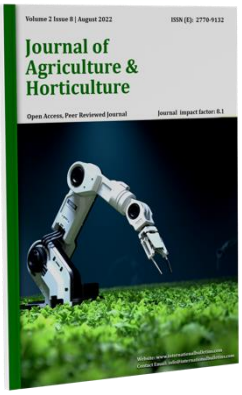

THE IMPORTANCE OF FODDER CROPS IN THE DEVELOPMENT OF LIVESTOCK IN THE REPUBLIC OF KARAKALPAKSTAN IN THE CONDITIONS OF WATER SCARCITY.

Khojamuratov Salamat Bekmuratovich
A junior researcher at the fodder selection and breeding laboratory of the Karakalpakstan Research Institute of Agricultural Science.
Tel: +99890 652 01 92 khojamuratovsalamat@gmail.com
https://doi.org/10.5281/zenodo.10633591

Abstract. This article discusses a number of issues, including the lack of water, the Aral Sea's drying up, the failure of the global climate, the improvement of land reclamation conditions brought on by drought, and the development of new fodder crop varieties released by the Karakalpakstan Agricultural Scientific Research Institute. and details regarding these breeds' function in continuously supplying poultry with feed, as well as their respective benefits and significance in comparison to other fodder crops, supplying year-round fodder for livestock and poultry in the Republic of Karakalpakstan; their stable fodder offered details on base establishment, directives for cultivating salt- and water-resistant fodder crop varieties, and presidential decrees and orders regarding the advancement of cattle breeding in the Republic of Karakalpakstan.

Key words: Sudanese grass, African millet, sourghum, water scarcity, global climate change, drought, silage, blue mass, new varieties of fodder crops, relative indicators.

Introduction: As the world's climate continues to deteriorate, the Republic of Karakalpakstan is experiencing a great disaster due to the drying up of the Aral Sea. This is primarily due to a shortage of water in many arable agricultural lands, which causes the land's salinity levels to rise annually. The rise in the water evaporation coefficient, which is mostly caused by an increase in atmospheric temperature, has a significant impact on the loss of many green people and causes a water scarcity in the affected areas. The number of rainy days and days without rain are rising as a result of the ecological equilibrium breaking down; additionally, the risk of drought is growing yearly as a result of the soil's decreasing moisture content and the land's fertility indicators are declining annually. To address these issues, it becomes vital to understand how to select the appropriate agricultural crops in order to improve soil yields and make efficient use of the resources already in place. It is crucial to consider how a crop will affect the soil and how fertile the resulting crop will be before planting any crops on the property. According to the order of the President of the Republic of Karakalpakstan, on November 7, 2019, PO -4512, the four regions of Karakalpakstan, ,mailnly Moynak, Qongirat, Bozataw and Takhtakupir are specialized in livestock farming. Consequently, the Karakalpakstan Research Institute of Agricultural Sciences has been assigned several tasks, mostly in the Republic of Karakalpakstan, to create new varieties of drought-resistant fodder crops and to continuously supply fodder for livestock and poultry throughout the year in order to establish a stable fodder base.

Research on this issue has been done by numerous agricultural scientists. The agriculture sciences candidate was one of them. Throughout Karakalpakstan's climate and soil

conditions in the 1980s and 90s, Dauletbay Edenbaev conducted research on the advantageous qualities of various fodder crop varieties. He made numerous recommendations, for instance, about the feeding of animals with nutrient-rich food crops including corns, sourghum, and alfalfa. From sourghum: Nayman sourghum, Rich sourghum, Matqayir, Uzbekistan-18 types, late ripening varieties of intensive type of corn sourghum, Uzbekistan-100, Uzbekskaya belozubovidnaya, Silica varieties are used.

Sourghum and Corn sourgum of the sourghum variety, which yield 400–600 centners per hectare, were planted to generate silage and green pulp. The following are their agrotechnics: Following two to three cultivations, the sprouts receive 200–220 kg of nitrogen per acre from mineral fertilizers. Weeding and fertilizers are also applied.

Until the first harvest, barley needs to be watered three to four times and corn four times in order to achieve a green mass. Varieties of juwerin that ripen quickly and are harvested multiple times, like Vakhsh, require the application of 60–70 kg of nitrogen, 150–170 kg of phosphorus, and one potassium application before the first harvest and again after each mowing. Water and food are given to it at a pace of 70–100 kg. The previously mentioned wheat and corn cultivars performed well at the time in terms of providing a steady source of feed for livestock. The most pressing problems of the modern era are the development of new varieties of fodder crops that use less water and are resistant to both salt and water.

Main body. "Expanded video selector meeting No. 95 in the direction of important tasks for higher education, scientific organizations, regions in the direction of development of science and innovation (No. 02-3540 of December 14, 2020 (registered with)" was released on December 3, 2020, by President of the Republic of Uzbekistan Sh. Mirziyoev. The statement's third paragraph entails instructing scientific institutions on how to create high-yielding crop varieties that are appropriate for each region's soil and climate.

Based on the problems mentioned above, the project "Creation of salt-resistant and highly productive local varieties of fodder crops in the conditions of the island" for 2021–2022 in the experimental fields of the Karakalpakstan Agricultural Scientific Research Institute was realized at the Institute of Agricultural Science of Karakalpakstan, by the candidate of agricultural sciences Turdishev Bekmurat Khojamuratovich.

Analysis and results. The National Variety Testing Commission received two sourghum varieties, one African millet, and one Sudanese grass that were established in 2022. To commence the first set of fertilizer, the Sudanese grass Chimbayskaya-12's blue mass and seed preparation technique were created. One may argue that Sudanese grass, a product of fodder grains, has made a substantial contribution to the swift advancement of the republic's livestock farming. Its 2.5–3.0 m-deep fringed vascular system is located there. On light to medium soils, its structure can be twisted, and you can obtain zúráátti on the design. The ability of the hybrids of Sudanese grass and sourghum to quickly adapt to various soil and climate conditions is one of their most significant traits. It has been demonstrated that Sudanese sorghum can be grown successfully in regions where the average temperature is higher than 16,000 C.

In terms of yielding more grain and hay than other annual fodder crops, Sudanese bluewheat is superior. It's a crop that provides sheep and cattle with wholesome fodder. Within 100 kg of blueberry bulk, it contains 52–56 nutritious units and 4-5 kg of protein. When it is cultivated to obtain blue mass, the circumstances in Karakalpakstan yield 1000–1200 centners and 45–50 centners of quality eggs per hectare. Depending on the cultivar, the

vegetative time is shortened from 105 days to 115–120 days. Sudanese grass has a protein level of 9.03%, which is second only to alfalfa among other annual fodder crops. Furthermore, in terms of nutrition and green mass, it leads all fringed wheates.

Sudan is a one-year crop that loves the heat and short days. After the soil temperature reaches between 10 and 120 degrees Celsius, the seeds should be sown. In Karakalpakstan's northern zone, it corresponds to the first ten days of April. The first ten days of May are the latest time to plant to receive eggs. Sudanese gorse seeds are sown 3–4 cm deep, or 5–7 cm deep in cases of poor soil moisture. In 7-8 days, full hatching of eggs occurs when the weather is favorable.

In the first phase of irrigation, fields planted for green mass receive 700–800 m3/ha of water. This amount is then applied twice or three times throughout future irrigation cycles. It is important to note that the most nutrient-dense species are gathered in the blue mass and hay during the initial phase after emerging from the sea. This is the case for all tall fodder crops.

One way to consistently produce fodder for the Republic's livestock is to cultivate Sudanese grass using the aforementioned methods.

African millet is a crop used as feed. Hay, silage, and grass-forage can all be obtained with the tithe. Its infectivity is comparable to chicken's, and 100 kg of initial mass is equivalent to 16.1 feed units; moreover, 100 kilogram of hay is equivalent to 55.1 feed units. (These numbers represent the nutritional units of Sudan that are most racialized: 17, 0 and 52, 0).

It is possible to obtain 800-1000 c/ha of blue mass and 60–70 centner/ha of high-quality grain in Karakalpakstan's circumstances. Grain can be seeded most successfully between the second ten days of April and the first ten days of June.

Large-horned cattle, especially small-horned ones, and birds both benefit from grain as a feed source.

In poultry (chickens), the introduction of African millet into their feed ration at the expense of combicorn has a positive effect on the quality of the product and the cost of the product is sufficiently reduced.

African millet grain contains 3.0% oil. The amount of protein in hay is 6.93%, fiber is 25.22%, it is close to Sudanese grass.

The initial chemical composition of African millet is as follows: water-84.3%, protein-2.9%, oil-1.4%, fiber 3.5%, non-extractive varieties -6.5%, ash -1.4%, carotene-34, 8 mg/kg. The finest millet cultivars in Africa are valuable for food and drink. One of the essential raw resources used in the business to produce beer and alcohol is grain. African millet is a short-day plant that thrives in light heat. Grain ripening starts when soil temperature reaches between 100 and 120 °C. For 14–150 s, favorable circumstances are established. 2–4 cm is the planting depth. Compared to sudan wheat and sourghum, the amount of flowering is significantly higher: an average plant produces 6–10 shoots, and in really favorable circumstances, that number can reach 12–20 individuals.

Table 1

Comparitive characteristics of sourghum, Sudanese grass, African

Names of the crop varieties	The soil temperature before the slope is 0 C	Maturation period, days	The amount of watering ga/m^3	Ripening period day	The yield obtained when planted in blue mass is C	Yields in C when sown for seed
Sourghum	12-15^{0}c	10-15	5600-6300m^3	115-125	400-600 c	100 c
Sudanese grass	10-12^{0}c	7-8	2800-3200m^3	110-118	1000-1200 c	45-50 c
African millet	10 - 12^{0}c	9-11	2100-2400m^3	110-115	800-1000 c	60-70 c

Based on the results mentioned above, it is recommended to plant the varieties of fodder crops currently being grown, which are more susceptible to drought, salt, and less water-resistant climate conditions, as opposed to those farmed in the past and present.. These cultivars play a critical role in producing stable feed, which is essential for the quick growth of cattle. Both African millet and sudanese grass shóbini have a significant impact on soil fertility. For instance, the fringed vascular system of sudanese grass penetrates to a depth of 2.5–3.0 meters following planting. Furthermore, with regard to nutrition and green mass, it leads all fringed grasses.

In 2022, the G-6 African millet variety was submitted to the Republic of Uzbekistan's State Variety Testing Commission. When planted for mass blueberry of the G-6 type, 600–1000 centners per hectare can be obtained; 60–70 centners per hectare can also be obtained.. One advantage it has in this regard is that, in comparison to sudan shóbi and juwerige, the level of germination is very high: on average, a single plant yields 6–10 seeds, and in really favorable instances, it can generate more than 12–20 individuals. If its grain is kept as a combicorn in the garden, it gives excellent results.

Summary. For large-scale land reclamation situations, adding Sudan wheat and African millet the aforementioned fodder crops to the agricultural rotation system often improves soil fertility. To support the growth of cattle and poultry farming, it is crucial to provide an additional supply of fodder. This will boost the variety, quality, and production of the feed. Sudanese grass and African millet are fodder crops that are grown by farmers and farms in our Republic that specialize in raising livestock and poultry. Their inclusion in the ranks of districted varieties will ensure that these crops are widely used as fodder crops in livestock farming.

References:

1. Асланов И.Е, Мацнев А.С, Квитко Г.П, Гейдебрехт И.И, “Кормовые севооборот-основа создания Кормовой базы в животноводческих комплексах”.// Трудов Всесоюзного НИИ кормов: ж. “Кормопроизводство” №17, Москва, 1977, 152-158
2. Асанов Ш.Ш. “Хороший источник корма для Южного Казахстана” ж. “Кормопроизводство”, №12, 1981, 25-26.

3. Бондаренко В.П. “Выращивание сорго на зеленый корм и на силос на орошаемых землях Присивашья”// Сборник научных трудов Саратовского СХИ : “ Генетика , селекция и семеноводство” 1980. 97-104.
4. Горовой Н. Л.: ”Засухоустойчивая культура”. Ж.”Корма” №5.1976.35.
5. Еденбаев Д, Азизов К. “Адаптивные особенности в селекции сорго” ж. Узбекистан кишлок ва сув хужалиги №1 2020 32.
6. Калашник Н.С. “Селекция сорго: Итоги, проблемы” // Сборник научных Трудов Всесоюзного Ордена Трудового Красного Знамени НИИ кукурузы: Селекция, семеноводство и технология возделывание сорго в основных районах страны” Днепетровск, 1984, 3-10.
7. Орлов Н.Б. “Сорго интенсивного типа” ж. “Кормопроизводство”, №12, 19801, 26.
8. Полуян И.В.: “Сорго-суданскковые гибриды” ж.“Кормопроизводство”, №12, 1981, 23-24.
9. Алдошин А.В. “Устойчивость сорго к пыльной головне” // Трудов Всесоюзного НИИ кормов: ж. “Кормопроизводство” №17, Москва, 1977. 118-124.
10. Сафаров Т, Исмаилов С. “Семенная продуктивность суданской травы в Узбекистане” ж. “Кормопроизводство”, №2, 1980, 39.
11. Соловьев Б. “Культура больших возможностей” ж. “Корма” №5,1976, 29
12. Щербаков В.Я.: “Сорго на зерно” ж. “Кормопроизводство”, №12, 1981, 22