MANUAL
TO CAMEL HUSBANDRY

MINISTRY OF AGRICULTURE AND ENVIRONMENTAL PROTECTİON OF TURKMENİSTAN

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MANUAL TO CAMEL HUSBANDRY

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The manual contains valuable advice on breeding camels grown in the conditions of our country and their breeding, timely and high-level winter activities in camel breeding, milk, meat and wool production of camels, selection of breeding work in the field of camel breeding, protection of camels from various pests and diseases.

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INTRODUCTION

The herding industry is considered to be the most profitable sector of the economy along with other livestock industries in our country. The unique natural and climatic conditions of our country are very favorable for the development of this industry.

In order to satisfy the needs of our population for livestock products in the "Program of the President of Turkmenistan for the socio-economic development of our country in 2019 - 2025", in order to increase the number of cattle, carry out their breeding and selection work, increase their productivity, and strengthen the fodder infrastructure. Specific tasks have been set to carry out the relevant work.

Along with carrying out breeding and selection work in the field of camel breeding, it is very important to improve the technology of breeding camels, to prepare products from them, and to provide veterinary measures to protect them from pests and diseases. Taking into account these conditions, the manual contains information on the breeding and breeding of camels of Arvana breed in our country, the breeding and selection of them, breeding and breeding season, wintering of camels, selection of foals and formation of herds, as well as the important issues of protecting camels from rabies and rabies and parasitic diseases. will be brought.

This manual was compiled on the basis of the results of scientific research conducted by scientists of the Livestock and Veterinary Science-Production Center of the Turkmen Agricultural University in our country, as well as the rules used in animal husbandry and veterinary medicine.

The guide is intended for our country's camel herders and herdsmen who keep camels on private farms, farmers and craftsmen working in this field.

CAMELS OF THE ARWANA BREED IN TURKMENISTAN

Over many centuries, camels of the Arwana breed have reached their current level with the wisdom of the Turkmen people. It is the national wealth left by our ancestors to our descendants. It is impossible to imagine our Karakum desert without a camel. A camel is a desert animal. It is an animal that is adapted to the hot, humid climate of desert and semi-desert land, and is able to produce products (meat, milk, wool, leather) in that condition.

Camel's milk is mainly used to make milk, milk, and other products, which are gray, nutritious foods that satisfy the thirst. Camel meat, especially venison, is distinguished by its lightness and tenderness. Camel wool has a unique heat-retaining property, and it will be used to make warm blankets, belts, and blankets. In addition, national fringes are also prepared from it.

The main habitat of Arwana camels is the Karakum desert. System-by-system sand dunes, dunes and salt flats will serve as grazing grounds for camels. They feed on sedges, sedges, sedges, sedges, sedges, sedges, sedges, sedges, and sedges. Camels in places that are convenient to oases, mainly eat dry grasses, and can drink water from wells with a high salt content in the Karakum. Arwana camels are able to feed and breed on the unfed cows of other cattle. Arwana camels are extremely cold weather intolerant. In summer and spring, during the growth of green wood and ephemeral plants, they will maintain themselves, restore their fatness, and can accumulate up to 40-60 kilograms of fat in their bodies.

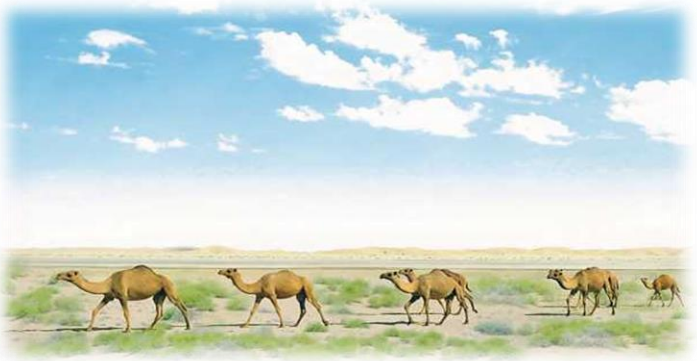

Figure 1. *A herd of camels ın the pasture*

The rich experience of developing and breeding camels has been passed down from father to son, from son to son, and has been selected and perfected. As a result, a unique breed of single-breasted camels - the Arwana breed - was created.

Arwana heifers belong to the breed group that gives milk and walks with loads on their backs. This breed has been brought to the current civilized level of high productivity through thousands of years of population selection by the Turkmen people. In order to breed heifers with high milk yield, the Turkmen people paid special attention to selecting male and female heifers from high milk heifers based on genetic traits. For thousands of years, the Arwana camel served as a transport vehicle for the Turkmens who lived in the Karakum Desert and its surrounding areas, providing food, wool for weaving, and for migration and other economic activities.

At present, the scientists of our country are constantly working to maintain the genetic reserve (fund) of camels with arvana seeds, to improve the breeding quality, and to increase their productivity.

Breeding of camels

Camel breeding season. This period greatly influenced the breeding characteristics of camels due to their distribution in desert and semi-desert, arid deserts. Camels have seasonal molting and sexual arousal, and their behavior is somewhat similar to that of wild animals. The time when camels come to calve and sow effectively depends on the distribution area of the camel breeds. Most of the time, the heifers arrive in the breeding season between January and April.

Methods of incubating camels. Camels are bred mainly in two ways: by hand and free-breeding in a herd.

Method 1. When placing a heifer, taking into account the degree of kinship, direction, color, breed class, each male will be assigned a heifer with 25-30 heads. The advantage of hand-baiting is that each individual will be given a pre-determined amount of bait to attract a male. In this way, it is possible to record the date of effective hatching of the female and predict when she will hatch (based on the throttling calculation). This method will allow for the precise identification of the male ancestor and the appropriate use of

males. If the heifers are recorded in a separate ledger, the breed will help in training and ageing the heifers.

Method 2. When breeding in a herd, taking into account the breed class, age, separate herds of 12-15 heads are created, and the male herd intended for that group of heifers is sent to the herd. This method is often used when breeding bactrian (double-breasted) heifers. During that time, males should be supplemented with fortified foods.

Camel breeding season. One of the most responsible measures in breeding is to spend the nesting period in shelter. During the calving season of camels, calving male heifers will be added to herds of heifers born from the first decade of January and collected from the herds after 60-90 days (after the first decade of April).

During the foaling season, mother heifers should be fortified with elite (elite) and grade I foal males. Before the males are inseminated, the herds of the heifers will be examined. Grade II female heifers are separated from the herd. They will be farmed independently and used for household expenses and other production purposes.

During the calving season, the number of older and three-year-old female heifers that will go to calve is determined, 25-30 calving heifers in each group will be registered as a calving male.

During the calving period, the replacement of calving male heifers in herds should be done with care when religiously necessary. This is because if there are heifers bred by another male in the herd, the newly arrived male will try (chasing, biting) to get the heifers back to sex.

Male camels reach sexual maturity between 3 and 5 years of age. Their sexual integrity will depend on proper nutrition and maintenance during their youth. General sexual development ends at 6-7 years of age. Premature breeding of immature males will cause them to fail to emerge early. Males can be used in the den from 5 years old, and well-grown ones from 4 years old (10-15 calves per season). They become fully active from the age of 6.

According to the results of many years of research, men can be used up to 18-20 years of age. Female heifers can give birth up to

20-25 years. Generally, during a 60- to 90-day nesting season, males can hatch up to 30 heifers.

In the conditions of Turkmenistan, when the herd is drawn, the heifers will calve mainly in February-March, but the heifers should be separated from the herd by the end of March, so that the heifers do not become barren.

Breeding males in herds are often exhausted at the beginning of the breeding season, so it is necessary to feed them 4-5 kilograms of concentrated feed per day. When hatching by hand, brood males should be reared in well-fed pens during the day and fed with supplemental concentrates.

In general, the best time of winter is January-March. At that time, the heifers' fertility is stronger, they will be inseminated well, and there will be an opportunity to raise healthy and good-quality foals. In the climatic conditions of Turkmenistan, it is convenient for camels to end the breeding season by April 15.

Herdsmen, who have been keeping camels for centuries, will carry out breeding activities according to the local conditions. For example, pregnant heifers are weighed for two consecutive days, morning and evening, starting from the day they arrive at the stallion. After that, these things will be repeated on the ninth day. If the she-camel does not let the male go, then it is considered that she has left the male. If left alone, the attraction to the male will return to its original state until it is effective.

Generally, under economic conditions, heifers will calve once every two years. After a long period of drought, the milking period of the camels will also be long. Even if they are fed extra food during the winter season when they are kept in the field, the body of camels coming down after calving cannot be adequately prepared for fresh fodder. When chicks are raised under normal conditions, they need their mother's milk to survive and thrive. Weaning of cows will weaken the body and sexual arousal of the heifers to a certain extent. An important objective of rapid breeding of camels is to select healthy heifers that are weaned early and weaned early. Selected heifers will be inseminated with specially selected and trained breeding males. In production practice, when these simple measures

are implemented, two years of continuous insemination and one year of rest can be obtained from a mother heifer in three years.

The period of camels' straits. Arwana heifers have a gestation period of 370-395 days, with an average of 385 days.

During the first month of the camel's gestation period, the bed is soft, and the growing horn of the fetus is thick and large.

In the second month, the size of the uterus has increased, the growing fetus is twice as thick as the cervix and can be touched. In the third trimester, the fetus's uterus has grown significantly and cannot be grasped. The developing fetus will be suspended in the abdominal cavity in the form of a cylinder. In the fourth trimester, the uterus will be suspended in the abdominal cavity, and in the first trimester, the uterus will be completely in the abdominal cavity and settle in the pelvic bones.

A camel's throat can also be determined by the rectal method. With the rectal method, the sore throat can be diagnosed after three months. This method is considered a difficult method to test in camels. Unfed heifers in the test will have no growth on both sides of the udder.

After ovulation occurs and the egg is fertilized in the fallopian tube, the embryo will usually fall to the left side of the uterus and begin to develop. There is a gestational period of up to 45 days, and it does not stick to the bed.

Then 40 days will be counted as the fruiting period and 330 days as the budding period. By seven months, the weight of the sleeping baby will reach 6 kilograms. 20-30 days before mating, the udders of the ewes will begin to wobble. Colostrum will appear in heifers a day before calving. The gestation period will differ according to the breed and species of camels. The gestation period of Bactrians (double-breasted) is longer than that of dromedaries (single-breasted). From that account, the camel calender will be drawn up. To make it, during the calving season of the heifers, the tag on the ear or leg of each heifer, along with the label, the date of foaling and the day when the male was weaned and weaned are recorded in a special notebook. Based on that information, a calendar of calving of camels will be prepared. The breeding calendar will

show the type, breed, age, date of foaling and insemination, and the time of calving.

During the wet season, new born colts will be registered in herds where selected and Class I breeding males are sown. They wear rings with numbers on their ears. A special notebook is kept, in which the parents, live weight, body measurements, color, date of birth and sex of the kitten are recorded.

Feeding of camels and colts

Cell nutrition. Before weaning the newborn calf, wash, wipe and then wean the calf. After 3-4 hours, the child should be nursed for the second time. A newborn baby will be weak, it's called an "unborn baby" among the people, they won't be able to stand on their feet, so for the first few days, you have to hold it and help it find its mother's breast.

For the first few days, you need to monitor the canine's digestion. Colostrum is rich in protein, fat, vitamins, and in general, nutrients and nutrients for the baby, which will help the first stool (meconium) pass.

A branch to control the udder of lactating heifers, to prevent soiling and udder pain. Camels may have low milk following udder pain. Sonabaka should nurse every 4 hours during the day and at night.

Figure 2. *The colts are on the grazing*

This will result in the ignition of the wind. Colostrum dairy heifers should be milked continuously from the second month after foaling.

Colts nutrition. Before weaning the newborn calf, wash, wipe and then wean the calf. After 3-4 hours, the colt should be nursed for the second time. A newborn baby will be weak, it's called an "unborn baby" among the people, they won't be able to stand on their feet, so for the first few days, you have to hold it and help it find its mother's breast.

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The cells should be kept in a warm place, usually in camel yard or camel shed. Its bottom should be soft and dry, with wind blown straw. You should continue to keep them until the weather warms up.

On May days, the 15-20-day-old colts will be taken out with their mothers to look after the pasture not far from 3 kilometers. In the air, the corners should be kept in camel shed. At the end of the meal, the colts should put a piece of rock salt, hang a piece of alfa alfa, and the colts should eat it.

The first 6 months are the most important period in the development of them. During that time, their daily weight gain will be about 700 grams.

For the first few days, you need to monitor the canine's digestion. Colostrum is rich in protein, fat, vitamins, and in general, nutrients and nutrients for the baby, which will help the first stool (meconium) pass.

Figure 3. *Camel with colts*

It is harmful to freeze the colts for a long time, to squeeze them out of milk, and to freeze them around the neck of the camel. When not taken care of, the foot will be stunted, prone to rickets, and can lead to leg cramps and instability.

It should always be kept in mind that the colts have been fed and growing with mother's milk for 3-4 months. From the age of 5 months, the colts are well adapted to eating grass.

If the heifers are not cared for and kept in a long pastture, the heifers should stay with their mother for 16-18 months. Deprived for various reasons should be supplemented with concentrated feed.

Healthy heifers should be weaned at one year of age and then fully milked for another six months. Weaned heifers that have not been kept in the barn at 16-18 months of age. Then, the male and female vertices will be grouped together. The farm did not have many camels in such cases, the calves can be kept in the herd of mother heifers.

***Figure** 3. Camels with colts*

Nutrition of camels. The long-term development of camels in desert conditions has formed a unique characteristic of their metabolism, i.e., the ability to efficiently use the energy they get from food.

To compensate for the energy expended by heifers to maintain their own body temperature when kept in winter outdoors or in unheated bedding, the feed rate should be increased by 60 percent.

Camel feeding guidelines are intended for camels of moderate obesity. For lean heifers, feeding rates should be increased by at least 1.0 forage units.

Feeding rules for dairy heifers are 0.7-0.8 feed units per 1.0 kg of milk, and 8-10 feed units for working heifers with a live weight of 500-600 kg are used for long-day medium and heavy work. will be multiplied.

Figure 5. *Camels in the pasture*

One of the main characteristics of camels is their requirement for dietary salt. During the summer and winter feeding periods, you should put an unpredicted amount of rock salt in the trays. Daily salt intake should be less than 100 grams per adult camel.

The main food for camels is natural vegetation of desert and semi-desert plains and oases. Due to its ability to select plants and eat the most fertile parts, the camel can choose the amount of food it should take in the pastures. According to Bestuzevin, camels spend 7 to 9 hours a day grazing during the summer, which is about 50 percent less than they would normally do. At the same time, camels will not only take in the amount of fuel from the pasture that can provide them with the energy they need to sustain a healthy life, but they will also ensure that their body stores fat.

Figure 6. *Group of Arwana camels*

Keeping of camels. When camels are kept in long pens, it will be necessary to build beds from local construction materials in the watersheds. On farms and pastures, you need to build shelters and places near water wells. In the summer months, open bedding areas and shelters can be used in sheltered areas to shelter camels during long runs.

It is believed that the camel will not be afraid of the cold, its wool will protect it from the cold. This opinion may be true for the Kazakh, Mongolian, and Bactrian types of camels. On the other hand, in Turkmenistan's Arwana herding industry, camels have a low tolerance to severe winter cold and frostbite. Along with cows, camels require fully covered or semi-covered shelters to house camels during the winter months.

Camel wool protects the camel from the cold, but due to the fat content of the skin and the low fat layer under the skin, the wool is perishable and does not protect it from rain and snow. Thus, in the rain, camels left in the snow may catch cold. In such cases, the corners will be weaker. In these poor conditions, the Turkmen

herdsmen used to make camels a saddle. Men's sheepskin coats are made of felted, waterproof fabric with an open fit.

Care of heifers becomes difficult during the period of confinement. To keep camels in the conditions of Turkmenistan, four-walled, semi-closed sheds are often used.

Productivity of camels

Meat and dairy products for food, wool and leather raw materials for light industry will be taken from camels.

Meat productivity of camels. Camel meat is one of the major sources of meat production among the peoples of Central Asia, including Turkmenistan. Camel meat is a cheap and plentiful food item, especially when reared and reared year-round.

Production of camel meat and its use in food production are widespread in Turkmenistan, and it is not inferior to sheep or beef. Turkmenistan scientists V.N. Tretyakov, G. Saparov studied the meat productivity of Arowana camels - quantity, weight, yield and quality of meat.

For a long time, the production of camel meat was neglected, and it was used in private households to gain local importance. The quality of the meat of young camels is inferior to that of cattle. The specifics of camel meat production, the technology of breeding camels for meat, and the methods of preparing various types of nutritious food products have been thoroughly studied. One of the things that should be noted is that in many parts of Turkmenistan's Ahal and Balkan regions, camel meat is very important in providing meat to the local population.

It is convenient and convenient to make rayon products from the meat of large camels. Currently, the creation of decentralized private farms and farms will allow the production of cheap camel meat from an economic basis. Scientific data will show that 15-month-old dromedaries weigh 310-315 kilograms, Bactrians 390-395 kilograms, and hybrids 410-415 kilograms.

One of the main measures to increase meat productivity and quality of camels is fattening them on pasture. It is considered auspicious to keep camels in the spring months. For example, during the spring months (March to May) when blueberries are growing, high growth can be achieved overnight.

In the summer months, the amount of grass in the pasture will decrease, the quality will decrease, and the grass will begin to dry and harden. During those times, the growth of the corners will slow

down a bit. Daily growth will also decrease to about 300 grams in one-year-olds, 320 in two-year-olds, and 310 grams in three-year-olds.

In order to fatten the heifers quickly in the field, they are grouped according to their age, sex, and level of fatness. The number of camels in herds should be more than 40-50.

Camels are considered late-maturing livestock. In 1-1.5 months of good care, the dogs will begin to accumulate fat in their skin. Compared to live weight at birth, 1-year-old cubs will weigh 5.5 times, and 2-year-old cubs will weigh 9 times. This rate of growth is unmatched in other commodities. Taking care of camels on private farms, even when fodder is available, will also give good results.

As camels age, the amount of fat in the carcass increases. Fat content is reported to be 3.9 percent of precalf weight in 1.5-year-old heifers and 5.7 percent in older heifers. Data on the meat yield of Arowana camels are presented in Table 1.

The energy content of camel meat will be from 1069 to 1174.6 kcal depending on their fatness level. Camels are considered capable of storing up to 100-150 kilograms of fat in their backs. The best time to slaughter them is 2 years and 8 months. Then their live weight will reach 520 kilograms, and the net yield of the body will reach 60-63 percent. After the chicks were separated from their mother until the last 18-19 months, it was found that their weight reached 400 kilograms and 60 percent of their body weight.

Table 1

Meat yield of camels of the same age, breed and fatness

Meat yield of camels of the same	**Obesity rates**	**Meat, kg**	**Oil, kg**	**Meat and fat, kg**	**Meat yield, %**
1	2	3	4	5	6
An 18-month-old male calf	average to high average	192,5 147	25 19,5	207,5 156,5	54,6 40,6

Table 1 continued

1	2	3	4	5	6
18-month-old male Arwana camels	average to high average	220 194	72,5 48	292,5 242	56,8 48,2

According to the data, the chemical composition of camel meat is similar to that of beef. It can be seen from the following data that the chemical composition of the meat of different breeds of heifers of the same age and fatness is different. From the data presented, it appears that the meat of Arwana camels is low in water and ash content and high in protein and fat.

Table 2

Chemical composition of the meat of camels of different breeds, %

Indicators	Arowana camels	Kazakh Bactrians
Water	72,7	75,92
Fat	6,2	2,08
Protein	21,78	17,0
ash	0,74	0,94

According to data, the meat productivity of 3-year-old heifers is 53 percent of their live weight, including 71.3 percent of lean meat. The protein content of camel meat is 21.79 percent, and its energy content is 7706 KDj. Table 3 shows the meat productivity and quality of meat of 3-year-old heifers.

When camels are submitted for meat, as a rule, camels up to 2 years of age are accepted individually, without being divided into fatness levels. Their live weight should be less than 250 kilograms. Heifers between 2-4 years of age and over 4 years of age are divided according to fatness (high, medium and low fatness) and accepted by eye. The degree of obesity will be determined by the type of scar.

Camel meat yield and composition

Table 3

Indicators	1-year-old observed vertices	3-year-old observed corners
Average live weight, kg	232	367
Clean carcass weight, kg	121,1	194,6
Meat yield, %	52,2	53,0
Meat content: protein, %	20,5	21,78
fat, %	2,42	6,22
Energy intake, kkal	5754	7660

The carcass of high-fat heifers is well-muscled, lean, rounded, cone-shaped, and fat-dense, with a layer of fat above the rib cage and fat on the rump and inside.

Carcass of heifers of moderate fatness - well developed muscles, full rump, not very prominent between the rump, small amount of fat accumulated in the rump, no fat covering on the back rib, no fat inside the rib cavity.

The carcass of heifers with moderate to low fatness is characterized by insufficient musculature, forked bones, and rib fractures. The coating is low in fat, and there will be no fat in the cavities or between the meat.

The meat requirements of two-year-old canines should be well-developed or satisfactory, with moderate fat content. It means that there is no oil in the internal spaces.

Prime quality camel meat includes rump, breast and hindquarters.

The second trick includes the palate, the raw part, the brisket and the crack of the brisket.

The third trick involves the neck, chin, and love part.

The color of the meat of young camels, unused and fed camels is similar in appearance to beef, but lighter in color. All meats are lean, and camel meat is suitable for preparing any meat dish. Turkmen consider camel meat to be light and tasty, and use it often in preparing national dishes.

Determining the weight of camels. Live weight of camels is a comprehensive indicator of their size and fatness, giving them an accurate profile. Their weight can be determined by measuring the cage. But this opportunity will not always be there. In addition, camels can drink 40 liters of water and eat 20-25 kilograms of grass at once. This can lead to inaccuracies in the weight of the heifers. Therefore, the heifers should be weighed in the morning on an empty stomach, before they are watered, on closed scales. In cases where it is not possible to measure in the cage, the body measurements of one-breasted heifers will be determined longitudinally.

In order to determine the live weight of single-bred heifers, certain body measurements (chest length, chest girth) are taken. Measurements should be taken in the morning before they are fed and watered. Each measurement will be taken twice to ensure that the measurements taken are accurate. A table was developed to determine the live weight of camels based on accurate measurements conducted by scientists L.N. Chashkin and P.N. Ponomarenko. The number at the intersection of each measurement along the table will indicate the live weight of the animal.

Shearing season and wool productivity of camels. Shearing camels is one of the responsible activities. Once a year, the spring months will be spent after the weather is good.

At the time of shearing, the wool yield of 1, 2, 3-year-old heifers and male heifers will be recorded and recorded in separate notebooks.

Camels are sheared by hand (shearing) and mechanically by machine. It will be necessary to carry out preparatory work before the cut. When the camels are sheared by machine, they are sheared on the ESA-6 shearing unit, which is specially designed for shearing camels.

Wool productivity of camels depends on their breeds, breed, age, feeding, storage, and physiological condition. In terms of

strength, camel's wool is stronger than sheep's wool, and in terms of fineness, camel's wool is thinner than sheep's wool. In the textile industry, camel wool will be used for weaving mavut, begres fabrics, and for the production of knitted products. Camel wool is considered to be hygienically clean and valuable raw material.

Camel wool varies in texture and is mainly composed of wool, intermediate wool and fine hair. Clothing made from camel wool is strong, light and soft, and retains heat well. The level of heat retention of clothes woven from it will be 20 times higher than clothes made of sheep's wool.

The average wool yield of Arwana male camels is 3.8 kg, and that of female camels is 2.1 kg. The yield of silk wool is 91.2 percent, and the yield of washed wool is 78.6 percent on average. The thickness of the wool is 12-37 microns. Its wool is 4-12 centimeters long. The wool of Arowana camels is considered superior to that of Bactrian camels in terms of its technological properties (good heat retention, softness and strength). From it, from the Turkmen national clothes, a coat, a scarf, a belt for health, a fringe and a bag, a home bag, a salt bag are woven from it.

Camel wool is made up of button-shaped pieces, while sheep's wool does not have a single, uniform fleece (runo) shape. The main color of camel wool is brown, and the various shades and white wools in between are not taken into account.

Camels are divided into two groups according to their wool type and must meet the following requirements:

1. Wool of normal purity (if its contamination with dust does not exceed 3 percent of its physical weight);

2. Soiled wool (if soiled and soiled by more than 3 percent of its physical weight).

After shearing, the camel's wool is then dried, shaken, and graded. The wool of each class will be individually packed (wrapped), with the address, name, weight, class, and output written outside the farm, and sent to the wool washing factories or to the required places. The receiving company will take 10 percent of the packed wool for testing, determine the yield and accept the wool of different quality, physical weight, shape.

Evaluation of the wool productivity of camels is done by recording the sheared wool in physical weight.

Milk yield of camels. The milk yield of female heifers will be determined by performing a milking test. Arowana heifers can produce 8 liters of milk a day. A heifer will give 2000-2500 liters of milk during lactation.

The anatomical structure and physiology of camels' udders differ from other agricultural animals. The udder of two-legged camels has a large branch, between the two sides of the head, just inside the groin. This makes it difficult to milk them by hand or by machine. The Arowana dromedary has a large, black-shaped udder, well-positioned for hand and machine milking.

Milking camels. In private households, camels are kept by hand. After the milking reflex is awakened by hand feeding the teat, keep the teat in the comfort of the foal's hand or hold the teat. Arowana heifers eat well even when they call out loudly, i.e. "Horele, khorele, horele" and give full milk. A cow's milking period (lactation) will last one year, and 15-18 months for cows.

In Turkmen, a milk container (milk jug, milk jug, bucket) is hung from the neck and held with both hands. When heifers are milked by hand, they should be well fed and milk-rich, with one or both teats intact. Be careful of camels while keeping them. This is because camels kick with their forelegs.

Composition of camel milk. Camel milk is pure white in color, sweet and salty in taste, it is thick when compared to the milk of other animals, and it foams well when poured into a container. Depending on the breed of cow, the grass it eats and the season, the composition of the milk varies and does not always stay the same.

Milk density ranges from 1.026 to 1.035 and pH ranges from 6.2 to 6.5, both of which are lower than cow's milk. The freezing temperature of milk is in the range of -0.57-0.610C, and its calorific value is 665 kkal/l.

The bactericidal properties of camel milk prevent it from becoming acidic. Camel milk is higher in fat, protein, and nutrients compared to milk from other farm animals. This will increase the milk's nutritional and immune-enhancing value.

Camel milk contains several proteins and nitrogen-fixing substances, most of which consist of casein. Casein is in the form of casein calcium-phosphate in milk, and when digested with the help of enzymes and weak acids, it breaks down into small particles and forms a precipitate (for example, in camel straw). Albumins and globulins are dissolved in milk serum and have physiological importance. Immune substances stored in the colostrum of freshly weaned heifers are transferred through the milk to the newborns.

The average fat content of camel milk is 4.7 percent.

Preparation of fermented camel's milk. Preparation process of the fermented camel's milk will include 3 stages: base barm preparation, production barm preparation, and fermented camel's milk preparation.

Preparation of basic barm. Pour 2 bottles of 200 milliliters of unpasteurized camel milk. Then a culture of Bulgarian bacillus (Lactobacillus delbrueckii subsp. bulgaricus) is inoculated into one of the flasks and kept in a thermostat at 37-40°C for 18-24 hours. The 2nd flask will be planted with yeast culture and left overnight in a thermostat at a temperature of 25-30°C. After 24 hours, the contents of the flasks are mixed and 200 ml of fresh milk is added. The mixture is shaken for 5-10 minutes and placed in a thermostat at 25°C. After 18 hours, an amount of fresh milk is added, the mixture is shaken again and placed in a thermostat at a temperature of 25-27°C. In good condition, fresh milk will be added every 8 hours for 2-3 days. Whisk the mixture for 10-15 minutes each time the milk is added. When the acidity reaches 120-150°T, the alcohol content reaches 1 percent, and half of the volume of the mixture bubbles when shaken, the barm is considered ready for production.

Preparation of a manufacturing barm. 1 liter of fresh milk will be added to 1 liter of base milk. The mixture is left for 4 hours at a temperature of 20-25°C. After 4 hours, a proportion of fresh milk will be added in a ratio of 1:1 (2 liters of sour milk to 2 liters of fresh milk). The mixture is kept at the above temperature for 4 hours. After the scheduled time, the latest update will be released. In the case that the fermentation should be kept for a longer time (10-12 hours), the refreshment is carried out by double dilution, that is, 8 liters of milk are added to 4 liters of fermentation and the mixture is left for 10-12

hours. When the acidity reaches 140-150 °T, the dough is considered ready. It is important to remember that every time the mixture is prepared, the mixture with freshly added milk is mixed for 10 minutes with a special wooden or special tool - a vibrator.

Preparation of fermented camel's milk. 2 liters of freshly preserved or dried camel milk will be added to the barm with an acidity of 140-150° Terner. The mixture is mixed for 40-50 minutes in wooden buckets or, in the case of mixing with a mixer, in pots with a gin throat. In doing so, oxygenation, release of excess carbon dioxide, and absorption of casein are achieved. This, in turn, will lead to better peptonization, the formation of small dispersed easily digested proteins, improved taste and healing properties. The acidity of the milk added after mixing should exceed 50-600 Terner. Then the fermented milk is poured into bottles, sealed with a special device and left for 1 hour at room temperature for better aeration. It is then placed on ice or in a cool room at 4-6°C. It will be ready to appear fermented camel's milk after 12 hours. If it stays in the cold for 12-15 hours, weak, if it stays for 20-25 hours, medium, if it stays for more than 30 hours, it should be considered that a strong gray has been obtained. The cooking time will be faster at higher room temperatures and slower at lower temperatures. A lighte fermented camel's milk will hold less gas, have a lower acidity, be sweeter and sweeter. It will not form bubbles. It will collapse into a hole in the walls of the window. Weak green acidity will be - 90-100°T. A medium-strength fermented camel's milk will retain a large amount of carbon dioxide, forming a layer of foam that does not settle for a long time when shaken. When the bottle is opened, the fountain will come out. When standing upright, it will have the same composition from top to bottom. It will form a soft sediment on the walls of the tank. Aci fermented camel's milk dity ranges from 101 to 1100 Terners. When standing in a strong mold, it is divided into 3 layers: at the top - small particles of casein and fat, in the middle - solid liquid, at the bottom - large precipitated particles of casein. A light shake will mix the mixture into three layers. When the window is opened, the plant will be shriveled, fermented camel's milk and scattered around. A large amount of foam in it will then disappear. The mold may crack at room temperature. Fermented camel's milk

will taste sour and pungent. Small cracks will form in the walls of the window. The pH will be 111-130° Turner.

For culinary purposes, it is a medium-strength fermented camel's milk with a more pleasant aroma and taste. Therefore, in order to get the right fermented camel's milk , it is necessary to have a certain level of experience, knowledge, production skills, and the compact organization of the production process will be required.

Camel milk products. Camel milk can be processed into any kind of milk-curd, ghee, cheese, dried milk etc. it can produce only food products. In Turkmenistan, camel milk will be used to produce fermented camel's milk , creamy froth and small amounts of milk.

Fermented camel's milk and creamy froth are dietary foods, which have been known since ancient times among the peoples of the East, including the Turkmen. In Turkmenistan, scientists have completed a lot of work on the medicinal properties of fermented camel's milk , the technology of its preparation, methods of storage and use. Among them, scientists G. Khojagulyeva, I. Dvornikova, A. Akhundov, K. Charyeva, G. Hallyeva, G. Chagylov and others can be mentioned. According to the studies of G. Khojagulyev, fermented camel's milk will increase the production of gastric juice.

Figure 7. *Camel milk products*

The richness of protein and mineral substances of camel milk will allow the preparation of several types of products. They can be used to make ghee, mesquite oil, cheese, kefir, cottage cheese. A

filter can also be made from camel straw. It was found that when **gray** is prepared from camel milk, the content of vitamins B1 and B2 is doubled compared to the content of pure milk.

It is a nutritious and nutritious food that is rich and healthy. It also has medicinal value in the treatment of tuberculosis.

People who drink fermented camel's milk regularly will feel good, have a good mood, and be open at work. Alcohol and carbonic acid in fermented camel's milk will speed up the digestion of food in the intestine and stomach, and will have a positive effect on the human nervous system.

Breeding activities in camel breeding

The colts will be separated from their mother at 18 months of age. In order to be put into development, you must pass the 1st level young breeding male selection process.

In pastoralism, as in other sectors of animal husbandry, it is necessary to constantly improve their visible economic characteristics using modern selection and breeding methods.

When the Turkmens bred Arwana camels, they perfected them for hundreds of years, paying special attention to their milk yield, meat and wool productivity, productivity, winter-summer storage and breeding endurance.

The main direction of selection and selection in cattle breeding will be determined by the high milk yield, fatness, firmness of the body structure and the locality of the breed-specific appearance and adaptation to local conditions.

The main problem is to identify camels belonging to high-productivity lines and families and to use them in the breeding process, to fill the camel herds with camels that transmit their high-productivity well to their offspring. Herds of breeding heifers in breeding farms will be divided into the following herd groups according to the value of breeding classes.

1. Selection Class Heifers - The breeding source is brown, and this herd will consist of Selection and Class I heifers based on breeding characteristics and productivity. Females of the seed source flock should be hand-incubated by individual mating to selected

males. The breeding stock obtained from that herd will be assigned to get breeding males and females in the farm, firstly, to replace the herd of that breeding farm with high-class heifers, and to breed them. It is convenient to sell surplus males to commercial farms as breeding males.

2. The second herd group consists of heifers of I, II class. The squares obtained from them are the number of heads of the herd, separately, of those who descend will be used to increase the number and the rest will be sold to other households.

3. Heifers that do not meet the requirements, heifers of low grade, and heifers that are old and removed from the breeding line are included in the selection of the breeding heifer group. If they are reared and fattened, and set aside for meat production, they will be economically viable.

One of the mandatory conditions in breeding herds is to record the pedigree of heifers, control the growth of the heifers, take measurements and determine the weight of the body, and record the milk and wool productivity.

In order to transfer to the main breeding selection (breeding source) group, selected male heifers for specific areas and male heifers intended for sale should be cared for in improved conditions as soon as they are weaned from their mother. Corners selected for that group should be selected at 18 months of age and selected again at 2.5 years of age.

Selection will help to evaluate heifers for breeding quality, economic quality and appearance and to breed selection grade heifers. Heifers that do not meet the requirement must be removed from the breeding line and transferred to a herd.

The modern use of camels for work is predicated on the use of camels for sheep. Therefore, the main selection and breeding activities of Arwana camels in Turkmenistan are aimed at increasing the production of meat, milk, wool, durability and fattening ability of camels when reared in the field.

When choosing camels, attention should be paid to their health, the structure of the body specific to the breed, their body structure, correcting their deficiencies, and their ability to adapt to the conditions of the local climate and pastures.

Mating of breeding males to off spring. Selection of breeding males in breeding farms. should be paired with Selection and inbreeding are interrelated and complementary selections that will help improve breeding efficiency and improve the quality of the heifers.

***Figure 8**. A male tribal camel of arwana breed*

When bred with high-class heifers, males that are similar in appearance, class, and performance will be mated. This in turn will help to consolidate the heifers' outstanding genetic traits through interbreeding. Breeding the good with the good will improve the stock in the herd. Mating in this way will help produce heifers that reproduce the desired appearance and traits in a stable condition.

Crossbreeding with similar traits, for example, increasing maternal milk production in the offspring, taking into account the strength of the trait and body structure of the sire, and mating superiority, will produce offspring with intermediate traits of the maternal and paternal sides. Such pairings can be done by pairing Jebel and Yerbent, i.e., western females with Sakarçage type males. As a result, there will be a chance to get the strong body from the

mother, the milk production from the father, and the body size in this generation of heifers.

In camel breeding, breeding class is taken into account, for example, selection and breeding of class I mares by mating a class I male to a selected herd of 10-15 mares with class II mares.

Age differences should also be considered when mating camels. First-time breeding males are advised to mate with mature older females, and young males with middle-aged males. As a result of carrying out cross-breeding activities with the Batly, Gokkaplan, and Gawers heifers, high-productivity groups of heifers were created in the Sakarcage camel breeding industry.

If the growth and productivity of young heifers are higher than their parents, and if their quality and body structure are improved from generation to generation, it can be considered that the selection breeding work is done correctly.

Breeding, **in pure breed.** Inbred camel breeding is the main method of inbreeding, and its aim is to create a progeny source of high-yielding camels, which involves the selection of males, the purposeful mating of scientific foals, and the breeding of breeding stock. Both double-breasted and single-breasted heifers have their own values depending on their distribution area. The breeds of active camels from Arab countries, the Turkmen Arwana camel, the Kalmyk, Kazakh and Mongolian breeds of two-legged Bactrian camels are adapted to local conditions and produce certain products, and their breeds will be bred and perfected. In purebred breeding, cross-breeding, inbreeding and cross-breeding, and inbreeding in parentage will be used.

Figure 9. *A female camel belongs to the Arwana breed*

At present, among the Arwana breed, camels belonging to the Batlin line are very popular. That route was created at the "Sakarçage" livestock farm in Mary province, and many males returned from it will be sold as breeding heifers to the main camel breeding farms of Turkmenistan and will be used to improve the quality of the heifers there. Batlin's breed is characterized by eastern Sacarçage type heifers, which are distinguished from other breeds by their large and long legs, good temperament, and milkiness of their udders. Those heifers are well adapted to pasture, semi-civilized conditions, domestication and production.

In Camel breeding, inbreeding and inbreeding methods will be used when crossbreeding is carried out. When inbreeding, it is necessary to avoid breeding in close relatives according to Shaporuz's formula at I-II, II-II, II-III levels, as the viability of the offspring may decrease. Breeding can be done with well-known high-yielding heifers in the middle III-IV, IV-IV relationships and V-V and higher cross-breedings with well-known high-yielding heifers of religious origin and strong pedigree.

To increase the viability of the offspring, mating inbreeding females with inbred males, inbreeding on one side of the maternal side, or inbreeding males with outbreeding inbred females gives good results. Breeding camels in purebred breeds will be used to breed single-breasted Arabian and Arwana breeds, and double-breasted Kalmyk breeds.

A method of inoculating camels with breeds. This method is very popular in propagating Bactrian dicotyledonous species. Kalmyk Bactrians will be crossed in order to improve the quality of Kazakh and Mongolian camels. Cross-breeding of Kazakh Bactrians with Mongolian camels will help to obtain camels that are resistant to year-round grazing in Kazakhstan.

Figure 10. *Bactrian camel with two humps*

Crossbreeding-hybridization will be widely used in Kazakhstan to breed two-legged Bactrian camels for industrial meat and milk production, and to obtain working camels. It is not recommended to experiment with interbreeding in arwana herding in Turkmenistan. Pure breeding of Arowana camels will help to improve their high productivity and gentleness.

In Kazakhstan, with industrial cross-breeding, hybrid heifers will be alternately crossed to the parent breeds by taking heifers and mares to maintain the phenomenon of heterosis

To teach a breeding report. When calves are born in Arwana breeding farms, they are given a name, date of birth, color, parents are registered, and an official record report is issued. There are many camels in commodity farms

Figure 11. *A female camel belonging to the Arwana breed*

It would be difficult to give a name to each of them and teach the account when they are stored and reproduced in grids. Camels do

not differ from each other in terms of color and markings. In these households, age is recorded by putting a numbered earring in the ear of the elderly, and they are given a name.

In breeding heifers, the official breeding records and certificates of each heifer are prepared, and the heifers' date of birth, sex, color, parentage, breeding class and other related information are fully recorded in the records.

Apart from these, the economic breeding book of breeding heifers will be prepared, and the state breeding books will be published based on it. At present, the state pedigree book of Bactrians of religious origin has been published.

Testing camels and colts. Older heifers and older heifers are marked with a hot and cold label on the side of their head. In Turkmenistan, camels belonging to private farms and livestock farms will be tagged. In animal husbandry, especially in herdsmanship and herdsmanship, tagging or marking of animals is a tradition in ancient times. Each of the Oguz tribes has its own special brand, and they brand their goods with them.

Newborn puppies will be weaned at 6-7 months. The tag will show the year of birth, number and household number of the children. The tag is printed on the side in large numbers and letters 10-12 centimeters below the bottom of the side. The height of the tag is 6-10 centimeters, and the width or depth of the numbers is 3 millimeters. Tasting is best done in spring or autumn, preferably at 1.5 years of age. The tattoo will have the year of birth on the left side and a special serial number on the right side. Males and females can then be assigned the same numbers. A pair of earrings can be worn in the ears of young corners. During the weaning period, they will be extra tagged.

Selection of breed heifers. Breeding heifers will be done in order to determine the breeding value of the heifers and encourage them to breed, use in business or sell to commodity heifer farms.The working group for selection of breeding heifers in cattle farming will be created with the participation of experts working in this field, head of the farm, selection experts and scientists, and will be approved by the head of the farm.

Before starting the selection of camels, the producer must carry out preparatory work:

- check the veterinary-sanitary condition of the herds by determining the time of selection;

- The names, tags, official records, milk yield, sheared wool report of the heifers should be obtained and the results obtained from them should be written in the official records under the name of the mother and father;

- It is recommended to carry out the selection of heifers in the autumn months, when they are at a high fatness. When the weather starts to cool in the fall, the heifers will be well dried and in factory condition;

- Hybrid heifers - hybrid heifers with a level of hybridization up to the 6th generation are not considered breeding heifers and are subject to selection.

Here we consider it appropriate to discuss the choice of the Turkmen arwana breed of dromedaries.

Colts are selected for the first time at 1.5-2.5 years of age according to their origin (pedigree), body structure (constitution) and appearance (exterior), body measurements and adaptation to local conditions. This will allow selecting young breeding heifers, determining their breeding value and class, and selling them to other households.

At the age of seven and over, heifers will be selected a second time for their fertility and progeny quality, and the heifers will be selected a second time for their milk yield and other genetic traits.

The said selection will be done on a 100-point system in accordance with the Heifer Selection Rules for judging genetic traits. Arowana heifers will be judged on their pedigree, and purebred appearance.

Assessing the quality of offspring. The evaluation of the quality and progeny of the progeny of heifers and heifers, and the quality and progeny of all offspring obtained from them shall be carried out by evaluating at least two stages of progeny for males and at least two progeny for females. If they have 2.5 year olds, they will be graded according to their class.

1. For male camels:
   - 17-20 points for selection class;
   - 13-16 points for 1st class;
   - 8-12 points for 2 nd class;

2. For female camels:
   - 13-16 points for selection class;
   - 6-7 points for 1st class;
   - 4-5 points for 2 nd class.

As a result of the selection, the heifers will be evaluated in terms of genetic traits, and the scores will be divided into three classes. Choosing a class is a good part of choosing a chosen breed; Class 1 is the majority of breeding heifers and Class 2 is the remaining breeding heifers that do not satisfy the requirements for the above classes in one or two traits. Determining whether it belongs to this or that class is based on the sum of the minimum points given to the main genetic traits.

After the farm's breeding heifers are selected, the results will be discussed and a report will be written that will be evaluated by analyzing the main herd, age and sex groups. As a result of selection, the breeding heifers will be divided into the following four groups:

1. High class breeding heifers - males and females of the main category;

2. Production group - breeding heifers of different ages, heifers, heifers intended for sale;

3. Breed pods;

4. Old heifers weaned from production.

The results of the selection will be used for the preparation of plans for the selection and breeding activities, for pairing heifers and assigning them to the state breeding book, and for dividing the heifers into herds according to the breeding class. The main information obtained as a result of the selection, the indicators of the breeding characteristics will be recorded in the breeding books and official records of the heifers.

The camel selection team will make a written report on the work done and submit it to the appropriate place.

Economics and organization of camel farming

Cattle farming is one of the productive sectors in the production of meat, milk and wool. The cost per unit of production is much lower than the cost of products derived from other commodities. The main costs are to irrigate the pastures, the labor of the herdsmen, and the construction of simple huts to keep the camels. The cost per heifer in the industry is easily 2-2.5 times less than the profit received from them. This in itself will indicate the profitability of the industry.

Entrepreneurship is a labor-intensive industry. The basic unit of production is the herdsman group or karendeis. They will be provided with equipment and vehicles. The group of shepherds consists of 2-3 camel herders, and 120-150 camels of different ages will be attached to them (40-60 big camels, 60-70 young camels per shepherd). The team of shepherds will take care of the camels, maintain the herd population, carry out zootechnical and veterinary measures.

Payment of wages to workers and herdsmen in pastoralism is carried out on the basis of the income from the obtained products in the method of economic accounting. At present, in the karende method implemented in the production of cattle breeding in Turkmenistan, karende farmers are given the right to sell their share of karende taken from heifers at a price that is reasonable for them. This will greatly help the development of the industry. The employment method in accounting will give its results.

Keeping camels year-round on natural grass will help keep costs down. Additional costs in pastoralism mainly consist of irrigating pastures, drawing water from wells, and preparing a concentrated fodder from tall grasses for the winter months. The main costs in the cost structure of camel products are labor and marginal costs of production. Paying for labor at the cost of production will account

for 40-70 percent of the costs of pastoral households, and additional costs 10-20 percent.

The main income in pastoral farms is obtained by selling meat and dairy products, fermented camel's milk, creamy froth, full, wool, leather. It is more profitable to sell seed heifers at higher prices in breeding farms.

As in other sectors of animal husbandry, increasing the output of commercial products, increasing the number of camels to a sufficient number and decentralizing the economy by sector will be the main problem in cattle breeding. Farms keeping 1,000-3,000 camels will reduce costs per unit of production, produce sufficient and cheap commodity camel meat, wool and milk, sell camel milk for the industrial processing of dairy products, and get a lot of profit in one year. Calculations will show that when the number of camels is 1100, it will be possible to produce 90-140 tons of meat, 2.5-4.0 tons of camel wool, 10 tons of milk and place them in their places of use.

Currently, the transition to the method of confinement in camel breeding will create great interest in improving the economy of the industry, increasing production, and maintaining the number of camels.

In order to produce high-quality and high-quality products from camels, along with organizational activities, the introduction of new technologies in the industry is of great importance. Among them is the favorable structure of herds

Setting the season before feeding camels for meat will help produce cheap camel meat. Mother heifers occupying 30-35 percent of the herd, breeding heifers sold for meat and sold at the expense of breeding heifers will increase the value of the additional product. It is economical to introduce camels to meat at 2.5-3.5 years of age. They will gain 80-90 percent of the weight of large heifers during this period.

Both of these components are considered suitable for livestock farms that produce meat and wool. Under the conditions of Turkmenistan, the division of heifers of different groups and ages into groups and their composition in the following percentage ratio will be considered student.

When the average number of heifers in pastoral farms is 250 heads, it is recommended to have the following percentage ratio of herd structure according to sex and age differences:

1. The main reason for this is men	5 heads -2%
2. Cash flows from the principal account	100 heads -40%
3. Growth camels and business men	35 heads-14%
4. Young camels	30 heads -12%
5. Kisses	35 heads-14%
6. Cells	45 heads -18%

The annual movement of the number of camels is projected at the beginning of the year. In preparing the annual movement, the head number of heifers by age and sex, the estimated weight per 100 female heifers, the heifers intended for slaughter for meat and the heifers intended to be sold in the breeding heifer account, income and expenses shall be prorated. The schedule of the annual movement of camels on the farm, the amount of products to be obtained from them - meat, milk, wool products, the number of camels to be sold live. Once the annual production volume is determined, the final product revenue can be calculated. How many camel herders, fodder and pastures will be needed to support the camels will be calculated and planned.

Table 4

Composition of the camel herd by age and gender (at the beginning of the year, in %)

Age and gender groups in the herd	Percentage of age and sex groups in the herd submitted to meat	
Male	2,5	3,5
Female	50,0	44,0
Young camels		
1 will live	19,5	17,0
1-2 years old	19,5	17,0
2-3 years old	4,3	16,1

3-4 years old	4,2	3,6
Total	100	100

Commercial camel's milk production areas conveniently located in cities and densely populated areas, when the percentage of cows in herds is 50 percent, expansion of production will allow production of sufficient amount of commercial milk product. One of the measures to increase the productivity of camels for meat, milk and wool is to provide them with additional fodder, to improve their storage and management. For feeding during the winter snow freeze period, when the cattle are prepared, on average, 3-5 centners of grass and 0.3-0.5 centners of concentrated fodder will be needed per year.

From the camels bred in the herd farms, the herds of camels should be created according to the age and sex differences from the males. The number of camels in herds is as follows:

- 40-50 camels in a herd;
- 6-10 male herds;
- A herd of doves and skunks, 35-55 heads;
- 40-60 head of camels of different ages and working camels are kept on the farm.

The mutual settlements of the employees of the tenant pastoral groups will be done through settlement books. When making a contract with farmers, it is stipulated to buy 45 wool from 100 mother heifers, 2.4 kilograms of wool from big camels, and 1.8 kilograms of wool from young camels. This will help the farmers to work profitably by giving them financial incentives based on the results of their work. When they enter into a mutual agreement with livestock farms, the share of the livestock farm is 70 percent of the increased number of animals, and the farmer's share is 30 percent of the growth product.

Also, the milk and wool of the camels belong entirely to the share of the farmers. Herdsmen tending older camels in other groups will be paid one camel for every ten camels.

Issues that arise between the tenant and the household will be resolved by mutual agreement of the tenant and the household or in accordance with applicable law.

Diseases encountered in camels and their countermeasures

Skin disease of camels. The most common skin disease of camels is sarcoptic mange. The disease is caused by the tiny (0.2-0.5mm long) Sarcoptes scabiei cameli mites. They settle in the epidermal layer of the skin, go through a period of growth and damage the skin.

Sarcoptic mange is most prevalent in camels during the fall and winter months. With the arrival of spring, diseased animals will decrease, and in summer they will be rare. This disease mainly affects young animals (up to two years old).

Symptoms of the disease. The disease is acute and chronic. The incubation period will last 10-12 days. The first symptoms of the disease will appear on the upper parts of the sheep's skin (in the groin, in the knee joints and on the belly). Then it will quickly spread to the affected area and cause severe itching. In the affected areas of the skin, large amounts of crusts will form and the skin will become scaly and the wool will fall off. In cases where the skin is damaged, a oozing sore will form. A sick camel will become very weak, and if not treated in time, the disease will worsen and die.

Prevention and treatment. For prevention and treatment of sarcoptic mange, veterinary medicine will use different types of insecticides (liquid, dry, aerosol, ointment, injection). The method of treatment and the type of drugs will be selected depending on the type of animal and the time of year. When treating animals, general precautions should be taken in accordance with veterinary regulations. For prevention, during the wave of the disease, it is necessary to regularly treat with insectacaricidal drugs every 8-10 days, and always follow hygiene practices.

The scientists of the Animal Husbandry and Veterinary Science-Production Center of the Turkmen Agricultural University named after S.A. Niyazov developed and put into production several

medicines from local raw materials for the prevention and treatment of cattle skin diseases. Among them, the use of "Fresh castor oil", "Sulfurized castor oil-W", "Sulfurized castor oil-SO" and "Black castor oil" is more effective and safe.

Blood-parasitic diseases of camels. Blood-parasitic diseases of camels belong to a group of organisms that cause seasonal (transmissible) diseases in erythrocytes and lymph cells. They cause babesiosis and teileriosis, which cause great economic damage to livestock, including cattle breeding. The main carriers of these diseases to camels are blood-sucking ticks and ticks.

Symptoms of the disease. The first symptoms of the disease will begin to appear 2-3 weeks after infection. This period is called the incubation period of the disease or the latent period of the disease. The temperature of the animal's body will increase (up to 400C). At that time, livestock production will be interrupted and cattle breeding will be disrupted. As the disease progresses, the calf will become emaciated, and the lymph nodes in the neck will become swollen and enlarged. Malin will all dry up and start shedding. The disease may be of a moderate or chronic nature. In the case of prolonged disease, the cattle will be suffocated, the functioning of the heart, blood vessels, and respiratory organs will be disturbed. As a result of livestock disturbance, their productivity will decrease. If veterinary measures are not taken to prevent the disease, the animals will deteriorate and die.

Prevention and Remedies. Camels should be protected from blood-sucking mosquitoes and grasshoppers. For this purpose, livestock should be grazed in swamps and reeds where maggots breed, or livestock should be washed with a water mixture of insectocaricidal drugs against maggots and wasps. Similarly, camels should undergo chemical vaccination. A 10 percent aqueous solution of Naganin should be injected into the vein of the animal at a rate of 0.03 grams/kilogram. Disease prevention (flushing and chemical prophylaxis) should continue from April 10-15 to the end of October.

If the disease is exposed to camels in the herd, mala naganine 10 percent water solution 0.03g/kg or 7 strength water solution of azide 0.0035g/kg should be injected. Nagani should be injected into the

animal's vein, and azide should be injected into the meat (muscle) of the animal.

Scientists of the Animal Husbandry and Veterinary Research and Production Center of the Turkmen Agricultural University named after S.A. Niyazov have developed and put into production several drugs for the prevention and treatment of hematoparasitic diseases of cattle. Among them, the drug "Teilerecid-D" is intended for camels. This drug's long-lasting (prolonged) properties and availability will distinguish it from its imported counterparts.

Trypanosomiasis of camels. It is a seasonal disease caused by microscopic organisms (trypanosomes) in the blood fluid, lymph cells, internal organs and nervous system of camels. Trypanosoma evansi is considered the causative agent of waterborne disease in camels. Carriers of diseased camels are blood-sucking pests (pigeons, flies). The disease is characterized by fever, general swelling, enlarged lymph nodes and emaciation.

Symptoms of the disease. Being in the blood vessels of animals, the trypanosome will release toxic substances (trypanotoxin) from its body, which will damage the walls of the blood vessels of animals. Watersucking (trypanosomiasis) is a blood-sucking cockroach belonging to two families of avian species that spread the disease in large numbers. Trypanosomes can survive for 44 hours in the body of infected mosquitoes. Then they will lose their poisonous ability and disappear.

Prevention and Remedies. Blood-sucking bluebirds will be in flight from mid-April to early November, depending on our country's weather conditions. The 5 months from the beginning of May to the end of September are the periods when they attack cattle more frequently. This interval will be considered as the period of water disease in camels. For this reason, in the period from the beginning of May to the end of September, in order to achieve the health and increase the productivity of the heifers, it is necessary to take preventive measures against bloodsucking blues. That is, by spending 2.5-3 liters of 0.06% aqueous solution of "Diazinon-60" drug, 0.05% solution of "Sebasil-50" drug and 0.03% solution of "Protenid-30" drug 10- Wash once every 15 days.

Cephalopinosis of camels. This disease will also cause great damage to the development of cattle breeding and the increase of the products obtained from them. The causative agents are nasopharyngeal cysts, and this disease is considered a chronic disease.

Symptoms of the disease. Larvae of insect larvae have I stage of development in the frontal and lateral cavities of camels' skulls, and II-III stage of development in nasal and throat cavities. The peak period of this disease in Turkmenistan is considered to be March-April in the spring, and August-September in the fall. When the camels get sick from this disease, the larvae (larvae) in the nasopharynx cavities are considered to be in the II--III stage of development. During this period, they will form a bloody pus-like, sticky, sticky substance in the nose and throat, and it will become difficult for the camels to breathe. The camel will be exhausted, its work will be interrupted and it will run away from the heat. If precautions are not taken, the entire cavity of the skull will become filled with bloody pus. This will lead to the death of the animal.

Prevention and Remedies. For treatment, heifers suffering from cephalopinosis should be given a 0.03 percent aqueous solution of chlorophosin as liberally as possible. If the camel is in a serious condition and cannot drink, then 3-4 liters of solution should be artificially poured into the mouth cavity. Similarly, 10-12 milliliters of 10 percent caffeine should be injected under the skin layer, and 2.5-3 million units of Bicillin should be injected into the tissue.

In order to protect the camels from water sickness (trypanosomosis) and nose-throat, tick (cephalopinosis) diseases, they should undergo regular control measures against fleas and ticks every year.

Chronic diseases of camels.

Mastitis. This disease occurs in all livestock, especially camels. The disease can be caused by violation of zoo-veterinary rules in the household, dirty beds, giving large amounts of silage to the poor animals, as well as not separating the milking cups in time when they are stored by machine.

Symptoms of the disease. Affected animals will have swelling, high fever, pain in the hands, loss of appetite, milk production, milk discoloration, and pus. If not treated in time, it will lead to further swelling of the udder, deterioration of the general condition of the animal, and its death.

Prevention and Remedies. A sick animal should be fed and watered regularly, given high-quality food, gently massaged, milked every 2-3 hours, and kept warm. Antibiotics, sulfonamides, and masticides should be used on the advice of a veterinarian. Camphor, turpentine and vegetable oils should be applied to the deer.

Dyspepsia. It is very important to soak the fresh corners for the first time. Because oat milk contains a lot of useful substances, vitamins, and microelements necessary for the body, and it also contains immunoglobulin protein that protects against infectious diseases.

Diarrhea disease will occur in cases of violation of rules of keeping, feeding, and hygiene of newborn calves. For example, if the hygiene rules are violated when the newborn calves are weaned for the first time, or if the mother's milk is reduced for some reason and the calf does not reach the calf, stomach disorders (dysbacteriosis) will occur and the harmony of the digestive microflora will be disturbed.

Symptoms of the disease. As young cattle pass through, they become emaciated, emaciated, bloated, have dirt around their tails, and stunted growth. If veterinary care is not provided in time, the cat's body will become dehydrated, leading to general poisoning and death.

Prevention and Remedies. One of the most important measures is to give the first colostrum to the kittens when they are born. They must keep their mother's wind clean. If the udder is dirty, the wet oak period will clog its digestive tract and lead to stomach upset. The decoction of the roots of the plants grown in our country during the period of illness should be drunk in water at a ratio of 1:20 and 1:30 twice a day, 20-30 milliliters per head for 5 days. Before the treatment, it will be effective if certain drugs are used to regulate the microflora of the stomach, then antibiotics and

sulfanilamide drugs are used. Also, in order to increase the immunity of dogs, it will be more convenient to use the tissue preparation developed by the scientists of the Animal Husbandry and Veterinary Science-Production Center of the Turkmen Agricultural University named after S.A. Niyazov.

Bronchopneumonia can also cause serious damage to livestock. This disease occurs when the conditions of housing and feeding of the birds are disturbed

Symptoms. With the onset of the disease, young animals will have difficulty breathing, become inactive, withdraw from feed, sneeze and cough. If not treated in time, the disease will drag on and eventually lead to death.

Prevention and Remedies. The best way to prevent and treat the disease is to use antibiotics, vitamins, turpentine, iodine, including a tissue preparation developed by scientists of the Livestock and Veterinary Research and Production Center of the Turkmen Agricultural University named after S.A. Niyazov.

Infection diseases of camels.

Brucellosis is a rare joint disease in camels. This disease is a chronic, dangerous disease that causes severe damage to fertility, and humans are also affected by it. Brucella (Brucella melitensis and Brucella abortus) causes this disease in camels. The source of the disease is considered to be diseased animals.

Symptoms of the disease. The main symptoms of brucellosis are inbreeding, birth of unviable chicks, barrenness of cattle, premature birth of breeding stock, etc. The occurrence of these situations will cause problems in pastoralism and will cause great economic damage to households.

Prevention and Remedies. Disease prevention consists mainly of immunization with vaccines (vaccines) and diagnosis with diagnostic agents (antigens). In the conditions of our country, brucellosis of camels was thoroughly studied by the scientists of the Animal Husbandry and Veterinary Research and Production Center of the Turkmen Agricultural University named after S.A. Niyazov, and as a result of several years of experiments, a vaccine (vaccine)

prepared from the REV-1 strain against brucellosis of camels was developed. set up. Diagnostic bioassays (color and integral antigens) have also been developed and put into production. Currently, these bioassays will be used against brucellosis of camels in cattle farms of our country.

Plague (Pestis camelorum). It is a dangerous disease of camels characterized by bleeding in the internal organs (mainly in the spleen and lymphatic glands) (hemorrhage). The bacterium that causes syphilis in camels (Versina pestis) is also considered to cause disease in humans. The disease is mild, moderate, and chronic. They can be differentiated into septic, cat and bubonic types according to their symptoms. Camels are transmitted by blood-sucking lice and grasshoppers on rodents (mice, rats).

Symptoms of the disease. Disorientation, restlessness, increased heart rate, arrhythmia, rapid breathing during sleep, cough, drooling, laryngitis. In the acute form of the disease, the animal will die within 2-8 days. In the chronic form of the disease, the camel will recover. In the blood of infected camels, specific antibodies will be formed that create stability (immunity).

Prevention and Remedies. Eradication of rodents in the farm consists mainly of carrying out deratization and disinsection and, in case of disease, to carry out general veterinary-sanitary measures to prevent its spread. In households where the disease is at risk, healthy animals will be vaccinated with special vaccines according to the permission of the veterinary service. After 6 months, a new vaccination (revaccination) will be given.

In places where rodents are found to be infected with rodents, the camels will be considered free of rodents and quarantine measures will be taken. All camels will be registered and kept under veterinary supervision at all times. No treatment. Sick and suspected diseased heifers will be immediately removed from the herd, and they will be completely burned and destroyed. Bringing and taking out camels, using their products (wool, milk), skinning camels is prohibited.

Mumps (Variola). It is a serious viral disease of cattle and humans, characterized by fever in camels, appearance of papular-

pustulose lesions on the skin and wet udders, diarrhea in mother camels, and death of calves. This disease mainly affects 2-4 year old heifers.

Symptoms of the disease. Fever (+41°C), malaise, formation of papulose-pustular rashes on wet areas (mouth, eyes) and hairless parts of the body (udder). In cases of blindness, complete covering of the eye and cold of the eye (keratitis, conjunctivitis) may also occur. Pregnancy in heifers is mild, moderate, and chronic. The acute form is more severe and can lead to the death of camels. In the case of pregnant heifers, maternal disease may be asymptomatic. Infected heifers develop strong resistance (immunity) to the mother.

Prevention and Remedies. Implementation of veterinary-sanitary measures mainly consists of immunization (vaccination) with specific vaccines. Currently, in world practice, both live and non-live forms of measles vaccines are widely used.

Sick and dead heifers will be burned and destroyed. Their storage areas will be disinfected with chemical disinfectants (2 percent formalin) and general quarantine measures will be taken to prevent the spread of the disease.

CONTENTS

Introduction..... 4

1. Arwana camels breed in Turkmenistan.....5

2. Breeding of camels……..…….……..6

3. Feeding of camels and colts…….…….....11

4. Productivity of camels…….……..18

5. Breeding activities in cattle breeding.....28

6. Economics and organization of camel farming.....38

7. Diseases of camels and their control measures …..…..……...42

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TURKMEN AGRICULTURAL UNIVERSITY NAMED AFTER S.A.NYYAZOV

LIVESTOCK AND VETERINARY SCIENCE-PRODUCTION CENTER

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