually lamb in the spring, i.e. during August and September to early October.
- ⇒ It is normal for an ewe to produce twin lambs. Twins are more the rule than the exception.
- ⇒ It is important to ensure that the lamb drinks within 2 hours after birth the ewe's milk (colostrum). The colostrum the female produces in the first few days after birth is rich in fats, proteins and antibodies. The antibodies stimulate the lamb's immune system, without which the lamb will weaken and die.

### **2. Lambing**

Ensure that pregnant ewes, 6 weeks before lambing, get feed supplementation with enough protein and phosphorus for healthy kids and good milk production. The energy levels of the food must be high enough to prevent milk fever and ketosis during lambing. Lambs should get as much






colostrum, within 6 hours of birth, as they can drink. Lambs thereafter have 1ℓ milk per day and are weaned at weight of 15kg.

### 3. Dehorning and identification

Dehorn lambs at the age of 2-4 weeks with a dehorning bolt. Although there are several different ways to dehorn lambs, the above is the most common and successful method.

Identify lambs after birth with a permanent ID in the form of a tattoo in the ear or an ear tag. Ear tags have a tendency to tear. It is also becoming common for neck tags to be used. This tag is hung on the neck chain of the goat, which makes identification easy.

### 4. Housing

-  Shelter from rain and cold is crucial in goat dairy farming, as it is widely known that Saanen goats choose dry conditions and have a particular aversion to wet, rainy or windy conditions.
-  Drainage of stables is of the utmost importance for herd health, so make sure the stables remains dry.
-  Saanen goats require an open building with plenty of fresh air which provide shelter from rain and wind. A typical goat barn will have solid walls of 1,6m to 2m high with a roof resting on steel or wooden props and about 3 to 3½ meters high.
-  Fencing must be of such nature that kids cannot crawl through, because that is how they learn the habit.
-  Always keep rams separately from ewes to prevent unpleasant odors from contaminating the milk.

An absence of proper shelter from wind and rain will have a negative effect on the ewe's milk production and cause general stress and discomfort for her.

The following factors should be taken into account when building a barn.

- The building must be free of any drafts
- Good ventilation
- Not too cold and not too hot
- A clean and hygienic environment

### 5. Bedding

- ↪ There must be bedding on the floor because goats are naturally clean animals.
- ↪ Experience has found that wheat hay is useful bedding, but wood shavings is also acceptable.
- ↪ In addition to good shelter there should be a camp where the goats can freely roam so they can get plenty of exercise and fresh air.
- ↪ Goats are naturally curious. Therefore, the fence must be secure. A single electric wire can be used to further restrain the goats.

## 6. Feeding

- ⊗ Feeders must be of such a nature that the goats cannot climb in. 400mm feeding space should be given per ewe.
- ⊗ In intensive milk goat farming the goats should get about 2,5kg protein concentrate of 14% - 16% in the form of dairy pellets or dairy meal per day.
- ⊗ In addition goats should get enough grass or Lucerne (2,5kg - 4kg) to ensure that there is enough roughage.
- ⊗ Note that concentrates in pellet form is preferable, because dairy meal can block the animal's nostrils.
- ⊗ There must be a constant supply of clean, cool drinking water, because a goat can drink from 4 to 18 liters of water per day, depending on the climatic conditions, type of available food, along with other factors. This is very important because a goat needs more or less 1,5liter water to deliver 1kg milk. Lack of water will therefore have a direct effect on the milk production.



## 7. Record keeping

Keep the following records for each animal:

- ✂ Sire and dam - to ensure that inbreeding does not occur.
- ✂ Milk production - "To measure is to know", it enables you to compare your ewes with one another and eliminate the poor producers.
- ✂ Conformation - Record bad and good points in order to do corrective mating and so improve your herd.
- ✂ Servicing date - to determine lambing dates and thus be able to arrange for the ewe to run dry 45 days before lambing.
- ✂ Health – Record if the ewe was sick or had mastitis. So that if animals repeatedly get the same disease can be identified and eliminated before they contaminate the rest of the herd.

## 8. Milking process

It is not ideal for unweaned lambs to drink directly from the ewes. This can cause large-scale udder problems. With this method the amount of the lamb's intake of milk cannot be determined.

Milking can be done in two ways i.e.

- ✧ with the hand
- ✧ with a milking machine

If they are milked by a milking machine, use a raised platform with a pit system which must be kept hygienic at all times.

Test each teat for mastitis or any other abnormalities. Use a teat dip after milking or when lambs suckle on the ewes to prevent mastitis.



## Health program

### Internal parasites

Parasites are regarded as an organism which lives in or on another organism (the host). Parasites found in the goat are not always visible to the eye.

Examples are: roundworms, liver flukes and tapeworms.

Taking samples is the best way to determine if an animal has intestinal parasites or not .

### External parasites

Parasites that are more easily seen are the parasites living on the animals, for example: ticks, mites, lice, and flies.

### Caring for:

#### a) Lambs

1. Milk Tapeworm

Dose every 21 days from 30 days old until weaning.

2. Pasteurella

Vaccinate from 2 weeks, with one of the following vaccinations, and follow up at 6 weeks for good coverage, then 6 monthly repeat.

- Multivax P
- Ultra Choice 7
- Onderstepoort Pasteurella vaccine

3. Lice

Small goats must be checked regularly for external parasites such as lice. Goats will begin to bite and scratch if they have lice that are not easily visible yet. A pour-on or plunge dipping is recommended for external parasites

#### b) Ewes

1. Pasteurella

Vaccinate 6-8 weeks before lambing, one of the following vaccinations, then every 6 months thereafter.

Examples are:

- Multivax P
- Ultra Choice 7
- Onderstepoort pasteurella vaccine

2. Pulpy Kidney

Vaccinate pregnant ewes with pulpy kidney vaccine(eg. Multivax P) 4 weeks before lambing. Lambs that are born are then also protected by the dams colostrum immunity. Ewes that

have not previously been vaccinated should get 2 injections, 8 weeks before and another booster dose 4 weeks before lambing.

3. Blue udder

Vaccinate ewe lambs 6 weeks before mating begins and all ewes 6 weeks before lambing.

4. Enzootic abortion

Vaccinate ewes 6 weeks prior to mating.

5. Uterine black quarter

Vaccinate ewes 2 months before lambing.

6. Blue tongue

Vaccinate in areas where it is a problem 1-2 months after lambing.

7. Internal parasites (eg. Tapeworm, lung worm, nasal worm)

Take regular faeces samples and dose with broad spectrum anthelmintic.

8. Mastitis

Mastitis (or udder infection) is a very common disease and good care must be taken to prevent contamination of the herd. The following steps can be taken to prevent mastitis in your herd:

- ⇒ Examine the udder daily for abnormal secretions.
- ⇒ Use a teat dip that does not contain iodine after each milking.
- ⇒ Treat all ewes with 'dry cow' treatment, ewes in production that repeatedly contract mastitis have to be culled.
- ⇒ Maintain strict sanitary practices.
- ⇒ Wipe the udder clean with a dry cloth or paper towel before milking.

### **c) Rams**

1. Fertility

Do fertility tests 6 weeks prior to breeding season .

2. Brucella ovis

Only buy rams vaccinated with REV1, six months prior, as it is highly contagious.

### **Foot care**

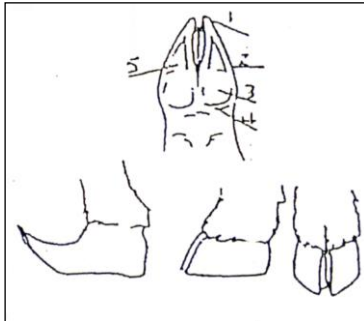
It is imperative that excessive hoof growth is trimmed at least every two months. A goat's hooves should, like a man's fingernails, be checked and clipped regularly (at least every 6 weeks to 2 months)

If the hooves are neglected it can result in the goat becoming lame. It can also be contaminated easily with the foot abscess bacteria.

Note that goats should be restrained in a different way to sheep when caring for the hooves. Goats unlike sheep are not turned on the back, but anchored in a standing position, while the legs are treated in a similar way to that of a horse being shod.

Trim the hooves to the same shape as that of a newborn lamb. Follow the steps below:

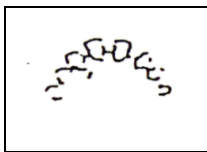
- a) Restrain the animal firmly
- b) Clean the hoof thoroughly
- c) Cut the sides of the hoof level with the sole
- d) Cut the heels



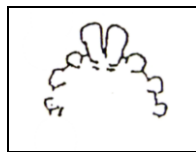
- 1. toe
- 2. wall
- 3. sole
- 4. heel
- 5. remove the dirt

**Useful information:**

- ① A Milk goat has an average life span of 7 to 10 years.
- ① A goat is a ruminant, which means that it regurgitates what he has eaten, the mouth then continues to chew it.
- ① Goats are milked twice daily, close to twelve hours as possible from each other.
- ① The milk goat was one of the first animals that were domesticated by humans and have provided mankind already 7000 years of shelter covering, food and clothing.
- ① Due to its versatility and domestication, the goat has long before other animals , provided milk or milk products to humans.
- ① A goat's age can be determined by the eight teeth of the lower jaw as indicated on the drawings below.



First year



Second year



Third year (2-3 year)



Fourth year (3-4 years old)



Fifth year (4 year old)

## **Youth show:**

### **GUIDELINES TO WASH**

Any container or box can be used to store supplies. However, a plastic container with different compartments is the best, but is not compulsory.

Requirements in toolbox for washing:

- ✓ Halter or any safe and suitable equipment to restrain the goat firmly
- ✓ A cloth
- ✓ Shampoo (suitable for animals)
- ✓ Bucket
- ✓ Toothbrush
- ✓ Nailbrush
- ✓ Scrubbing brush
- ✓ At least 3 towels

Process during washes:

- ~ Prepare your toolbox long before the show, so you can replace or add your equipment needed on time.
- ~ Make sure you are ready at least 15 minutes in advance, that you have reported to the Ring Steward and that you are at the arena where the washing process will take place.
- ~ The Ring Steward will show your position in the ring or arena where you wash.
- ~ Tie up your animal firmly, fill your bucket with water.
- ~ You can also unpack the toolbox; unpack only the items you will need for washing.
  
- The Ring Steward will now announce that you may start.
- Open the tap moderately and wet the goat thoroughly, start from behind the head.
- The animal is always watered from front to back, from top to bottom and from left to right.
- Spray against the grain of the hair to get rid of dirt.
- Pour shampoo from the back of the head to the rump.
- Wash the left side from front to back and top to bottom by using your fingers, do the same with the right side. If more soap is needed, apply it to the sides of the goat.
- The belly is the last part to be washed as all the dirt runs from the top.
- Wash the legs. The knees can be scrubbed with a scrubbing brush and the hooves can be scrubbed with a nail brush.
- Rinse the goat from front to back, from top to bottom and left to right. Spray against the grain of the hair to ensure that all soap is rinsed out of the hair.
- Use the towels to dry the goat thoroughly.
- Use a brush to comb the goat's hair neatly and evenly.

- ➔ Use the washcloth by making it damp and wipe off the face, around the mouth, nostrils and eye sockets. Gently wipe the ears without disturbing the wax layer.
- ➔ If the goat's head was dirty it can be moistened with a gently flowing pipe and washed with shampoo. However try not to use too much shampoo as the shampoo may irritate the eyes. The head should be rinsed well again and be well dried.
- ➔ Rinse the cloth and wipe manure and dirt from under the tail.
- ➔ Remember that no foam may remain.
- ➔ When the Ring Steward announces that the time is up, you should stop immediately.

Keep your work area clean and tidy, work in an orderly manner to avoid going back with a dirty goat. Remember your personal neatness counts too.

At every championship you have a certain cut-off time after which no goat may be washed or cleaned until judging is completed. Familiarize yourself with this cut-off times in order not to be penalised during the washing process. If you keep working with the animal after the cut-off, points will be deducted from your final score.

### **GUIDELINES FOR PREPARATION:**

Store your supplies in any container or box. However, a plastic container with different compartments works the best, but is not compulsory.

Requirements in box for preparation:

- ✓ Halter or any safe and suitable equipment to restrain the goat firmly
- ✓ Small round tip scissors
- ✓ Medium sharp tip scissors
- ✓ Linseed oil
- ✓ Small cloth to use with oil
- ✓ Brush

Process during preparation:

- ~ Prepare your toolbox long before the show, so you can replace or add your equipment on time. Make sure you are ready at least 15 minutes in advance, that you have reported to the Ring Steward and that you are at the arena where the washing process will take place.
  - ~ The Ring Steward will show your position in the ring or arena where you can prepare your animal.
  - ~ Tie up your animal firmly, fill your bucket with water.
  - ~ You can also unpack your toolbox; unpack only the items you will require for the preparation and what you used for the wash can remain unpacked.
- 
- ↪ The Ring Steward will now announce that you may start.
  - ↪ Always do all trimming from front to back, from top to bottom and from left to right.
  - ↪ Use the round tip scissors to trim the animal's facial hair.

- ↳ Trim the goat's beard evenly and trim the hair so that it forms a neat line with the goats' face.
- ↳ Remove loose long hair around the mouth and nose, also trim long hair around horns in order that the head presents attractively.
- ↳ Trim the hair in the ears and on the edges clean and flush.
- ↳ If hair on the body affects the body shape of the goat, correct it by trimming the excessive hair in order to display the goat at its best. Be careful not to cut the hair too short.
- ↳ Use the sharp tip scissors and trim the knees of the goat neatly, also trim around the hooves (in a straight line), the hair around the dewclaws must be trimmed neatly. Use the line where the hoof and flesh come together as an indication of the line where the hair should be trimmed.
- ↳ Finally, cut the tail hair. Cut the hair smoothly on either side of the tail (not too short) and never make a blunt cut on the tail.
- ↳ Brush the goat's hair neatly.
- ↳ Use the small cloth to oil the hooves, horns and if preferred the knees, to look bright and shining clean.
- ↳ When the Ring Steward announces that the time is up, you should stop immediately.

Keep your work area throughout the process clean and tidy, in order to work systematically and reduce the possibility of making mistakes. Remember your personal neatness counts too.

### **GUIDELINES FOR SHOWMAM:**

This section is very important and also carries the greatest weight during the competition. Here you will benefit most and be rewarded for good washing and preparation, because your animal then can be displayed at its best. In this section you handle your goat more or less as at ordinary shows where the goats are judged. The difference is that the handler is judged and not the goat, although cooperation of the goat can be a contributing factor to the success of the handler.

General rules:

- × Do not chew gum in the ring.
- × Do not make contact with people outside the ring, not even eye contact.
- × Never move between the goat and the judge.
- × Do not wear any form of jewellery like, bracelets, rings, large earrings.
- × No cell phones are allowed in the ring / arena.

### **Do's**

- ✓ Maintain concentration at all times.
- ✓ Maintain eye contact with the judge, but do not forget your goat.

- ✓ Ensure that you and your goat are neat and clean, for example, Clean your boots, remove chaff under the goat's stomach and dress neatly. (A belt is usually a good idea, because it keeps your shirt and pants neatly intact).
- ✓ Goats may be shown with a chain.
- ✓ Always work gently with your animal.
- ✓ Have fun!

### Individual showman:

- ~ Exercise regularly with a goat to refine your technique and ability to handle the animal.
- ~ Make sure you are ready to start at least 15 minutes in advance, and that you have reported to the Ring Steward and that you are ready at the arena where showman will take place .
- 🐾 When you enter the ring, you need to be on the left side of the goat and your right hand hold the chain (that is on the goat's neck). Walk up straight in a clockwise direction, without cutting corners.
- 🐾 You will receive your orders from the Ring Steward.
- 🐾 If you are asked to stop, stop immediately and position your goat's front legs and back legs neatly next to each other. The inner leg of the goat (in other words, the leg closest to the Judge) can stand back a little further than the other hind leg. In this way the udder of the goat is visible.
- 🐾 When the goat is ready, stand up straight, turn your body to the inside of the ring and against the outer flank of the goat, without having to lean against the goat, with your feet on either side of your goat's forelegs.
- 🐾 Walk at a comfortable pace, if your goat is restive jerk the chain gently in order to keep the goat walking.
- 🐾 Learn to tell the different ages of the animals if you are asked. If the Judge asks you to open your goat's mouth, use your left hand thumb and index finger, turning the goat's head to the Judge, and then use the fingers to push open the animal's upper and lower lip away from each other.
- 🐾 Move neatly and confidently, but not aggressively, remember you are working with animals.

### There are different levels of commands that the handlers must execute

#### What are the different levels?

**Level 1:** Basic and simple commands, this test only minimum handling ability. Commands can be practiced.

**Level 2:** More advanced testing of handling ability and initiative. Commands can be partly exercised.

**Level 3:** Most advanced testing of handling ability. Handlers must work extremely well with goats and rely heavily on their own initiative. Commands cannot be practiced in advance.

## Examples of instructions

**Level 1:** Walk clockwise in the ring and then change direction (walk anti-clockwise)

**Level 2:** Move from your position, walk towards the judge, turn around, go back to your same position. All participants stand next to each other with their backs to the Judge, the Steward will command the participants individually eg. Walk to the judge and stop in the middle of the ring and show your goat always transverse (across). When the Judge nods, walk up to the Judge, turn around and stand at your position.

**Level 3:** All participants stand side by side with their backs to the Judge, the Steward will then give commands to the individual participants. Eg. Walk towards the Judge, stop 1m before the Judge, when the Judge nods, walk back to the middle of the ring and show your animal's right side, when the Judge nods, turn your goat and show the left side. When the Judge nods, walk towards the Judge, turn around and return to your position.

**(NB !!! These are only examples of possible instructions/commands. Examples serve only as a guide and should not be considered under any circumstances as rigid. The Judge determines whether he will give instructions or not and the decision rests solely with the Judge. Participants will get their instructions in the ring, listen carefully).**

## Guidelines for Group Class:

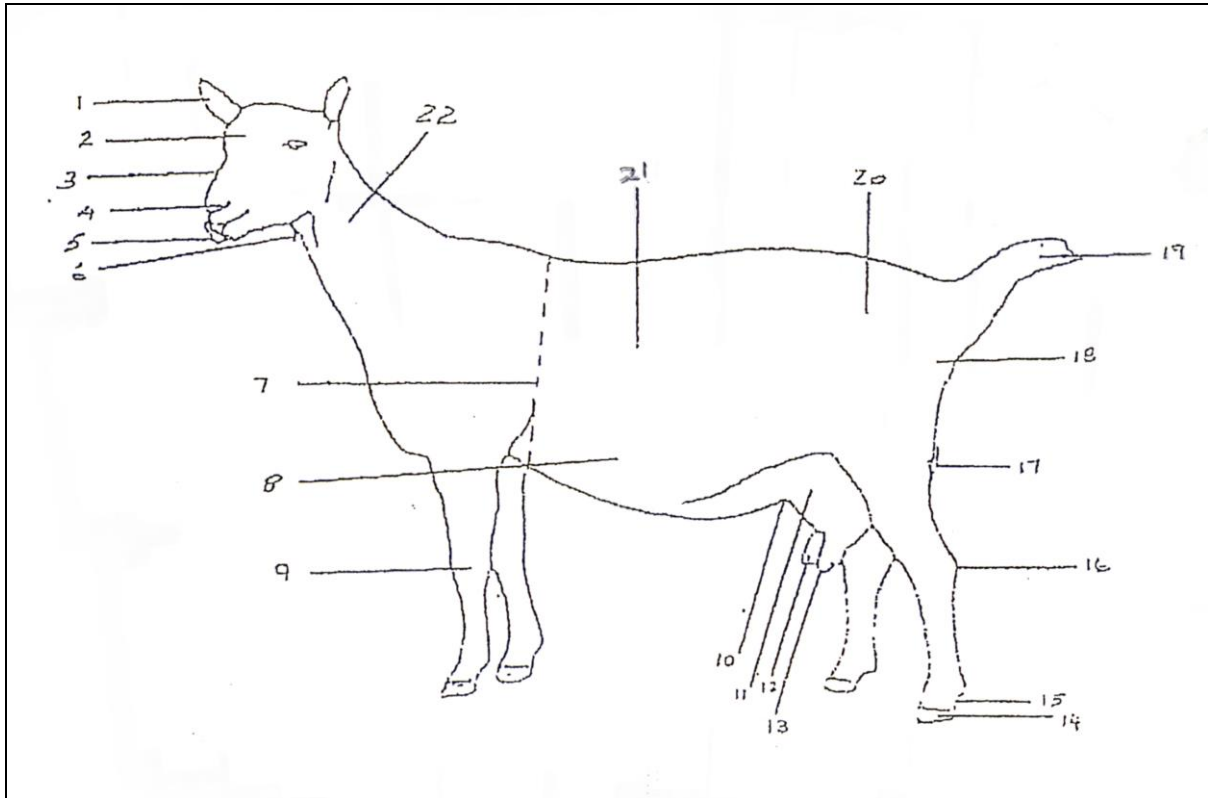
Groups of 3 participants take part in the class.

- ☛ Arrange the participants from short to tall, the goats must also be arranged from the smallest to the largest. The shortest participant handle the smallest animal and the tallest the biggest animal. This applies if the goats are not equal in size.
- ☛ The person in the middle “manages” the movements of the group by giving commands with a whisper. Do not be so loud that other groups or the Judge become distracted .
- ☛ Participants must wear the same clothing as well as the same accessories, in order to form a perfect entity.
- ☛ The same general rules for individual showman applies to the group classes. The same instructions will be given in this class.
- ☛ The group must perform exactly the same, for example: they have corrected the left front leg, or come up equally straight or do the same turn during the execution of orders.
- ☛ Move neatly and securely, but do not give an aggressive impression, you are working with animals.
- ☛ When you select animals for the group class, it will be to your advantage if goats are all the same color and all with / without horns. Uniformity is a big benefit.
- ☛ The same levels of instructions apply to group classes.

**ENJOY EVERY MOMENT...BECAUSE YOU CAN!!**



**Parts of a milk goat:**



1. Ear	2. Forehead	3. Nose bridge
4. Nostril	5. Mouth	6. Throat
7. Heart girth	8. Barrel	9. Knee
10. Front udder attachment	11. Fore udder	12. Teats
13. Teat opening	14. Hoof	15. Pastern
16. Hock	17. Rear udder	18. Tail
19. Tail	20. Hip	21. Rib
22. Neck		