MANUAL FOR BREEDING OF LIVESTOCK

MINISTRY OF AGRICULTURE AND ENVIRONMENTAL PROTECTION OF TURKMENISTAN

TURKMEN AGRICULTURAL UNIVERSITY NAMED AFTER S.A.NYYAZOV

LIVESTOCK AND VETERINARY SCIENCE-PRODUCTION CENTER

MANUAL FOR BREEDING OF LIVESTOCK

The manual was approved and submitted for the publication by the Scientific-technical council of the Ministry of Agriculture and Environmental protection of Turkmenistan on October 16, 2020 (№ 7)

ASHGABAT 2021

A manual for breeding of livestock. - A.: Ylym, 2021.-33 p.

Made up: Ch.Hanazarov, Candidate of Agricultural Sciences., Sopyyev B., Candidate of Veterinary Sciences., Orazberdiyev Y.

Editor: Myradow D., Doctor of Agricultural Sciences.

In the manual, the breeds of cattle bred in the country, the scientific basis of conducting cattle breeding, features of breeding business in the sector, cattle care, keeping of bulls and weaned cows, preparation and storage of fodder, diseases and control measures in cattle are given.

Reviewers:

H.Hanchayev-the Head of the department of Biology of the Academy of Science of Turkmenistan, Candidate of Agricultural Sciences.;

Y.Nursahatov- the Head of “Protection of animals health” department of the State Veterinary Service of the Ministry of Agriculture and Environmental protection of Turkmenistan, Candidate of Veterinary Sciences

TDKP № ..... 2021 KBK № .....

INTRODUCTION

During the Prosperous Epoch of powerful State, the agricultural sector of the country, including the livestock sector, is being developed vigorously with the tireless efforts of the Honorable President. The latest achievements of science and technology, new technologies, pioneering practices are widely implemented in the industry.

In order to satisfy the needs of the population of our country for livestock products in the "Program of socio-economic development of the country of the President of Turkmenistan in 2019-2025" increase the number of animals, carry out their breeding and breeding activities on a scientific basis, and increase their productivity and specific tasks have been set to carry out the relevant work to strengthen the fodder base.

Based on these tasks, multi-faceted work on the development of the livestock industry is being carried out in the country. Currently, with the tireless efforts of the Honorable President, large, specialized, equipped with modern technologies, livestock complexes that meet world standards have been built and put into operation in the country, and their number is increasing. In these sets, high-yielding breeds are brought from foreign countries.

The scientific and practical importance of establishing the work of the industry on a scientific basis in the development of cattle breeding in the country, developing animal breeding, using effective methods of selection, creating, maintaining, and feeding students with high-yielding new groups of agricultural animals is very important.

Breeds of cattle grown in Turkmenistan

Breeds of cattle are breed in the country, mainly Red prairie (Sahra), Brown Latvian, Swiss, Black Holstein, Montbellard, Simmental, Aberdeen-Angus.

Red prairie (Sahra) breed cow. This breed is suitable for dairy cattle and was created at the beginning of the 20th century. These cattle are mainly bred in Lebap, Mary, Dashoguz and the red prairie breed cow is well adapted to the local climate and in farms of Tejen etrap of Ahal welayat. It gives 2500-3000 kilograms of milk during the milking time. The fat of milk is about 3.8 percent. The live-weight of cows are 380-400 kilograms, bulls are 650-700 kilograms, and bulls that at 18-20 months of age are 400-450 kilograms.

Picture 1. **Red prairie breed cow**

Brown Latvian breed cow. This breed belongs to red, milky cattle and was brought to our country in the 1960s. These cattle are mainly bred in farms of Dashoguz welayat. The live- weight of cows are 400-420 kg, bulls are 750-800 kg, bulls that at 18-20 months of age are 400-450 kg. It gives 2,500-3,000 kilograms of milk during the milking time, and the fat content is up to 3.9 percent.

Picture 2. **Brown Latvian breed cow.**

Swiss (Swissed) breed cow. This breed belongs to meat and milk cattle and was brought to our country in 1936-1938 to improve the breed of local cattle. They are well adapted to local conditions and give 3,000-3,500 kilograms of milk with a fat content of 3.8-3.9 percent during the milking period. Cows' live-weight is 400-450 kilograms, the weight of bulls is 800-1000 kilograms, and the weight of bulls is 450-470 kilograms in 18-20 months.

3. **Swiss breed cow**

This breed is one of the most common breeds in the world. They give 4000-4500 kg of milk and more during the milking period. The fat content of milk is 3.0-3.2 percent.

Black and grey (Kolshtin) breed cow. The live-weight of cows is 450-600 kilograms, bulls are 960-1200 kilogram, and the live-weight of bulls at 18-20 months is 450- 550 kg.

Picture 4. **Black and grey (Kolshtin) breed cow**

Montbellard bred cow. This breed belongs to the meat and milk species of cattle, the color is dark red to light red, and the head and legs are white. Their milk

yield is up to 8,500 kilograms, and the fattening content is 3.89 percent. The live - weight of cows is 650-700 kg, bulls are 1000-1200 kg, and weight of bulls is 450-480 kg in 16-18 months.

Picture 5. **Montbellard bred cow**

Simmental breed cow. This breed also belongs to the meat and milk species of cattle and is one of the most wide spread breeds in the world. The color is pale yellow with a pinkish tint, the tip of the head and tail is white, and the top of the nose is bright red. It was brought from Turkey in 2014. Live-weight of cows is 550-650 kg, bulls are 800-1100 kilograms, and the live-weight of bulls is 500-550 kilograms in 18-20 months. Their high yield of milk, it gives up to 9000 kg of milk per year, with a fat content of 3.9 percent.

Picture 6. **Simmental breed cow**

Charolais bred cow. This breed belongs to the meat species of cattle, their live weight is high and their color is white. These animals were brought to our country in the 1980s to improve the meat productivity of local cattle, brought to the livestock farm "Sayvan" of Baherden etrap of Ahal welayat. Live-weight of cows is 545-570 per kilogram, bulls is 860-900 kilograms, and the live-weight of bulls is 520-610 kilograms at the age of 15-18 months.

Picture 7. **Charolais bred cow**

Cuban zebu bred cow. This breed belongs to the meat species of cattle, and their live- weight is high. These animals were brought to our country in 1976 to improve the meat productivity of local cattle, to the "Sayvan" livestock farm of Ahal welayat, and their hybrids were distributed to many livestock farms of the country. They are resistant to local diseases, hot weather and perennial suitable for keeping in pasture conditions throughout.

The cow’s live-weight is 500-550 kilograms, bulls are 900-1100 kilograms, and young bulls are about 407-487 kilograms at the age of 18-24 months.

Picture 8. **Cuban zebu bred cow**

Aberdeen-Angus bred cow. This breed belongs to the meat species of cattle and was brought to our country in 2015 from Germany. These cattle are distinguished from other breeds by their quick maturity, unique body structure, ability to adapt to different natural weather conditions, resistance to diseases, peaceful character and high productivity. The live-weight of cows is 500-700 kg, bulls are 750-1000 kg and its live-weight is 450-460 kg when they pastured in 16-18 months. Its milk yield is up to 2000 kilograms per year.

Picture 9. **Aberdeen-Angus bred cow**

Fundamentals of Livestock Management

Livestock sector is very important in the national economy. It is essential in providing people with the most valuable products, such as milk and meat products.

When the business of the livestock industry is carried out correctly, it is possible to get 3000-4000 kg of milk and one calf per year from each cow. Live-weight of calves at 18 months is 400-450 kg when fattened in the womb, meat yield up to 55-60 percent. Production of meat is considered to be one head of cattle, it can reach 100-120 kilograms per year (in live weight), 900-1000 for 1 quintal of increased weight, 100-120 feed units are spent for 1 quintal of milk.

As a rule, one head of cattle should produce 2000 fodder units of fodder per year. It should be 50-60 percent green and succulent grasses, 20-25 percent grasses, and 20-25 percent nutritious foods.

In this type of animal husbandry, the ways of keeping animals in the field throughout the year, keeping them in pastures and barns in communal conditions are also used. These ways are economically suitable for meat products.

Dairy cattle cannot consume adequate amounts of grass when kept under pasture conditions. Therefore, it is considered advisable to keep them in barn under community conditions and to feed them with various herbs according to the rules. Also, the concentration of high-yielding animals in specialized groups makes it possible to carry out breeding and selection activities with them effectively. In this way, the cows are kept in the field without roping, and they feed twice a day - in the morning and in the evening. They drink water freely from specially placed

water containers. Cows are milked by machine, and if there is no possibility of milking by machine, they are milked by hand. It provides with clean milk. To prevent milk from curdling and spoilage, it should be placed in refrigerators and cooled to 8-10 degrees before selling.

Farmers or tenant farmers should use effective cattle breeding ways on their farms. One calf per year should be taken from each cow, the bulls should be fattened quickly, their live-weight should be 400-450 kg in 18 months, and they should be slaughtered. If he has calves, he should reach 300-320 kg at 18-20 months, get a good breed from the bull and get a calf at 28-30 months. For this, it is necessary to maintain the gender and age composition of the animals and ensure their timely transfer from herd to herd.

Table 1

Dairy cattle herd turnover (moderate method), head count

Group of cattle	Beginning of the year	Income		Total income	Expense			Total expense	Remains at the end of the
		Young cattle	From other group		From other group	For sale	Insurance		
Breed bulls	2	-	-	2	-	-	-	-	2
Cows	40	-	8	48	-	6	--	6	42
Pregnant heifers	6	-	8	14	6	-	-	6	8
Older than one year heifers	8	-	10	18	10	--	-	10	8
Older than one year young bulls	8	-	10	18	-	8	-	8	10
Till one year heifers	18	-	18	36	10	8	-	18	18
Till one year young bulls	18	-	18	36	10	8	-	18	18
New born heifers	-	22	-	22	18	-	4	22	-
New born young bulls	-	22	-	22	18	-	4	22	-
Total:	100	44	72	216	72	30	8	110	106

Note: *The amount of meat produced is 10.7 thousand kilograms when the live weight of sold cows is 450 kilograms, bulls are 400 kilograms, and heifers are 200 kilograms.*

The breeding of cattle, especially cows, should be improved year after by using high-quality bulls. It is not advisable to use bulls of unknown origin and low fertility in breeding and selection work.

The farm needs to create its own fodder base and get them cheaper. For this, 0.5 hectare was irrigated per head of cattle space is needed. 50 hectares of land is enough for 100 cattle in the farm. It requires a total of 200 tons of fodder per unit of fodder (that is, 2,000 kilograms per animal). To prepare such hay, growing the following forage crops on 50 hectares will allow livestock to graze on the hay.

Table 2

Reserves of fodder needed on the farm

Fodder crops	Area, Hectare	Types of grasses	Yielding centner/he	Total fodder, ton	Fodder unit, ton
Alfalfa for hay	10	Hay	70	70	31
Alfalfa for grass	5	Grass	250	125	25
Sudan grass	5	Grass	250	125	25
Grain barley	30	Grain	30	90	101
Straw of barley	30	Straw	24	72	23
Corn after barley	30	Silos	150	450	90
Jemi:	**50**	**–**	**–**	**932**	**295**

In order to increase the income of the farm, it is necessary to establish the processing of milk and the production of dairy products (yogurt, cream, whey, etc.). Ensure quality and timely sale of milk products produced.

People's desire for meat and meat products in the country is high. According to the information of many scientific sources, the meat of cattle is considered useful for the normal functioning of the body of people of different ages, according to its quality indicators.

In order to satisfy the needs of our people for meat and meat products, zebu cattle were brought to our country from the Republic of Cuba in the 80s of the last century. In order to improve the productivity of local breeds and create new high-yielding groups of these animals adapted to pasture conditions, scientific and productive work was carried out in stock-breeding farm "Sayvan" of Baherden etrap of Ahal welayat and "Yenish" stock-breeding farm of Mary welayat.

As a result, the importance of industrial cross-breeding with meat-oriented breeding stock for increasing the meat productivity of local cattle was high. Also, using the genetic potential of zebu cattle can increase the meat of cattle produced

in the country, reduce its price by several times, extend the useful life of high-yielding European breed cattle grown in complex conditions by 3-4 years, and increase the fat content of dairy products. It was found that the importance of work was high.

Organization of breed production

One of the main tasks in the livestock industry is to select breeding bulls with high breeding quality in order to improve breeding and get healthy calves from cows. The economic and qualitative importance is very high. That is why, cows should not be neglected. When they are selected, special attention is paid to their origin, productivity, milk yield during lactation, and milk fat content. If these signs are ignored, the quality of the breed, the amount of milk and meat products will decrease even more. Therefore, it is necessary to comprehensively assess the main characteristics of livestock in households. It is significant in the proper and thorough conduct of breeding.

Cattle are regularly assigned to carry out breeding. Based on this, pedigree documents are maintained. If the breeding and selection work on the farm is carried out in a timely manner, it allows select high-yielding animals. When these cows are properly cared for, their milk-yield increases by 10-15 percent per calving. This is due to the need to identify animals when keeping livestock (zootechnical) reports, to record the growth of young animals, to learn the milk productivity of cows by all indicators, to plan the insemination and breeding cows.

It is forbidden to lose the number of animals in the breeding. After the growing up of the animal, the number is transferred to the horn with the help of brand and it is written its own special card. It is necessary to carry out inspection milking of cows, to organize evaluation and to carry out other animal husbandry activities.

The calves are given a nickname from the first day of their birth and are taken with special scissors and recorded in the book of young animals. It can also be marked by putting ear-rings in the ear of calves, but it runs away quickly and the mark is lost. In addition to the label, the calf's time of birth, sex, sire and dam number, breed and breed level, color, and live weight are recorded in the notebook. Then, the live weight of the calves is weighed every month and transferred to the account book. This serves as the first reference to know the growing of the calf. Thus, the growing of calves is evaluated in comparison with the standard of the breed.

One of the main activities in the livestock sector is to record the growing of young animals. Residual stems do not produce steam and do not give birth. Therefore, the breeding of young animals in farms is planned in advance. According to the rule, in order to leave the nest at 18- 20 months, the live weight of the heifers should reach 300-320 kilograms, and they should be released to the bull, and they should be calved at 27-28 months. This leads to increased farm income.

In order to produce high-yielding of cows, it is very important to prepare the cows well for calving. They should be properly fed according to the rules of animal husbandry, on the basis of the rule and portion.

Live weight of heifers increases by 15-25 percent during the pregnant period. It is recommended to keep them in barn and walk them for 2-3 hours every day. Walking and proper feeding have a favorable effect on the good growth of the calf inside the mother and on the milk production after calving. During the period of 6-8 months of estrus of strait heifers, if they are fed every day in the morning and in the evening, their amount increases by 30-40 percent compared to normal ones, their udders develop properly, and milk productivity is high.

Increasing the milk yield of cows also depends on the breed of animals. If the breed is clean, they have high milk yield. The milk yield of good, high-yielding cows is studied monthly, and the amount of milk produced by cows and fat content is determined and tested once a month. For this, the marks of all cows are recorded in a special inspection notebook. It records the name of the cows, the milk they gave in the evening and the morning, their total and average fat content, and the total amount of milk calculated for a month. The milk produced by each cow is measured in liters or kilograms in a milking chamber.

To measure the fat content of each cow's milk, 50-60 milliliter bottle, a sample of its evening and morning milk is taken. The number of the cow is written on the surface of the bottles, the collected milk samples are sent to special laboratories and the fat content of the milk is determined and transferred to the account book. The fat content of milk is determined by the acidity method.

Planning of insemination and breeding of cows. In industrial herbs, regular milking of cows is organized based on the plan of insemination and breeding. In order to make a plan, accurate information about the number of cows and heifers in the household is necessary. Cows arrive at the barn 16-28 days after calving. But it is considered to put them in the barn 1-2 months after calving. The average duration of pregnancy is 17 hours (from 3 to 36 hours). If the cows do not leave the barn during that time, they repeat it again after 21-22 days (sometimes 16-28 days). The gestation period of cows that have left the well lasts an average of 285 days.

When cows and heifers come into bull, the animals stop appetite, lose milk, jump on each other, and liquid come (saliva) from their white meat. The liquid is bright at first, then thickens, darkens, and the white flesh becomes red and swollen. At that time, the ovum develops in the cow's ovary and enters the genital tract. It takes 10-12 hours for cows and heifers to come to the bull. Cows should be weaned at that time. If weaning is continued to the 2nd or 3rd day, it becomes difficult for the cow to leave the bull. Often, repeated visits to cows are associated with diseases of their genitals. It is also affected by improper feeding and storage conditions. Accordingly, it is necessary to constantly check the leave of cows and heifers from the bull.

In cattle, the pregnancy of cows is usually checked 2-2.5 months after leaving the bull. To improve the performance of cows and heifers, it is more

beneficial to feed them on a ration consisting of different types of forage and to let them walking for 2-3 hours a day.

In order to carry out calving on the farm in accordance with the rules of animal husbandry, a plan is made up for calving and leaving out of herd the cows. The plan for calving and calving cows and heifers is made up at the end of each year, taking into account the calving and calving time of the previous year. This allows planning the calf to be taken next year, the milk by month, to calculate amount of milk and meat to be produced, and profit.

Insemination of cows. Insemination of cows and heifers with high-yielding bulls tested for the quality of their offspring is the main condition for increasing the productivity of livestock. Detection of cows and heifers is done by eye or with the help of bulls that detect their arrival at the barn. The reason why cows and heifers come to the herd is that the selected animals remain motionless near the bull is a sign. Cows that come to this place allow bulls to jump on them, look around, become restless, and their milk yield decreases.

There is another convenient way to select cows that come to bull. For this purpose, a corral (dennik) is built inside the barn to keep particular bull, and it is put into that corral. The cows that come to the bull pen, where they are selected for insemination.

Cattle that arrive to the bull are separated from the herd and are kept in a barn or bandage. Then their unique number, the time since the last calving and the previous insemination are determined. A rectal test is done and special attention is paid to the state of the ovaries.

It is considered convenient to inseminate cows within 8-12 hours. Cattle that arrive in the morning are inseminated in the evening, and cattle that arrive in the evening are inseminated in the morning.

Inseminated cows should be taken away from the herd for at least 4 hours, and in the case of 2 inseminations, they should be kept in the morning until they leave the herd (12-16 hours). After the cows are inseminated, information is written in the notebook and account book. If the cow does not come back to the bull, after 2-2.5 months, a rectal test is done and its pregnancy is diagnosed.

Calving the cows and getting calves. A cow's calving can be identified by signs such as swelling of the udder and external genitalia, loosening of the pelvic bones, milk coming from the udder's teats 1-2 days before calving.

In order to get a healthy calf and protect against any infectious diseases, the cow should be well prepared for calving. The cow barn should be cleaned, disinfected, and the covering hay should be renewed. It is not recommended to place dry grass during calving period.

The pregnant should be taken care frequently. The first signs of a cow's calving are its general discomfort: it often looks at its belly, itches on the dry grass, lies down, gets up, etc. During this period, the cow should not be tied, let it go freely and allow it to roam in comfortable conditions. Cows often lie down during the calving, so if the calf is right in birth, you don't need to help the cow. A cow

licks her calf after calving. This is a good feed for the calf and increases activity in its body.

The mucous outside the calf falls on the cow's body and helps the milk flow and run away the afterbirth. So, the cow has the ability to recognize his own calf by its smell.

Differences of cattle care

Care of the milking cows. A cow's lactation period is divided into three periods: the period of new calving (up to 100 days), the period of maximum lactation (up to 5-6 months of age) and the period of reduced milk (until weaning).

1. During the first stage of lactation, the cow's natural capacity to produce milk is high. Accordingly, it is necessary to feed cows with high-quality forage as much as possible. For the first 2-3 months, you should choose the grass they eat without work, and give 1-2 units of grass food more than the amount of milk they give. The excess feed comes mainly from concentrates. Every 10 days the feeding ration is revised and increased. The amount of concentrate feed is 35-40 percent. Good alfalfa, hay, silage, and hay are also added. The moisture content of the feed ration should not be higher than 60%, because cows that give a lot of milk do not get enough dry matter from grasses with high moisture content and lose weight, reducing milk production.

2. The lactation period of a cow lasts from the period of high milk production to 5-6 months of gestation. During this period, the main task should be to maintain the achieved level of lactation for as long as possible. For this purpose, cows are given a lot of juicy grasses (good quality silage, hay), high-quality body and feed concentrates. During this period, depending on the cow's milk, 2.8-3.2 kilograms of dry matter should be given to each 100 kilograms of live weight, and cows giving 25-30 kilograms of milk per day are given 3.5-3.8 kilograms, and the amount of concentrate feed is increased.

When preparing the feed share (ration), 1 kilogram of dry matter should not be less than 0.65 fodder unit, each fodder unit should contain 105-112 grams of absorbable protein. If its amount decreases, it has an adverse effect on the cow's milk yield, milk fat content, and its indicators decrease. Accordingly, it is necessary to feed the cow according to the feeding ration, and achieve compliance with the main indicators (forage unit, absorbable protein, dietary salt, calcium and phosphorus). If these requirements are not met, cows will be milked. Accordingly, proper feeding of dairy cows is one of the main conditions for successful management of this industry.

3. The milk reduction period of cows lasts from the age of 5-6 months until they are weaned. During this period, it is recommended to reduce the feeding ration of the cows. Reduce the amount of concentrate in the pre-weaning ration and instead of them they add feed, high-quality of hay and silage.

Cows are weaned 50-60 days before calving. When cows are weaned, their feed intake is reduced to 70-80 percent and fed for 5-6 days after weaning. Then it

is gradually increased and regulated. Good quality silage and silage make up the bulk of the feed. For every 100 kilograms of live weight of a cow, 3-4 kilograms of silage, manure, and up to 2 kilograms of body are given. A certain part of the hay can be replaced with straw. Table 2 provides information on feeding regimens for milking cows.

Table 3

Feeding routine for milking cows weighing up to 400 kg

Indicators	**Milk per day, kg**					
	8	**10**	**12**	**14**	**16**	**18**
Food unit	8	9	10	11	12	13,4
Dry matter, kg	10,7	11,6	12,5	13,3	14.1	15,0
Absorbable protein, gr	760	880	1000	1100	1200	1310
Salt, gr	52	60	68	76	84	92
Calcium, gr	52	60	68	76	84	92
Phosphorus, gr	36	42	48	54	60	66

On the basis of these rules, depending on the daily milk and live weight of the milking cows, the feeding portion of the grass that should be given to them in one day is determined.

Care of weaned cows. During this period, cattle are taken out for 2-3 hours a day to walk. They are not satisfied with just hay, because they need to keep the new calf fat enough to grow well and get enough milk from the cow after calving.

A weaned cow should be fattened to medium or maximum fat to be healthy and well prepared for the next lactation. Sometimes the weaned cow joins the herd of young cattle and is grazed on the pasture. Such way is wrong from the point of view of zootechnics, because the cow does not get enough fodder from the pasture and adversely affects the development of the calf and the post-calf milk production of the cow. The same is true of heifers. If cows and heifers are kept in barns and fed a full feed ration, their growth will be good, their calves are large and healthy, and their milk production increases after calving.

Care of a new calving cow. A cow requires special care after calving. On the day of calving, the cow should be given good quality food and warm water. On the 2nd-3rd day, 1-2 kilograms of concentrate should be added to the feeding portion (ration). Starting from the 4-5th day, depending on the milk production, the daily amount should be increased and juicy and green grass should be given. Cow's udder is common swollen after calving. To remove the swelling, it should be milked frequently (5-6 times). Daily walking has a positive effect on the removing of tumor. It can be started from 2nd-3rd day after calving in good condition.

Care of calves. Proper breeding of young calves is one of the main conditions for increasing the profitability of the industry. Cattle that are left puny condition with bad nutrition do not produce much, and their live weight is low. After the calving, a thick layer of clean straw falls under them and the mother cow licks it and becomes it to dry. If the weather is cold, the barn for calf is heated. Within 40-60 minutes, he sucks his mother and stays with his mother for 5-6 days. A calf that drinks a lot of colostrum is healthy, the amount of milk should reach 4-4.5 kilograms per day.

In the second month, it begins to grow, and the amount of milk given should not be less than 2.5-3 kilograms, and in the third month, 1.0-1.5 kilograms of milk should be given. If each calf drinks 225 kg of milk and 250 kg of milk for each bull during 3 months, their live weight at 6 months reaches 90-100 kg, and in good condition 150-160 kg. After weaning, the calves are fed by hand from the barn, using a polyethylene bottle with a special teat. The temperature of the milk should be 36-37 degrees. Cold milk hurts stomach the calves. Milk is given 3 times a day until 1 month, then 2 times a day.

Picture 10. **A barn where young calves are kept**

In the third month, after the calf is sitting well, it is given 1.0-1.5 kilograms of milk 1-2 times a day for 15-20 days and are weaned. Mother cows are nursed and calves are produced.

Picture 11. **Individual barn of young calves**

Calves up to six months are fed according to special rules. They are mainly fed with alfalfa, field grass and concentrate feed (bran, barley meal, feed mix, etc.). In the second month, silage is introduced, and in the third month, 1 kg per day is given. This information is shown in Tables 4 and 5.

Table 4

Feeding schedule of heifers up to 6 months

Age, month	**Live weight, kg**	**Milk kg**	**Hay, kg**	**Silage, grass, kg**	**Concentrates, kg**	**Salt, gr**	**Lime, gr**
1	52	120	taught	taught	5	100	100
2	72	60	10	taught	24	300	450
3	92	20	30	30	42	300	600
4	113	-	45	70	52	450	600
5	134	-	75	120	54	600	600
6	155	-	100	180	48	600	600
Jemi:		**200**	**260**	**400**	**225**	**2350**	**2950**

Table 5

Feeding schedule for young breed bulls

Age, month	Live weight, kg	Milk, kg	Hay, kg	Silage, grass, kg	Concentrates, kg	Salt, gr	Lime, gr
1	53	135	taught	-	5	100	150
2	74	75	10	-	28	300	300
3	95	40	25	-	46	300	450
4	116	-	50	15	65	450	600
5	138	-	80	45	70	450	600
6	160	-	120	150	80	600	600
Total:		**250**	**285**	**210**	**294**	**2200**	**2700**

Weaning young calves begins with providing good quality grasses, a small amount of bran, and feed mixture. Alfalfa is nutritious if they are well dried. It does not heat up and does not get damaged when it is cooled. Weaned calves are kept in a pen of 8-10 heads. They should not be washed or fed until they are 3 months old, as they contain toxic gossypol that can make calves sick.

After 5-6 months of age, heifers' ration should be close to that of milking cows, their gastrointestinal tract should be prepared to grow well and absorb large amounts of cheese and succulents. 45-55 percent of their feeding should be silage, green grass, 28-30 percent of hay, straw and 25-30 percent of concentrates.

Table 6

Daily feeding ration of heifers

Age, month	Live weight, kg	Fodders, kg					
		Concentrates	Silage grass	Hay	Straw	Salt, gr	Lime, gr
6	155	1,1	8,0	1,7	-	15	75
7-9	204	1,2	9,0	1,9	-	20	80
10-12	259	1,3	10,0	2,1	0,5	25	81
13-15	304	1,5	11,0	2,3	0,5	30	90
16-18	344	1,6	12,0	2,6	0,7	35	96
19-21	385	1,8	13,0	2,8	0,8	40	110
22-24	425	1,9	15,0	3,0	0,8	42	112

If there are no any grasses that specified in the farm, they should be replaced with available grasses depending on their value (amount of grass-feed unit). If forages are well digested and mixed, their value increases and cattle eat well. It is

not recommended to take care of breed in the pasture except for 2-3 hours a day, because the quality and quantity of pasture grass does not reach the heifers, they stop growing. Accordingly, until its live weight reaches 300-350 kg, it is kept in the womb and fed according to the feeding ration.

Heifers with a live weight of 300 kg are transferred to separate barns, and the sow is taken out of the bull. They are then fed on a specially formulated feed ration.

Do not give silage, oilcake and cottonseed meal in the last months of the pregnancy. The composition of their feeding portion should consist of alfalfa, concentrate feed, green grass, and mineral substances. The heifers are fed twice a day, in the morning and in the evening. At other times, their tray should contain crushed straw. They should be given large pieces of iodized table salt, crushed lime and mixed with food.

In order to prevent premature milking of the heifers, feeding of silage and concentrate feed is reduced in the last month of their lactation. 7-10 days before calving, they should be transferred to the cow-calving house and fully monitored. Calving cattle should be given good-quality alfalfa, 1.0-1.5 kilograms of fodder (bran, milled barley, grain residues), 10-12 kilograms of green grass in spring and summer, and 5-6 kilograms of high-quality hay in winter.

Retention of bulls and weaned cows

In the livestock sector, young bulls and weaned heifers are kept in the pen. Non-breeding bulls should be given 180 kilograms of milk for up to 2 months, and as soon as possible, they should be taught to eat grass, gradually increasing the amount of forage given to them, giving 2.5-2.7 kilograms of dry grass per 100 kilograms of live weight. . Food salt should be given regularly to stimulate the appetite of the animals. The fattening bulls are not looked after in the field, only in the litter, and the grass is always placed in front of them.

Fattening bulls are not castrate, because castrate itself slows the growth of the animal. Bulls can weigh 400 kilograms and more. Consumer demand for meat from higher fattening animals is not high. This is because beef fat, especially beef fat, is high in cholesterol. Also, 1 kilogram of weight requires more fodder.

Table 7

To feed bulls intended for pasturing up to 6 months

Age of bulls, monthly account	Live weight, kg	Given fodders, kg					
		Milk, kg	Concentrates	Juicy grass	Hay	Salt, gr	Lime, gr
1	51	120	5	Öwredilýär	Öwredilýär	100	100
2	72	60	25	Öwredilýär	10	300	300

3	92	-	40	40	30	300	450
4	115	-	60	80	50	400	600
5	135	-	60	160	80	600	600
6	160	-	65	200	120	600	600
Total:	**-**	**180**	**255**	**480**	**290**	**2300**	**2650**

Depending on the fodder capacity of the farm, if it is to be slaughtered due to old age and other defects, it is fed for 2-3 months and slaughtered after increasing its weight by 60-70 kilograms.

Cattle are fed with silage hay in autumn and winter, and silage is replaced with alfalfa, watercress, watermelon, and pumpkin in spring and summer. At the beginning, when the animals are going well, they are given plenty of grass, and concentrates are added to the feed ration in the amount of 20-25 percent. In the second month, concentrates should be added to 30 percent, and in the third month, silage and hay should be reduced and concentrates should be increased to 45 percent. This is because as cows become fatter, their performance slows down, so as not to slow down their weight gain, light digestible nutrient-rich foods should be given.

Table 8

The rules of feeding old cows (weight gain 0.9-1.0 kg per day)

Indicators	**Pasturing period**		
	first	**middle**	**last**
Feed unit	9,0	9,8	10,5
Absorbable protein, gr	675	685	685
Salt, gr	50	50	65
Calcium, gr	24	26	28
Phosphorus, gr	16	17	19

Preparation and storage of food

When the cattle industry was carried out on an industrial basis, special attention should be paid to food supply. Therefore, it is necessary to prepare adequate amounts of silage and concentrate feed.

Fodder crops for feeding such as alfalfa, barley, and corn is carried out on the farm. This helps to ensure that milking cows have a full supply of juicy grasses, such as silage, throughout the year. Forage must contain sufficient water, minerals, protein, fat, fiber, and vitamins for proper digestion. Properties of grasses, such as palatability and aroma, affect their degree of desiccation. Because they increase the appetite of animals, promote the separation of liquid in the stomach and good absorption of food.

When forages are properly prepared and fed to cattle, they are well absorbed by the animal's body. The nutritional value of forages should be taken into account when selecting crops. The nutrient level of forages refers to their productivity, that is, the ability of spent forages to produce. For example, 1 kilogram of oats or 2 kilograms of celery can produce 2 liters of milk. That is, the productivity or nutritional impact of the crop depends on the alfalfa body twice as much.

The nutritional value of fodder one kilogram of grass was considered as the nutritional unit of forage. This unit is called a fodder unit. All other grasses are comparable to oats in their nutritional value. For example, instead of 1 kilogram of straw, 2 kilograms of alfalfa, 0.8 kilograms of barley, 3.1 kilograms of straw or 1.4 kilograms of bran can also be taken.

Nutritional value of grasses. Fodders are divided into the following groups according to their quality: prepared from plants, obtained from animal products, feed mixture, artificial preparations, food waste, mineral additives, biologically active substances. Grasses are divided into bulk and concentrate grasses.

Large-scale grasses consist of plant leaves, stems, roots, fruits, and food remains. They are divided into dry (moisture content above 22 percent, value does not exceed 0.65 units of feed per 1 kilogram of feed) and dead grass (grasses with moisture content above 40 percent) into juicy and watery grasses.

Green grass is considered the best in terms of its nutritional value. Its 1 kilogram of dry matter has a nutritional unit close to that of cereals, the protein is very well absorbed, there are a lot of vitamins, especially carotene, and mineral substances. Cows fed with blue grass eat up to 30-40 kg per feed ration. But there is one thing to be aware of. In our country, the main grass is the alfalfa. In its system, protein dominates, and sugar is lacking, as a result, the cow becomes fat and reduces milk production. Accordingly, in addition to alfalfa, annual grass is planted for milking cattle. It is harvested 4-5 times, yields like clover, and the ratio of sugar to protein in the feed ration is adjusted, ensuring that the cow gives more milk. You can also feed corn, but since it is quickly ensiled, it has a short shelf life. Grasses are given from April to September. It is also available in October. If the cattle are supplied with green grass uninterruptedly, the cost of concentrate feed is reduced, the health and fatness of the cattle is improved, and the production is increased.

Silage-Grasses that contain sufficient amounts of sugar in the silage it is prepared from all (corn, wheat, barley, water grass, etc.). For this, the amount of sugar is found. Cleanliness and quick filling of the pit are one of the main conditions for making silage. When making silage, there should be a very well compacted layer of 1 meter per day. When the silage is prepared, a heavy tractor or other mass-pressing equipment should be run over the pit. The smaller crushed mass, the smaller loss. Its size should not be more than 40 millimeters. Proper closing of the silage after filling is also a key requirement. The prepared mass should be raised 10-15 centimeters above the edge of the pit, straw should be pressed on it, and it should be properly covered with a polyethylene film.

Silage can also be made from corn bran. When corn is grown for grain, it can also be made from its stalks. But such semi-dry hay has little moisture, it does not digest well, and the quality of silage decreases. Accordingly, it is possible to prepare good silage by adding green grass, cabbage, beetroot leaves, melon, watermelon, and pumpkin seeds to it.

Mix silage can also be prepared for young animals from various herbs. It includes corn, celery, pumpkin, carrot, etc. is included. Although its preparation is not light, it is good and nutritious for young animals. Silage is an excellent forage for dairy cows, it increases milk production but is low in protein (70 grams per feeding unit). Silage can also be made from freshly milled barley. The value of such silage is high (0.25-0.30 feed units per 1 kilogram), allowing to collect 50-60 percent more feed units.

One of the valuable silage crops in the conditions of the country is barley. Jojoba seeds are rich in starch and protein. Juniper seed is used as a good concentrate for cattle. One kilogram of barley contains 1.22 fiber-food units, and its stem also contains 14 percent sugar. Juvenile is distinguished from other crops by its valuable biological properties. It is very tolerant to heat, drought and salinity and is a crop that can produce high yields even in areas where other forage crops cannot grow. Just like corn, corn can be planted for silage and grain.

The pulp is prepared from pulp with a moisture content of 40-55 percent. 1 kilogram of protein contains 0.35 nutritional units, 71 grams of absorbable protein. It serves as good fodder for cattle. If it is made from hay with high moisture (70-75 percent), such as silage, microorganisms that produce mainly fatty, acetic and propionic acids decompose the pulp without reaching sugar. Such wisdom cannot be given to an animal.

Other juicy grasses. When cows are fed grasses rich in sugar, such as beet and pumpkin, their milk production increases rapidly. In the conditions of our country, when the conditions of agrotechnics are properly observed, it is possible to harvest 350-500 centners from one hectare of these crops.

Hay and other grasses. They include hay, straw, cotton seed meal. The physiological structure of the body (humidity 12-17 percent) ensures its good preservation. Hay is mainly prepared from seaweed. It can also be prepared from field grass, reeds, and water grass, but their quality is lower than that of algal grass. It is harvested when it buds and blooms, and after 1-2 days, when the moisture content is 20-25 percent, it is pressed and prepared. By doing so, the loss of nutrients from the body is minimal.

Hay, sorghum and other grasses. Straw is one of the main grasses and is of great importance in feeding cattle. It contains 70-75 percent carbohydrates, 3.5-4.0 percent protein, and 0.3 nutritional units per kilogram of dry matter.

Concentrate foods (mix feed). These foods include grains, residues of the grain processing industry, oilcake, sesame. They contain a lot of easily digestible nutrients and satisfy the appetite of animals. Grains include barley, corn, oats, millet, and other grains. They contain 1.2-1.3 servings. Bran contains 0.71 IU, and

oilcake contains 0.9-1.0 IU. Protein dominates in the diet, that is, 300-400 grams of raw protein is stored in 1 kilogram of feed.

Feed mixture (mix feed). A food mixture prepared by mixing several concentrates, mineral foods, vitamins and other supplements according to a scientifically prepared formula is called mix feed. It has different composition depending on the type, age, productivity of the animals. If there is no factory-prepared mix feed, it is recommended to prepare a mixture of concentrated feed available at home. The value of mixed food is high.

Protein, vitamin, mineral supplements. In order to increase the quality of nutrition, salt, lime, phosphorous supplements, vitamins, microelements are added to protein foods (peas, sardines, fish, meat meal, garlic meal, etc.).

Premixes, vitamins, microelements, other biologically active substances are added to feed and prepared to enrich barn. Grind it and add it to the feed mixture as the flour at a rate of 1 percent.

Mineral supplements. When there is a lack of mineral supplements (sodium, calcium, phosphorus) in the feeding portion of cattle, instead of them are used salt, lime, phosphatide. They are given according to the rules, depending on the age, sex and productivity of the animals.

Animal feed. These include meat and bone, meat, blood, fish meal, skim milk and dairy products, and are high in protein. 30-50 percent protein is stored in meat-bone meal, 54-64 percent in meat meal, and up to 80 percent in blood meal. Accordingly, these feeds play an important role in providing crude protein to cattle, especially young, lean cattle.

Cotton seed meal is considered one of the main sources of protein for cattle. It contains 30-40 percent protein. Fishmeal is made from fish and its remains. It contains 10-15 percent fat, 50-60 percent protein, up to 5 percent salt, 28-30 percent calcium and phosphorus salt. Its moisture content should not exceed 12 percent.

Diseases of cattle, their prevention and treatment

Non-communicable diseases of cattle: Bronchopneumonia. This disease is characterized by inflammation of the bronchi and alveoli with the formation of catarrhal exudate on the basis of inflammation of the respiratory tract and lungs. The disease affects all types of farm animals, especially newborn and young animals.

Due to the damage of the respiratory tract of the body of young animals, the disease can also occur due to the overheating of the summer months.

Symptoms of the disease. Pneumonia can be acute or chronic. The body temperature of sick animals increases (up to 40.0-41.5 degrees), saliva flows from the nose, tears flow from the eyes, breathing becomes difficult, coughing, activity decreases, snoring and silence is low. Productivity of livestock is declining. If left untreated, the disease becomes chronic.

Prevention and treatment. In order to prevent the disease, it is necessary to achieve the absence of the causes that cause the disease. That is, animals should be protected from cold and heat, and their keeping, feeding, and hygiene rules should be observed. It is necessary to increase the normal immunity of animals and to undergo treatment by providing veterinary assistance in time. When treating a diseased animal, the combined use of drugs such as antibiotics, vitamins, and immune modulators is more effective.

Swelling of the abdomen (Tympania ruminis). This disease is characterized by the accumulation of large amounts of gas in the large intestine, as well as impaired motility of the stomach. Colic often occurs in the spring and summer when cattle eat large amounts of grass, especially alfalfa (first-morning or early-morning wet grass). Bloating is caused by the accumulation of gas in the large stomach when drinking large amounts of milk with this disease.

Symptoms of the disease. Animals affected by this disease have a very swollen stomach, the left side of the stomach does not show, it stops working, it does not return the barking, and the heart beats rapidly, making it difficult for the animal to breathe.

Prevention and treatment. To give first aid to a sick animal, it is necessary to rub vigorously on the left and right sides of its abdomen. With the advice of a veterinarian, it is necessary to use ihtiol, creolin, formaldehyde solution, tempanol and other drugs to increase the motility of the stomach, and give laxatives. In order to restore the regurgitation and belching of animals, a stick filled with ihtiol or strong-smelling medicine should be pressed horizontally into their mouths. The animal must always be in motion.

In the presence of veterinarian, the gas in the abdomen should be slowly removed by punching the stomach on the left side of the cattle with a special tool. Through the opening of the abdomen, a solution of drugs such as ihtiol, creolin, and turpentine should be injected into the stomach.

Obstructio oesophagi. This disease is caused by infection of the intestinal tract of cattle with grasses (roots) or it also occurs as a result of the interference of other objects.

Symptoms of the disease. Animals infected with this disease become restless, saliva flows from the mouth, cannot burp, gas accumulates in the large stomach, and the animal's abdomen begins to swell. It also affects the heart, breathing and asthma. They refuse to eat and their visible moist coverings turn blue. An examination of the outside of the throat reveals the presence of a nodule.

Prevention and treatment. If the blockage is close to the throat, it can be removed by rubbing it with the hand. If it is in the lower part of the esophagus, carefully push the stuffing in the esophagus through the oral cavity and drop it into the stomach. Before starting this treatment, if castor oil is injected into the liver of the animal, and if pain-relieving drugs are injected, the disease will pass more easily and recover quickly.

Traumatic pericarditis (Pericarditis traumatic). The disease is characterized by sharp injuries to the animal's stomach and the sac outside the

heart. Various objects (eggs, pieces of wire, etc.) fall into the cattle's feed, and when they are swallowed, they pierce the mesh stomach and are pushed into the heart sac. This situation is especially common during the period when animals are deficient in mineral salts.

Symptoms of the disease. Infected cattle with this disease exhibit wide spread both of front legs, swollen jugular vein, swollen neck, chest swelling, poor locomotion, reduced appetite, and poor or no appetite. When punched by the heart, the animal feels a sharp pain, or when you reach out to the animal, it becomes frightened.

Prevention and treatment. In order to prevent disease, it is necessary to periodically remove the iron fragments accumulated in the stomach of animals with a special strong iron-pulling device (magnetic probe).When fodder is given to cattle it should be ensured that there are no sharp pieces of iron, nails or similar objects in their storage areas.

Gastroenteritis disease. This disease is caused by inflammation of the stomach and intestines of animals and is caused by indigestion and is characterized by poisoning of the body. The disease is acute and chronic. Illness occurs when the rules and regulations of feeding animals are violated, when the animal drinks cold water or when the animal is kept in the heat.

Symptoms of the disease. When animals enter, their body temperature rises, they become inactive and they become exhausted. The animal's stool becomes loose and contains blood, pus, or a moist liquid. If not treated in time, the disease becomes chronic.

Prevention and treatment. The main causes of the disease should be followed by the rules of preservation and nutrition. Sick animals should be kept on a diet (without water restriction) for 1-2 days. If vitamins, antibiotics and normal immune-boosting agents are used for treatment, the effectiveness is high.

Mastitis. This disease can occur at different times of the cow's milking period and in all seasons of the year. There are many types of Mastitis, and it occurs as a result of violations of animal husbandry and veterinary medicine rules, as well as pollution. When lean cows are fed large amounts of silage, this can lead to disease.

Symptoms of the disease. A cow's stomach swells, its temperature rises, and the cow feels pain when touching the stomach. This disease causes loss of appetite, fever and milk discoloration. If not treated in time, the swelling of the wind spreads under the skin of the belly and hind legs, causing the condition of the sick animal to deteriorate and lead to engorgement of the teats. Milk comes out of the damaged part of the udder, often a milky, cloudy liquid. In cases of blood in the milk or stomach it happens outside.

Prevention and treatment. Comprehensive measures should be taken to prevent the occurrence of bovine spongiform encephalitis. The feeding of animals with acid and concentrate feed is restricted, but the water supply is not restricted. Instead, they are given high quality of dry hay. A sick cow is gently stroked and milked every 2-3 hours.

Depending on the stage and type of disease, the patient is treated. The effectiveness of treatment of acute and chronic migraine is low. The effectiveness is higher if antibiotics, special drugs placed, immune stimulators (tissue agents) are used for treatment.

Endometritis puerperalis. This disease is characterized by purulent-catarrhal inflammation of the moist lining of the uterus of cows. The occurrence of the disease can be caused by damage to the uterus during pregnancy, the death of the calf in its mother, premature death of the female, or the presence of an infectious disease in the animal.

Symptoms of the disease. Pelvic inflammatory disease Occurs in several forms, acute and chronic. The white flesh of an infected animal becomes swollen and red, and it oozes blood-tinged fluid or pus. The meat swells and become red, liquid runs, fever rises, appetite stops.

Picture 12. **Endometritis disease**

Prevention and treatment In order to prevent flooding, cattle should be housed and fed in accordance with zootechnical standards. To treat the disease, drugs that remove pus from the uterus (oxytocin, proserin) and kill pathogens (iodosol, furazolidone) should be used according to the degree and type of the disease.

Retention (Retentio secundinarium). This disease is more common in cows. Cows' ass should be completely shed within 4-8 hours after calving. If it doesn't go away within 6 hours, you should consult a veterinarian. The main causes of the disease can be damage to reproductive organs, lack of vitamins, micro and macro elements in the animal's diet, or weakness of the animal's body. Infectious diseases such as brucellosis, trichomonosis and vibriosis can also cause the loss of cattle.

Symptoms of the disease. In the initial state, the cow has difficulty standing, then it cannot stand on its own. There is restlessness, loss of appetite and milk, and discharge from the genitals. If the cat is not removed in time by a veterinarian, it rots inside the uterus, causing an increase in body temperature and general poisoning. If the disease is prolonged, inflammation (endometritis) occurs

in the genitals (mainly the uterus) and becomes chronic, causing the cow to become sick and its productivity reduced.

Prevention and treatment. In order to prevent the disease, it is necessary to observe the rules of keeping and feeding of cows. After calving, the calf should be given salt water (10 liters of 100 grams of salt) or sugar water (2 liters of 400 grams). If the cow does not fall after 6 hours after calving, she should first be treated with drugs that loosen the uterus (oxycytocin, proserin) and increase viability (glucose, calcium chloride). If these treatments fail, the bite should be removed conservatively by a veterinarian, i.e. manually.

Paralysis after the calving (Coma pucrperalis). The disease is characterized by an acute and sudden onset, a severe course, and general malaise. The disease usually occurs in the first few days after lambing in high-producing cows. A decrease in the amount of glucose and calcium in the blood is believed to be the main cause of the disease.

Symptoms of the disease. The hind legs of the sick animal become weak and its movement is shaky, it is delirious, it stops working. Also, the neck of the animal is in the shape of the letter "S", and it sleeps with its head on its chest. The animal's body temperature remains and the sensitivity of its limbs decreases, breathing becomes difficult and it does not return food.

Prevention and treatment. A sick cow is slaughtered, the wind is released, and the wind is sprayed with alcohol or other disinfectants. With a special device (if not, with a tire pump), air is blown into the four teats one by one until they sound like a drum, then they are tied with a rod and held for 20-30 minutes to blow air. Also, to warm the body of the animal, it is rubbed by hand, caffeine under the skin, 100-150 into the vein (vein), 20 percent glucose and 10 percent calcium chloride solutions are added per milliliter.

Diarrhea (Dyspepsia). This disease is most common in 5-10 day old calves. Diarrhea occurs when cows are fed improperly, kept in wet and dirty barns, lack of strolling or prolonged lactation. It also occurs when a new calf is weaned late or when cows with udders are weaned.

Symptoms of the disease. In this disease, the calves have foul-smelling liquid diarrhea, the calf stops appetite, the temperature does not high on the contrary, in severe cases, the temperature drops. The dung is liquid, sour smelling and yellow in color. In the distended state, there is always dirt around the tail.

Prevention and treatment. To prevent diarrhea, silage and other fast-digesting grasses should be added sparingly to the rations of milking cows and heifers. They should be weaned on time and given good quality food. He should attain the purity of the cow's house. Keeping the foal in a clean house, the colostrum should be weaned as quickly as possible. Then the mother cow should breastfeed 4-5 times during the day. Young calves should not drink milk from cold or sick cows. In winter, lake houses should have a temperature of 14-16 degrees and a humidity of 70-75 percent. Keeping lakes in a windy place during the winter and under the sun during the summer is harmful. It is on this basis that young

calves are infected with this disease. Sick calves should be fed and maintained according to the requirements.

At the time of the existing of the disease, the country's growing sweet root, cherbia, chomuch 20-30 mill liters per head should be drunk twice a day for 5 days with a decoction of the roots of moss plants in a ratio of 1:20 and 1:30. Before the treatment, if special drugs are used to regulate the micro flora of the stomach, and then antibiotics and sulfonamide drugs are used, the effectiveness is increased. In addition, it is more convenient to use a tissue preparation developed by scientists of the Animal Husbandry and Veterinary Science-Production Center of the Turkmen Agricultural University named after S.A. Niyazov increase the immune defense of calves.

Infectious disease. Infectious disease include accurate registration of the place of occurrence of the disease, disinfection of that place, the carcasses of animals that died in the fire, and their burned areas with disinfectants, in the areas where the disease occurred.

Every year, it consists of carrying out vaccinations and veterinary-sanitary measures. Restriction (quarantine) measures are carried out in accordance with the approved veterinary regulations in households where the disease has occurred.

Currently, hyperimmune blood fluid, gamma-globulin, antibiotics, and other therapeutic drugs for the body are successfully used to treat fever.

Infectious diseases of cattle (Anthrax disease). This disease is an acute infectious zoonthroponosis characterized by severe intoxication of the body, fever, swelling and carbuncles, damage to the intestines, skin and lymphatic glands of the cattle. This disease is also called “spleen” disease among the people. Bacillus anthrax, the causative agent of anthrax, is spore-forming in unfavorable environmental conditions. Bacillus anthracis is the cause of existing of anthrax, a nonmotile, gram-positive, aerobic, rod-shaped bacterium that forms spores under unfavorable environmental conditions and grows normally in normal nutrient media. It forms a capsule in the environment and can maintain its viability for decades.

The source of anthrax disease is sick animals, wild animals (foxes, wolves, jackals) domestic animals (dogs, cats), wild birds (epilepsies, hawks). The disease is transmitted through the main alimentary way, that I food and water, blood-sucking insects (transmissive) and dust, dust (aerogenn) containing the spores of the pathogen. This disease is spread in the environment through the secretions of infected animals and can also be transmitted to people.

Symptoms of disease. The incubation period lasts 1-3 days. Basic septic and carbuncle views of the disease are distinguished. Depending on the location of the lesion, there are types of tuberculosis of the skin, intestine, stomach and pharynx (anginosis). It passes as fast as thunder from acute to suba cute, acute, chronic, and easy. In livestock, the disease is often lightning fast and ends in death with minutes to hours.

The most dangerous situation for the spread of the disease is considered to be the dead animals. It is absolutely forbidden to cut and open the stomach of the

dead animals. The dead body of the animal swells, blood-tinged fluid is released from its natural pores the skin becomes hard and painful, after it becomes a soft round lumpy swelling. His blood becomes dark and does not clot.

Picture 13. **Spleen damaged with anthrax**

Preventative and control measures. Preventive measures include accurate registration of the place of the outbreak of the disease, disinfection of the place, carcasses of the animals that died in the fire and their burned places with disinfectants, in the areas where the disease occurred and consists of annual livestock vaccinations and immunization and veterinary-sanitary measures. Restriction (quarantine) measure are carried out in accordance with the approved veterinary regulation in the infected households. Currently, hyperimmune blood fluid, gamma-globulin, antibiotics, and other anti-inflammatory drugs for the body are successfully used to treat the disease.

Brucellosis disease Especially it is wide in cattle, often asymptomatic, infectious arthritis. This disease is a long-lasting (persistent), dangerous infectious disease that causes great economic damage to livestock, and humans are also affected by this disease. Specific microbes – brucellosis produce the disease. Brucellosis in cattle is caused by the bacterium Brucella abortus. The source of the disease is diseased and disease-carrying animals. The germs of the disease are spread to the cattle barns, fodder, water, and pastures through the urine, dung, milk, especially the droppings and diarrhea of the animals during calving.

Symptoms of the disease. The latent period of the disease can be 2-3 weeks or more. The main symptoms are inbreeding, birth of unviable calves, barrenness of animals, early withdrawal of breeding animals and others. In pregnant cows, calving occurs at 5-8 months, and diseases such as infertility, swelling of the uterus, and udder in young cows can occur. The emergence of these situations creates difficult problems to solve in the livestock industry and causes great economic damage to households.

Preventative and control measures. There are two main approaches to the control of infectious joint pain, the first is not to let the healthy animals ill, the second is completely eradicate the disease. Measures are taken to protect the

animals of brucellosis-free households from infection, to disinfect households with the disease and to protect people from infection. Animals that are infected or show clinical signs of the disease are quickly selected from the herd, kept separately and examined. In accordance with the veterinary regulation, diseased animals are not treated, they are given to meat, restrictions are imposed on the economy (quarantine), and special measures are taken for the animals of households that are at risk of disease. Cattle barns are disinfected with disinfectants.

Specific preventive measures for brucellosis include immunization with vaccines (vaccines) and diagnosis with diagnostic agents (antigens). In the conditions of our country, the brucellosis disease of cattle was widely studied by the scientists of the Animal Husbandry and Veterinary Science-Production Center of the Turkmen Agricultural University named after S.A. Niyazov, and as a result of several years of experimental studies, the Brucella abortus 19 strain was used to prevent the brucellosis disease of cattle. A liquid inactivated vaccine, colored and solid antigens for diagnosis, was developed and put into production.

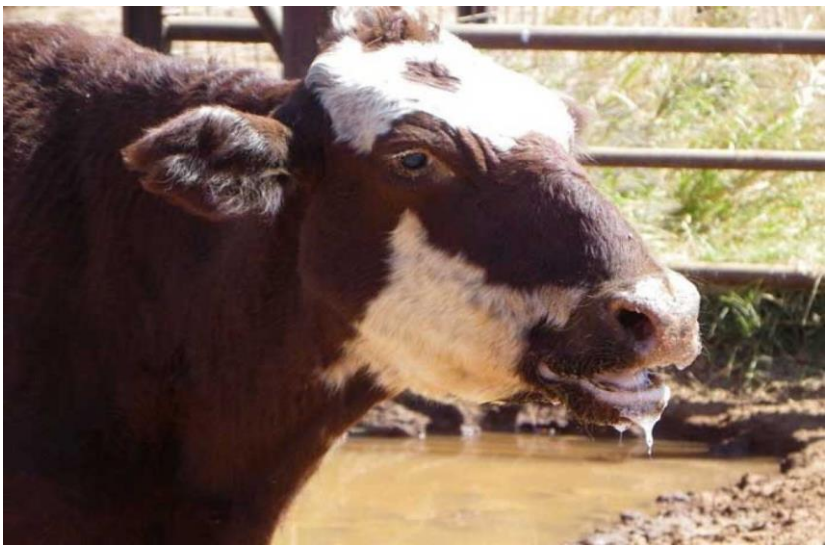
These funds are currently widely used in livestock farms of our country. If the control measures against the disease of the larynx are carried out according to the approved protocol, it is possible to get rid of the disease in a short time.

Aphtae epizooticae disease. This disease is an acute, particularly dangerous viral disease characterized by damage (aphthosis) of wet and tissue coverings (mouth cavity, hoof, udder). People also get sick with aphtae epizooticae disease. The causative agent of the disease belongs to the family Picarna viridia of the family of RNA viruses. This virus is considered to be stable in different environmental conditions.

The source of disease is disease and infected animals. Sometimes, their period of viral carriage lasts from several months to several years. The virus is mainly found in saliva, milk, urine dung spread through food and is easily transmitted to healthy animals through the upper respiratory and digestive tracts.

In the past, this disease was widespread (panzootic). Today, as a result of comprehensive vaccination against the disease for several years, the disease occurs in a limited (sporadic) state.

Symptoms of the disease. The mysterious period of the disease lasts 2-7 days. When the disease starts, first the cattle's appetite and milking decreases, the body temperature reaches 41.5 degrees, and the moist udders dry up. On the 2nd-3rd day, ulcers exist on the moist coverings of the tongue, lips, and nose. Saliva increases, the animal walks with a limp and often lies. If veterinary can’t help in time, it worsens with other diseases (mastitis, dermatitis) and it may die. In cases, it is completed after 2-3 weeks of recovery of cattle.



Picture 14. **Aphtae epizooticae disease cow**

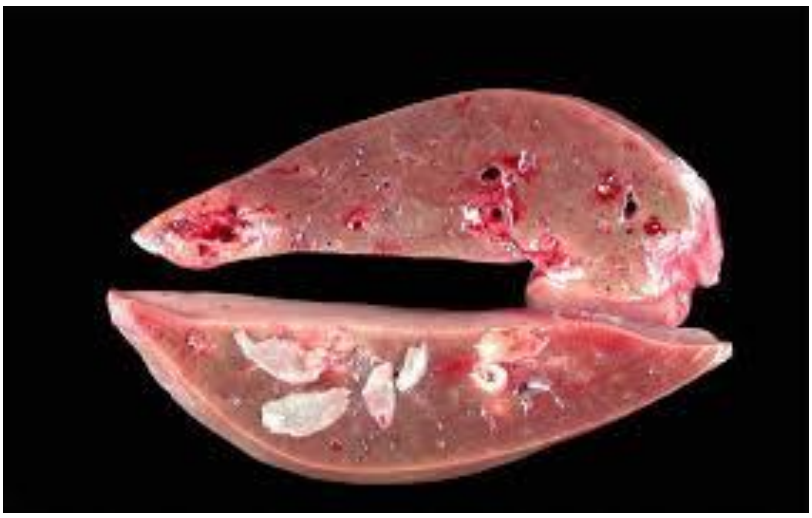
Prevention and control measures. Sick animals should be housed in clean, dry housing and provided with soft fodder. Treat the damaged mouth cavity and legs with 0.001 (1:1000) solutions of manganese acid, 1 percent of copper sulfate, and 2 percent of chloromine. For the common treatment mastitis, novocaine, penicillin are used.Zinc and zinc ointments work well. General treatment will include specific immunoglobulin and convalescent serum. Glucose, caffeine sodium benzoate, and urotropin are administered intravenously.

Quarantine is imposed in the white-registered areas, and all economic activities are restricted in the dangerous areas, and general veterinary-sanitary measures are carried out according to a specially approved indicator. Currently, several vaccines have been developed to prevent the disease and are widely used in industry.

Blood-parasitic diseases of cattle The most common blood-parasitic diseases in cattle are seasonal (transmissible) babesiosis and theileriosis. The causative agents of this disease are Piroplasma bigemina, Theileria annulata, Theileria orientalis, simple organisms that cause disease in blood erythrocytes and lymph cells. Blood-sucking crickets and grasshoppers are thought to be carriers of the disease. Blood-parasitic diseases cause great economic damage to the livestock industry.

Symptoms of the disease. The first symptoms of the disease begin to appear 1-2 weeks after infection. This period is called the incubation or latent period of the disease. The animal's body temperature increases (up to 41 degrees). At that time, the animal's appetite stopped, the reflexes are disturbed of breathing and heart rate is accelerated. As the disease increase, the animal becomes sick, and the lymph nodes in the neck become swollen and enlarged.

In the case of prolonged illness, the animal becomes weak the functioning of the heart, blood vessels, and respiratory organs is disturbed. As a result of stress in cows, the milk yield decreases. Its milk turns yellow sometimes red, and has a strong taste.



Picture 15. **Liver damaged with fasciolosis**

Preventative and treatment. Cattle should be protected from blood gadflies and ticks during periods of mild weather. To do this, cattle should be kept away from swampy, reedy pastures where maggots breed, or cattle should be washed with a water mixture of insectocaricidal drugs against gadflies and ticks. Cattle should also undergo chemical prophylaxis. A 10 percent aqueous solution of Naganin should be injected into the vein of the animal at a rate of 0.03 grams/kg. Disease prevention must continue (flushing and chemical control) from April 10-15 – October until the end of the month.

If diseased cattle are detected in the herd, 0.03 grams/kg of 10 percent water solution of naganin or 0.0035 grams/kg of 7 percent water solution of dimenazen should be injected. Nagani should be injected into the vein of the animal, and dimeneza 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 a number of drugs for the prevention and treatment of hematoparasitic diseases of cattle. Among them, the drug "Teilerecid-A" is intended for cattle.

Liver worm disease (fasciolosis) of cattle. The causative agent of this disease in cattle is Fasciola hepatica. The eggs of the fasciola are passed out in the cattle's dungs and attach to the grass through the hatching larvae. When fasciola larvae eat green grass contaminated with larvae, they end up in the stomachs of cattle. Adolescari move from there to the animal's liver, where they grow and multiply and cause damage there.

Transitional and symptoms of disease. Liver disease in cattle is often chronic. Diseased cattle stopped appetite and feed is impaired. Cardiorespiratory system of animals is broken. As the disease drags on, they get weak, lose weight, and become unfit for the herd.

Preventative and treatment. To prevent the disease, cattle herds should be treated with anthelmintic agents (deworming) at least 2 times a year. Cattle should be treated with anthelmintic drugs such as albene, albendazole, panacur, or carbon

tetrachloride. Medicines should be taken with water in accordance with the amount indicated on the labels for each animal.

Scab disease of cattle. There are four types of scabies in cattle (psoroptosis, sarcoptosis, chorioptosis and psorergatosis), the most common widely of them is Psoroptes longirostris bovis type psoroptosis.

When the mites come into contact with the skin of infected animals or fall through the mandibles, they cause a sharp and long-lasting itch in the animal's skin.

Symptoms of the disease. The scabbed cattle become itchy, start to deteriorate, or the cattle become less appetite. The skin layer remains on the affected area of the animal, the hair falls out, and the face of the animal is cut and torn. In the winter months, the number of scabies that cause scabies increases, and in dry weather, especially in the spring, the number of scabies decreases. Psoroptosis spreads rapidly among livestock. The disease is more severe in young and weak animals.

Preventative and treatment. Cattle in the herd should be removed from the herd and treated. In order to treat the animal, it is necessary to apply an insectocaricide active oil or inject drugs such as ivomec, ivermectin, aversect. In addition, it is very useful to use the insecticide "Chalgy Yag" and "Bentophos" ash medicine, developed at the Livestock and Veterinary Research and Production Center, to treat cattle rabies. These veterinary medicines are prepared on the basis of local raw materials and are distinguished by their high efficiency in treating animals.

CONTENTS

Introduction……4

Breeds of cattle grown in Turkmenistan.....5

Fundamentals of Livestock Management……9

Organization of breed production……..12

Characteristics of Cattle Care…….....15

Retention of bulls and weaned cows……20

Preparation and storage of fodder…….21

Diseases meet in livestock,
prevention and treatment……...24

MINISTRY OF AGRICULTURE AND ENVIRONMENTAL PROTECTION OF TURKMENISTAN

TURKMEN AGRICULTURAL UNIVERSITY NAMED AFTER S.A.NYYAZOV

LIVESTOCK AND VETERINARY SCIENCE-PRODUCTION CENTER

Manual for breeding of livestock

Editors: M. Nobatov, B. Sopyyev, J. Y. Orazberdiev

Editor
Photo editor
Tech editor
Computer

Responsible editor: D. Myradov

A. Ashyrova
O. Cherkezova
O. Nuryagdyyeva
J. Gayypberdieva

Permission granted to print.2021. Size 60x841/16.
Conditional print list. Conditional color optical.
List of publications. Print list 3,0. Order № 390. Pcs1000.

Turkmen State Publishing Service
744015. Ashgabat. Garashsyzlyk avenue, 100
Turkmen State Publishing Service Press center
744015. Ashgabat. 2127 (G.Gulyyev) street, 51/1.