



SHEEP MILKING DEVICE

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Article history:	Abstract:
<p>Received: September 3rd 2021 Accepted: October 1st 2021 Published: November 26th 2021</p>	<p>The effectiveness of a novel devices that makes feeding, latching, and milking sheep easier is examined in this article. Lambs of Karakul sheep being slaughtered for skinning, milking preparation technologies, and milking unit design. A cage design for limiting the movements of sheep during milking is supplied in order to make the milking process more convenient. This serves to fix the motions of Karakul sheep during milking without compromising their health. Theoretical justification of the proposed device's benefits, as well as the findings and conclusions of the investigation.</p>
<p>Keywords: Karakul Sheep; Milking Processes;Karakul Sheep; Lambs; Preparation Of Sheep For Milking; Milking Equipment; Labour Intensity; Low Cost.</p>	

SUBJECT RELEVANCE.

The agricultural scientific and technology process has an ongoing impact on all production processes, altering them in a variety of ways. Instead, due to the traditional preservation of flocks on multi-productive pastures, which are often unsuited for other economic activities, it has had a very minor impact on Karakul Sheep farming compared to other areas of agricultural production.

Furthering the growth of Karakul Sheep breeding, raising productivity, and enhancing product quality necessitates a number of significant measures to improve production technology, as well as the adoption of low-cost ways that make breeders' work easier [1].

Karakul sheep breeding produces a wide range of goods, including karakul, mutton, wool, sheepskin, milk, and other dairy items.

Milking sheep and creating sour-milk products began during the advent of agriculture, when nomadic flocks of sheep were moved from pasture to pasture and there were no permanent houses, as there are today.

Sheep's milk is mostly acquired in Uzbekistan from moms whose lambs are slaughtered for karakul and who start milking right after lambing and continue for 2.0 to 2.5 months. They are hand-milked.

The labor-intensive methods of fixing and milking sheep, which require great physical effort, are the main factor impeding milk output in Karakul Sheep rearing.

THE STUDY OF THE PROBLEM.

With today's technology, shepherds must perform this operation manually, which requires additional labor. The necessity for mechanisation, notably in activities such as sheep feeding and fixing, derives primarily from the fact that previously created and used installations are substantially more complex, energy and metal-intensive, and are only designed to perform certain sorts of work[2].

The most popular method of fixation in Karakul Sheep breeding is capture and fixation with a rope "in string," in which the sheep to be milked are herded into 2.5-3.0 m wide swards in the midst of which a rope is stretched. It ties the ewes head to head, and two or three shepherds cut 40-50 ewes before the milking begins[3]. This technology is low-cost, but it requires a lot of labor. This is why it must be enhanced, and in the long run, more advanced technologies must be created.

PLACE AND METHODOLOGY OF THE WORK.

A farm in the Nurabad area of the Samarkand region was used to create and install an enhanced set of equipment to perform tasks such as separation of milked sheep and feeding to put them in place for milking. We created and tested a sheep restraint device for this purpose. (fig.1).

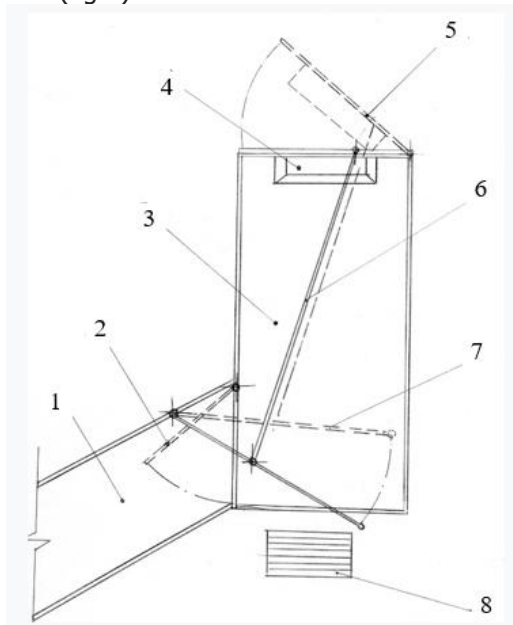


Fig.1. The sheep fixing device.

1-corridor; 2-inlet door; 3-sheep cage; 4-feeder; 5-outlet door; 6-rod; 7-outlet door control lever; 8-stool for dairymaids.

Research has been carried out to develop a set of equipment to carry out processes such as separation of dry ewes in a pen, feeding of sheep through a split sheep pen with an individual approach to the cage, fixing of sheep in the cage, milking and releasing of milked sheep. The theoretical basis of the research lies in further improvement of the rational layout of technological equipment in sheep farms and the determination of optimal parameters based on zoohygienic requirements, taking into account the technical and economic indicators of domestic and foreign counterparts (fig.2).



Fig 2. Production trials.

The production tests of the equipment set were carried out according to the guidelines "Set of machines and equipment for keeping sheep and goats. Test programme and test methods" is a IS 70.21.2 industry standard IS 70.21.2.

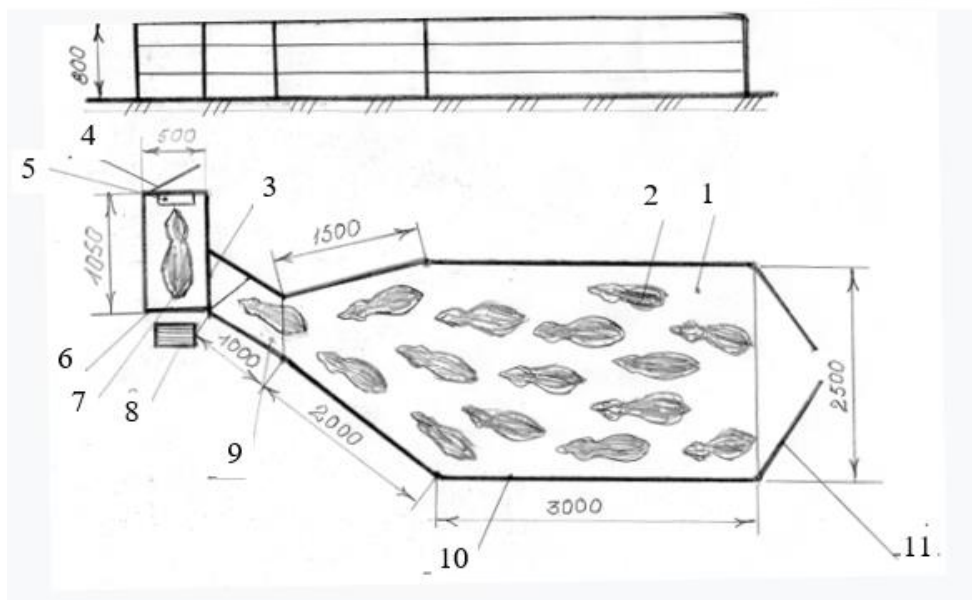


Fig. 3. The layout of the process equipment.

1-pen for milking sheep; 2-sheep; 3 – intake door; 4-exit door; 5-feeder; 6-sheep milking cage, 7-sheep; 8-seating for milkmaids; 9-split cage sheep feeder; 10-pen fences; 11-corral door.

The qualitative parameters of the equipment, such as productivity, size, speed of feeding and fixing of sheep, its optimum technological parameters were determined based on the requirements of ensuring the rhythmic performance of operations, taking into account the time spent on the performance of one or another operation.

RESEARCH RESULTS.

The developed single-section machine in the experimental version consists of: - a pen for milking sheep; - split cage sheep feeder; sheep milking cage with two doors to let sheep in and out; - seating for milkmaids (Fig.3).

Table 1.

Chronometric indicators of the milking process of 50 sheep using special equipment

Technological operations	1 day of milking	20 days of milking	40 days of milking	60 days of milking
Sheep pen (50 heads.)	13 min	12 min	10 min	10 min
Feeding sheep to the cage (1 heads.)	0,5 min	0,5 min	0,5 min	0,5 min
Milking sheep (1 head)	1,5 min	1,5 min	1,2 min	1,0 min
Releasing the sheep (1 head)	0,5 min	0,5 min	0,5 min	0,5 min

*The time required to perform an operation was determined by dividing the total time spent per head.

The machine was tested in operation over the entire milking period on Karakul sheep every 20 days for 60 milking days.

Milking was done manually, so it took 1.0 to 2.5 minutes to complete the operation. Observations have shown that the clarity of the process sifters maximises the ease and speed of feeding, latching and releasing sheep. The unit is in operation as follows - first the ewes to be milked are driven into the pen, then some of them are wheeled through the split into the cages. To do this, the milker opens the entrance door and closes the entrance door at the same time with a single movement of the lever. Once the ewe is in the cage, the milking process begins. When milking is completed, the ewe is released and the process repeats. The unit is created from 20x30 mm steel profile, 10 mm diameter steel round bar.

Analysis of the data shows that it takes 105 to 135 minutes to milk 50 sheep, or an average of 2 to 2.3 minutes per head, and makes milking much easier. If necessary, the number of milking cages can be increased.

Thus, the results of the research and production tests of the experimental sheep milking machine enable the following conclusions to be drawn:

- the new sheep milking attachment considerably simplifies the process of milking sheep and can be used both permanently in a shed and out in the pasture, due to its simple construction and demountability;
- the ease of use of the unit allows one to perform veterinary work such as tattooing, injecting, blood sampling and others.

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