



## ORGANIZATION OF PASTURE ROTATION IN FOOTHILL PASTURES

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Article history:	Abstract:
<b>Received:</b> 28 <sup>th</sup> February 2021	The article provides a scientifically grounded scheme of pasture rotation by seasons and calculates the maximum permissible rate of pasture use for cattle grazing.
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### INTRODUCTION.

Grazing is a higher form of organizing the use of pastures in agricultural enterprises and makes it possible to intensify grassland farming. When grazing livestock, various methods of using pastures are used. In this case, free (unsystematic) grazing or systemic (rotational) grazing can be used. [1]

Pasture rotation is a system of methods for the rational use of pasture and care for it, in which there is an annual change in the timing of the beginning of the grazing cycles of animals, the number of grazing cycles and the provision of rest for the herbage in the pasture paddocks.

Rotation of pastures is designed to maximize pasture growth without reducing the number of animals, on the contrary, when using a grazing system, the carrying capacity of pastures will increase. Pasture rotation is a method that solves the problem of overgrazing and stops the degradation of pastures and improves the condition of the pastures. [5]

### OBJECT OF STUDY.

Foothill pastures of Bostanlyk district of Tashkent region of the Republic of Uzbekistan was selected as the object of research.

### FORMULATION OF THE PROBLEM.

Currently, livestock in the pastures of Bostanlyk district wander through the pasture, consuming the tallest and youngest leaves they can find. Such grazing is called unsystematic. It is known that with this method of using pastures, animals choose the best forage plants and eat them repeatedly. By mid-summer, the pasture area looks like a very low mowed lawn. As a result of these conditions, animals are now unable to gain weight and their milk production is reduced.

Therefore, taking into account the existing problems of uncontrolled (unsystematic) use of pastures in Bostanlyk district, as a solution to this problem, it is proposed to organize more effective management of a herd of livestock, so that pasture plants can reach the same height as in spring. It is necessary to establish control over where animals graze and limit the time that they spend on the same areas of pasture. This grazing strategy is called grazing rotation or rotation, grazing rotation, or systemic grazing.

An analysis of some areas of the foothill pastures of the Bostanlyk region showed that heavy uncontrolled grazing in spring and early summer contributed to the depletion and sometimes even death of plants; in addition, it was found that clumps were formed, which subsequently could not protect the soil from erosion caused by summer rains or winter frosts.

### RESEARCH METHODOLOGY.

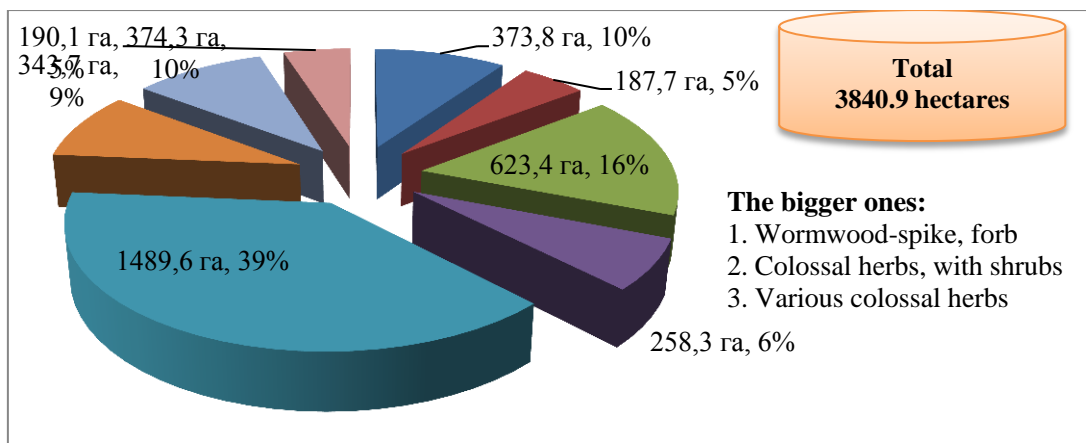
Pasture rotation patterns differ depending on the natural characteristics of the pasture area, its area and productivity, the type of grass stand, the timing and intensity of regrowth, the system for the production of green and roughage. [1]

The organization of pasture rotation includes:

- 1) establishing the number and areas of pasture rotation;
- 2) placement of pasture rotations;
- 3) drawing up rotation schemes;
- 4) development of measures to improve pastures.

The "Brichmulla" massif with a total area of 3,840.9 hectares of pastures was chosen as a pilot site, where it is planned to organize pasture rotation. [3] This territory was chosen in view of its susceptibility to water erosion, which is increasing every year due to the haphazard and disorderly grazing of livestock by the local population, since

the "Brichmulla" massif is considered one of the densely populated massifs of the region. The percentage ratio of pasture types to the total pasture area of the massif is shown in Figure 1.



**Figure 1.** Proportion of types of pastures in the "Brichmulla" massif to the total area of pastures in the district

According to the Resolution of the Cabinet of Ministers # 689 of August 19, 2019 "On approval of the regulation on maximum permissible norms of use when grazing livestock in pastures, the procedure for maintaining and maintaining pasture rotation." Pasture rotation is carried out on the basis of the following information: area of pastures; species composition, condition and nutritional value of pasture plants; pasture infrastructure; duration and season of pasture use. [2]

Now, according to the formula specified in the Resolution of the Cabinet of Ministers No. 689 of August 19, 2019 "On approval of the regulation on maximum permissible rates of use when grazing livestock on pastures, the procedure for maintaining and maintaining pasture rotation", we will calculate the maximum permissible rate for the use of pastures in the "Brichmulla" massif:

$$O_3 = 3840.9 \text{ ha} * 4.2 \text{ c/ha} = 16131.7 \text{ c} \tag{1}$$

where,  $O_3$  — Percentage shares of forage reserves of a certain pasture area, taking into account the conditions of pasture distribution, are obtained by multiplying the productivity of pasture plants in this area by its area based on the calendar period of the duration of the pasture use.

$$P_{ЭН} = \frac{\frac{16131.7}{100} * 85}{3.74} = 3666,3 \text{ ha (95\%)} \tag{2}$$

where,  $P_{ЭН}$  — the maximum allowable rate of livestock grazing per 1 head of conventional livestock on a specific pasture.

The maximum permissible rate of pasture area for cattle grazing in the Brichmulla massif is 3666.3 hectares, that is, with an average annual pasture yield of 4.2 c/ha, it is allowed to graze livestock in 95% of the area of the massif pastures. Hence it follows that the higher the yield, the less area is allocated for the insurance fund.

Allowable number of cattle on pastures of the Brichmulla massif with an average annual feed unit of 1.9 c.f.u. (centner of feed units); with a daily requirement for dry weight of an average of 3.2 kg per 100 kg of live weight equal to 19.2 kg/day, that is, the most common in Uzbekistan Galshta breed of cows and bulls with a live weight of an average of 700 kg is taken as a basis; 160 days is the number of days that cattle can graze on the foothill pastures of the "Bostanlyk" region, looks like this:

$$E = \frac{1.9 * 3.74}{0.224 \text{ c} * 160 \text{ days}} = 0,2 \text{ head / ha} \tag{3}$$

The calculations show that there are 0.2 head of cattle per 1 hectare of pastures, that is, to graze 1 head of cattle per year, an average of 5 hectares of pastures are needed.

**RESEARCH RESULTS.**

For pastures with a large pasture area that includes several types of pastures, it is possible to rotate pastures using pastures in different seasons.

Table 1  
**Pasture rotation by plots for the 1st year**

Pasture plot	Area, ha	Periods	Number of farm animals, cattle	Seasons						Amount of days
				spring		summer		autumn		
				May	June	July	August	September	October	
1	90		0	rest						
2	45	01.05-05.05	300							5
3	63	06.05.-12.05	300							7
4	72	13.05-20.05	300							8
5	99	21.05-31.05	300							11
6	117	01.06.-13.06	300							13
7	153	14.06-30.06	300							17
8	153	01.07-17.07	300							17
9	126	18.07-31.07	300							14
10	162	01.08-18.08	300							18
11	117	19.08-31.08	300							13
12	90	01.09-10.09	300							10
13	90	11.09-20.09	300							10
14	90	21.09-30.09	300							10
15	90	01.10-10.10	300							10
	<b>1557</b>		<b>300</b>							<b>163</b>

Source: compiled by the author

Table 1 shows that we divided 1 pasture area into 15 pasture plots. In this case, 1 plot is allocated for rest, and grazing is carried out on the remaining 14 plots. In spring, the duration of grazing will not be long, and in summer, the duration will gradually increase. Here, 300 conventional head of cattle were taken for grazing, and the area and duration of grazing on pastures was calculated according to the average annual yield of this pasture area and the daily requirement of cattle for feed. The pasture area can also be divided into plots of the same area, but this method is advisable to apply for year-round low-yielding pastures, when pasture grazing alternates with stables for livestock.

Now, using the example of Table 2, in the 2nd year in spring, grazing begins already from the 10th plot, which was grazed in August in the previous year. Further, grazing is carried out in those areas where the duration of the "rest" of the pasture is at least 6 months after the previous grazing in this area.

Table 2  
Pasture rotation by plots for the 2nd year

Pasture plot	Area, ha	Periods	Number of farm animals, cattle	Месяцы						Amount of days
				spring		summer		autumn		
				May	June	July	August	September	October	
1	90	01.06-10.06	300							10
2	45	01.08-05.08	300							5
3	63	01.07.-07.07	300							7
4	72	06.08-13.08	300							8
5	99	08.07.-18.07	300							11
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13	90		0	rest						0
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## CONCLUSION.

Thus, from the results of the study, we can conclude that by alternating grazing of livestock from year to year in different areas, we give the pasture the opportunity to restore its forage productivity, it is possible to collect seeds of forage grasses, to make hay of those areas that have not been grazed. By carrying out pasture rotation, it is possible not only to significantly increase the economic and environmental efficiency of the use of pastures, but to use the pastures within the limits of its maximum capacity for forage production.

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