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JUSTIFICATION OF EFFECTIVE PARAMETERS OF SELF-CLEANING GROUP FLOODPLAIN IN SHEEP BREEDING OF OTYRAR DISTRICT OF TURKESTAN REGION

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Abstract: The main part of the work provides information on the current state of clean water supply to sheep farming, provides a literary review of irrigation systems, based on the latest scientific and technical achievements and the use of modern machinery and equipment, the effectiveness of the use of automated self – cleaning equipment for sheep irrigation in the team of Otyrar district of Turkestan region is justified. In the technological department, modern self-cleaning water tanks are characterized by low quality, complex drive and high metal consumption. To solve these problems, it was proposed to use a group self-cleaning reservoir with a hydrotreating device. The water tank works automatically and provides high quality drinking water.

Keywords: self-cleaning reservoir, clean water supply, irrigation systems, watering, purification systems, agro-industrial complex, mechanization of the water supply process

Introduction. Agriculture is an industry in which the direction of the country's development is determined, there are sufficient sources of financing and mechanisms for their development have been tested. Now it is necessary to actively implement the tasks set by the President of Kazakhstan in his Address to the people on agriculture and linking them with ways out of the global financial crisis. The message outlines ways to solve two major tasks - food security and export diversification with further development of the agro-industrial complex. Investments are mainly directed to existing and developing export-oriented sectors of grain processing, meat and dairy products, fruits and vegetables.

Most of these funds will be spent on the modernization of infrastructure with export potential, the construction of new poultry farms, meat processing plants, vegetable stores, dairy farms, feedlots, slaughterhouses.

As part of these measures, the agro-industrial complex will increase the share of livestock species and hybrids in the total livestock, actively organize farms specializing in fattening, fine wool production, milk production through dairy farms, meat processing complexes to be implemented. Open steppe pastures, highly productive meadows and foothills of Kazakhstan will become a real base for the further development of animal husbandry. [1]

Currently, despite the increase in the number of injuries in agriculture with the use of new equipment, the level of mechanization of livestock operations is low.

In particular, water supply to sheep pens is mechanized only by 63%, and in cattle, pig and poultry farms this indicator is -92 ... 96%, as well as manure harvesting - 38 and 84.93%, respectively. distribution of food - 27 and 58 ... 93%. The overall level of mechanization in sheep farming is only 24%, in pig farms - 72%, in poultry farming - 84%. The volume of manual labor in sheep breeding is 80%. [3]

Theoretical analysis. Despite the high level of mechanization of the water supply process on a livestock farm, the cost of manual labor required to maintain the water supply system when watering sheep and goats is also very high.

The main reason for this is that the surface of the currently used automatic watering

machines is equipped, so they all have the following drawback. The sanitary and hygienic quality of drinking water when using these drinkers is rapidly deteriorating. This is due to the fact that the container contains food waste, wool, manure, saliva, etc. dirty things fall. Moreover, they are not regularly cleaned by hand. To prevent deterioration of the quality of drinking water in the car watering in our country and abroad, purification systems are being developed for mechanical cleaning of irrigation tanks several times a day. However, the quality of their water purification is low, the wheels of car washes are complex, the metal consumption is high. In this regard, the cleaning was theoretically justified and the necessary technical solutions were taken into account.[3]

Research part.Based on the analysis of self-cleaning group watering machines and the results of theoretical and experimental studies have confirmed that the efficiency of the automated system is the best for sheep watering.

The annual economic efficiency of using one set of equipment in a sheep breeding complex per 100 heads amounted to 1,296,100 tenge. Water supply systems of livestock farms and complexes, depending on the water source and water quality, include water intakes, lifting pumps of the I and II stages, water purification and disinfection plants, pressure regulators and distribution networks. The most commonly used water system in sheep breeding complexes, depending on the water sources, consists of:

- 1) well,
- 2) first stage pumping station;
- 3) combined container of peasant and fire safety;
- 4) second stage pump,
- 5) water quality improvement device,
- 6) pressure regulator (water tower or hydropneumatic unit);
- 7) distribution network;
- 8) water intake valve;
- 9) watering cans.[4]

The technological part is widely supported - the ring water supply network and the central heating system. In this case, the technological installation is equipped with an additional pumping station that provides circulation and heating of water on the ring highway of the complex.

The composition of group water separators used in sheep breeding complexes may include the following systems: the VNIIOK installation for watering one group of sheep (Figure 1), the reconstructed AGK-4A for watering cattle (Figure 1) and the QUO developed by the NGO "Kazselkhozmezhanizatsiya". Sets of irrigation equipment (Figure 2). According to their characteristics, watering cans more fully comply with zootechnical requirements. Since they are supplied with water of the required temperature, they are also used indoors on sheep farms or in open pens for sheep.

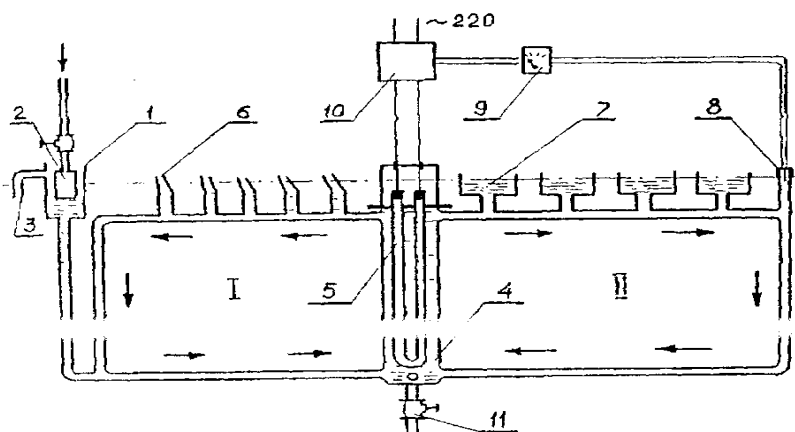


Figure 1. Schematic diagram of the sheep watering system developed by VNIIOK.

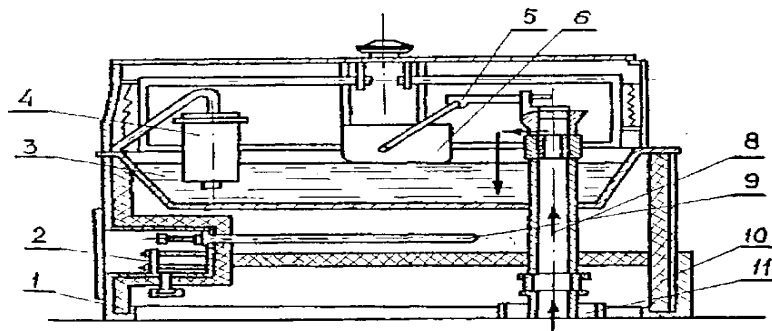


Figure 2.1 - box; 2 - relay; 3 - dishes; 4 - thermostat; 5 - valve mechanism; 6 - float; 7 - lid;
8 - water pipe; 9 - body; 10 - radiator; 11 - support
Figure 2 - AGK-4A Cattle drinker

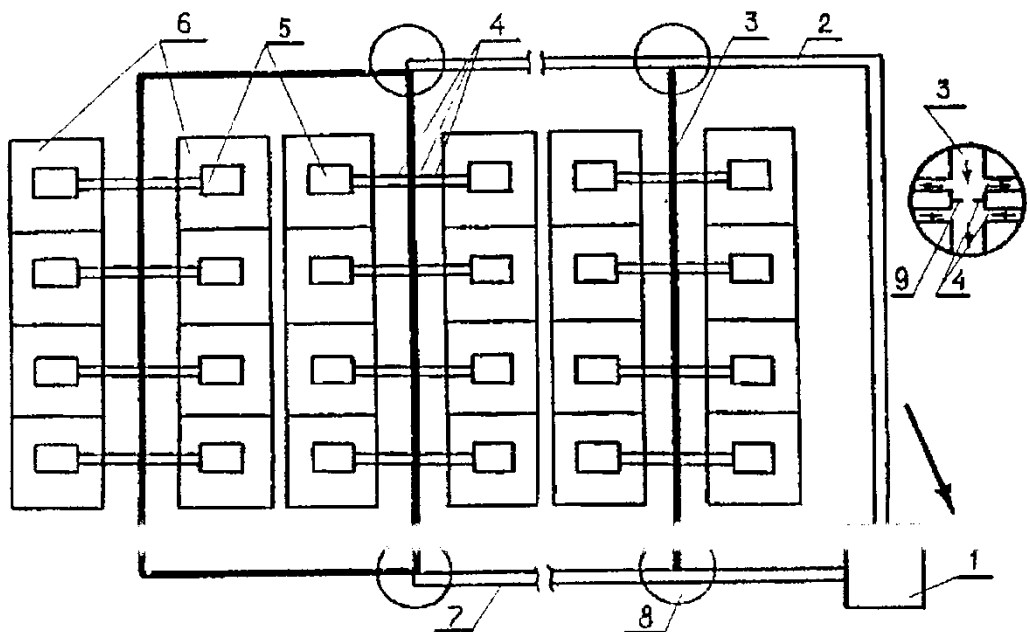


Figure 3.
1- pumping station , 2- pressure line , 3-line, 4- distributor for automatic watering,
5- automatic watering, 6- section , 7- drain , 8- well , 9-diaphragm
Figure 3 - Schematic diagram of a sheep drinker QUO-8.

Group sprinklers for individual watering of cattle with a separate water heater are used on open pastures of sheep farms with water supply. The car is equipped with a special heat-retaining fiberglass (10), a tank with a capacity of 60 liters (3), a valve mechanism (5) with a float drive (6), a body with a capacity of 1 liter. kW (9) and a thermostat (4). The temperature here is self-regulating and is 278-287° C. The main disadvantages of this watering can are: if the water heater and thermostat fail, or if there is no power supply, the water in the tank will freeze; the power source in the individual water heater in each sprinkler is very dangerous for livestock; freezing of the pipe leading to the sprinkler; it is also difficult to heat a large amount of water in the watering can; it is difficult to install in sheds with cracks in the floor; non-mechanized cleaning of the watering can, etc.[5,6]

Conclusion The results of tests conducted at the Kazakh Regional Machine Testing Station (ISS) showed that the set of irrigation equipment is very reliable, ensures that the water temperature in the tank meets zootechnical requirements, prevents freezing of water in the tank and pipes.

One of the main disadvantages of watering cans is that they quickly become polluted, and

as a result they need to be cleaned daily from food and other waste brought by watering animals. To reduce the pollution of serial car washes PO-4P, they are equipped with a special grille. But it also does not protect the water in the watering can from contamination.

The results of the analysis of the existing irrigation equipment show that the most effective irrigation system in the conditions of livestock complexes is the central heating system.

In addition, the modern design of all water carriers with open water in a drinking water tank has a common technological disadvantage - a rapid deterioration in the sanitary and hygienic quality of drinking water when using a balloon.

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Түйін: Жұмыстың негізгі бөлімінде қой шаруашылығын таза сумен қамтамасыз етудің қазіргі таңдағы жағдайы туралы мәліметтер берілген, суғару жүйелері туралы әдеби шолу жасалған, соңғы ғылыми - техникалық жетістіктер және заманауи машиналар мен жабдықтар қолдану негізінде Түркістан облысы Отырар ауданы ұжымында қой суғаруда өздігінен тазаланатын автоматтандырылған қондырғыны пайдалану тиімділігі негізделген. Зерттеу бөлімінде заманауи өзін-өзі тазартатын су резервуарлары төмен сапалы, күрделі жетекті және жоғары металды тұтынумен ерекшеленеді. Бұл мәселелерді шешу үшін гидротазартқышы бар өзін-өзі тазартатын резервуарды пайдалану ұсынылды. Су резервуары автоматты түрде жұмыс істейді және жоғары сапалы ауыз сумен қамтамасыз етеді. Тазартылатын беттегі су ағынын және пайда болатын ластаушы заттармен әрекеттесу механизмін талдай отырып, ластаушы заттарды жуудың мүмкін еместігінен жеке төмен қысымды көлбеу беткейде жуу кезінде тазалау ені арасында аналитикалық байланыс орнатылды, су ағыны сұлбасы негізделген.

Кілт сөздер: өзін-өзі тазартатын резервуар, таза сумен жабдықтау, суару жүйелері, суару, тазарту жүйелері, агроөнеркәсіптік кешен, сумен жабдықтау процесін механикаландыру

Аннотация В основной части работы представлена информация о текущем состоянии обеспечения чистой водой овцеводства, представлен литературный обзор ирригационных систем, основанный на последних научно-технических достижениях и использовании современных машин и оборудования, показана эффективность использования автоматизированного самоочищающегося оборудования для орошения овец Отырарского района Туркестанской области. В экспериментальной части статьи современные самоочищающиеся резервуары для воды характеризуются низким качеством, сложным приводом и высокой металлоемкостью. Для решения этих проблем было предложено использовать групповой самоочищающийся резервуар с устройством гидроочистки. Резервуар для воды работает автоматически и обеспечивает высокое качество питьевой воды. Анализируя поток воды на очищаемой поверхности и механизм взаимодействия с образующимися загрязнителями, установлена аналитическая связь между шириной очистки при мойке на отдельной наклонной поверхности низкого давления из-за невозможности промывки загрязняющих веществ, обоснована схема стока воды.

Ключевые слова: самоочищающийся резервуар, чистое водоснабжение, ирригационные системы, полив, системы очистки, агропромышленный комплекс, механизация процесса водоснабжения