

UDC 633
AGRIS F01

<https://doi.org/10.33619/2414-2948/96/21>

FEED PLANTS OF NAKHCHIVAN ARID MOUNTAIN LANDS

©*Mammadli T.*, Nakhchivan State University, Nakhchivan, Azerbaijan
©*Bayramov B.*, Nakhchivan State University, Nakhchivan, Azerbaijan

КОРМОВЫЕ КУЛЬТУРЫ ЗАСУШЛИВЫХ ГОРНЫХ ТЕРРИТОРИЙ НАХИЧЕВАНИ

©*Мамедли Т.*, Нахичеванский государственный университет,
г. Нахичевань, Азербайджан
©*Байрамов Б.*, Нахичеванский государственный университет,
г. Нахичевань, Азербайджан

Abstract. Presents information on feed crops of arid mountain lands of Nakhchivan. It is established that the most widespread group of feed grasses of the studied area includes *Artemisia* L., *Salsola* L., *Kochia* Roth, *Atriplex* L., *Symphytum* L., *Astragalus* L. and others. The distribution area of feed crops of these genera and mixed associations formed by them were studied.

Аннотация. Представлены сведения о кормовых культурах засушливых горных территорий Нахичевани. Установлено, что к наиболее распространенной группе кормовых трав изучаемой территории относятся *Artemisia* L., *Salsola* L., *Kochia* Roth, *Atriplex* L., *Symphytum* L., *Astragalus* L. и др. Изучены территории распространения кормовых культур этих родов и образуемых ими смешанных ассоциаций.

Keywords: feed crops, dry lands, plant communities, herbivores, steppes.

Ключевые слова: кормовые культуры, засушливые земли, растительные сообщества, травоядные, степи.

Many fodder plants are distributed in natural pastures and meadows of the forestless arid mountainous terrain of the Gunnut-Gapichik physiographic region. Since these plants have different forage values, cattle eat them differently. However, the most common species of the fodder group in the study area include *Artemisia* L., *Salsola* L., *Kochia* Roth., *Atriplex* L., *Symphytum* L., *Astragalus* L., etc. Some species of the genus are very valuable in terms of fodder and can be used in the region as a source for the development of animal husbandry. Taking this into account, the distribution, bioecological characteristics and fodder value of some plants of fodder value have been studied in non-forested, arid mountainous areas of the region.

Artemisia lerchiana-Artemisia lerchiana, *A. fragrans*, distributed in the forestless arid areas of Gunnut-Gapichik physiographic region of Nakhchivan Autonomous Republic and considered as a valuable fodder plant, can be named Sharur, Saderak, Kengerli, Babak and especially Julfa-Ordubad administrative region. The background in its belts is created by the lower and middle mountains. It is distributed on dry slopes and in steppes in desert-semi-desert and steppe vegetation in the Gunnut-Gapichik physiographic region. The plant is upland in the mountain belt and forms a variety of formations. In low mountainous areas it forms mixed associations with ephemeral, ephemeroid, and shorang plants. Dominance or sub dominance in these associations.

It is a gray-haired half-breed. The trunk (15) is 30-50 cm tall, whitish-hairy in the first stage of vegetation, then densely pubescent, and has branches. It is a plant that branches slightly above the base. The leaves of the lower stem are 2.5-3.5 cm long, oblong, twice feathery, the lobes thinly lanceolate or lanceolate. The corms are sessile, ovate or globular.

The flowers are yellow. It blooms in September-October and its seeds ripen in October-November. *Artemisia lerchiana* has a pungent odor and bitter taste due to the presence of many essential oils. It is eaten by sheep after the onset of frost during the fall and winter months, after the essential oils in white wormwood and the amount of the toxic substance santonin in those oils have diminished. It is relatively bad in the summer and is not eaten at all in the summer. The plant has preventive value. When animals eat this plant, the substance santonin destroys the worms in them [1].

Fodder areas of *Artemisia lerchiana* in Azerbaijan, their fodder value and classification were studied by R. K. Malikov [11, 12].

A. splendens, — another species of *Artemisia*, widely distributed in the subalpine and especially high mountain zones of the Nakhichevan Autonomous Republic, is considered a good pasture plant for small horned animals. It is resistant to grazing and trampling and is eaten with great enthusiasm. There are 42 species of *Artemisia* known in Azerbaijan [1].

Among these species, *A. vulgaris* and *A. absinthium*, which have important forage value, are eaten by livestock in summer in sufficient quantity.

Salsola L. is one of the plants growing in bare, treeless areas of the low and mid-mountain zones of the physiographic region. It has a bitter taste due to the large amount of salts accumulated in its composition. Therefore, they are not eaten until the fall frosts. After this period, some of their species begin to be eaten. *Salsola dendroides*, *Salsola nodulosa*, *Salsola ericoides*, etc. can be shown.

Salsola dendroides is a young shrub with densely pubescent trunk (spring and summer), up to 1 m high and sometimes more. A large number of trunks are out of rule. In young leaves are linear, cylindrical, covered with yellow hairs, in the fall — oval, triangular, hairless. The flowers are numerous and form a broomstick on the branches. The fruits are winged. The highest stage of its development is reached in the fall, and then the annual shoots dry up. In summer, new shoots begin to develop from the root canal. It blooms in May and gives seeds in November. A well-developed bush can produce up to 100-200 thousand seeds.

Widespread in all plains and mountainous regions of the Nakhchivan Autonomous Republic. It is found in the foothills of Julfa, Kengerli and Sharur administrative districts of Gunnut-Gapichik region, mainly on plains and depressions with salty and sandy soil, in river valleys. It grows along the banks of streams, on irrigated crops, in weedy places.

The chemical composition of *Salsola dendroides* shows that the stems of this plant contain 70% water and the leaves contain 80% water. The amount of ash in the leaves is more than 33% and in the bark 13-14%. In addition to fiber, the amount of protein, proteins and fats in the leaves is also high. This indicates that cumin is a plant of high fodder value. Annual dynamics of aboveground and underground mass of *Salsola dendroides* in Azerbaijan was studied by R. K. Malikov [10].

Salsola ericoides is a suitable forage plant for cattle in fall and winter. It is a shrub with a height of 60-70 cm. It is weakly branched. The lower part of the trunk is woody, covered with light gray bark. Young birds are grayish at first, then bare and bluish. In the fall, the branches dry up, the whole plant becomes grayish-black. The leaves are numerous, cylindrical, fleshy.

The fruits are winged. Mayflower blooms and produces seeds in October. It grows on gentle slopes with saline, loamy soils. Its forage value is similar to other species and it is relatively well eaten by livestock.

Salsola nodulosa is a small bush up to 30 cm high. It is branched from the base part. The lower part of the trunk is woody, covered with grayish bark. Young birds have gray plumage. The leaves are small, odd triangular in shape, falling off quickly. Flowers are arranged singly in the axils of the inflorescences and form a spiny flower group. The fruits are winged. It blooms in July-August and produces seeds in September-October.

Widespread in the plain part of the Nakhchivan Autonomous Republic. Widespread mainly in places with hilly relief in the foothill zone, on slopes and hills with varying degrees of inclination of individual hills and valleys. It grows on saline, compacted and variously saline soils. These soils are often hardened clay, sometimes-sandy clay. It is a plant that is eaten by livestock in sufficient quantities.

Chenopodiaceae — one of the interesting genera — *Chenopodium* L. *Ch. foliosum* is a plant willingly eaten by cattle on winter pastures of the middle-mountain belt of the area.

Ch. foliosum is widely distributed in desert and semi-desert types of vegetation on winter pastures of the physiographic region of Gunnut-Gapichik, in lowland and hilly areas.

Caryophyllaceae — *Silene bupleuroides* — a species of the genus *Silene* L. is a valuable fodder plant. It is characteristic of all regions of the study area. It is distributed from the middle mountain belts to the subalpine belt.

Another representative of the genus *Gypsophila* L. Two species belonging to this genus were recorded in the study area: *G. elegans* and *G. lipskyi*. These species do not form associations in the territory, but are important for feeding in plant groups. Sheep and goats willingly eat such groups, in which it is included.

Urtica dioica is widespread in all regions of Nakhchivan Autonomous Republic and can be found up to the highland belt of Gunnut-Kapichik physiographic region.

It is a dicotyledonous, rhizomatous, bushy plant up to 130 cm tall, covered with stinging hairs. Leaves are oval to heart-shaped, margins toothed. The flower cluster is broom-shaped, located in the axils of the leaves. Blooms and produces seeds from May to September.

Grows at the edges of forests, around residential areas, in rocky places, in ruins, in gardens and shrubs.

It is widely known as a fodder plant. It is eaten as silage by all kinds of domestic animals and birds.

Fresh leaves of *Urtica dioica* increase the fat content of dairy animals and have a positive effect on the enlargement of poultry eggs (8).

In addition to the qualities mentioned above, *Urtica dioica* is a plant that provides vitamins, color, medicines and fiber.

U. urens — distributed in the plains and foothill regions of Nakhchivan Autonomous Republic. It is found in Ordubad, Shahbuz lowland regions and foothill villages of Gunnut-Gapichik physiographic region.

It is a perennial dicotyledonous plant 15-60(80) cm tall, naked. Leaves are elliptic, flower group is salchymous. It blooms and produces seeds from May to October.

The plant is very rich in nutrients. Fresh leaves and chopped stems are mixed with hot water and fed to domestic animals. Such prepared feed is readily eaten by birds, pigs and cows [14, 15]. *U. urens* contains vitamins A and C.

The fresh leaves of *U. urens* are widely used in the preparation of various dishes. Its roots are yellow and its leaves are green. These colors are used to dye wool for making carpets.

Plantago major is known as a medicinal plant and at the same time it has fodder value. It is found in all regions of the Nakhichevan Autonomous Republic, from the highlands to the subalpine belt. It can be said that it is distributed almost everywhere in the Gunnut-Gapichik strip, along

roadsides, in meadows, forests, bushes, wet valleys, as well as in habitats in sandy places. It grows as a weed in fields and meadows.

It is a perennial herbaceous plant with thick roots and thick stems. The leaves develop from the root gape, that is, they gather around the root. The leaves are 2-18 cm long and the peduncle is 6-50 cm long. It is multi seeded; the seeds are very small and glabrous. It blooms and fruits from May to October.

In places where it has just spread, it starts to reproduce solitary in the first year and then gradually by means of rhizomatous stems. The plant is also propagated by small seeds. It is a trampling resistant plant. It is often sparse in areas where it occurs. Cattle eat it well in dry form, but not in green form. Adequate consumption by sheep has been observed. It is well eaten by geese during the flowering phase and by ducks during the fruiting phase.

Plantago major is widely used in medicine and vaccine industry [2]. Its leaves contain vitamins A and B. It has been found to contain 3.3% fat and 12.6% vitamin E [3].

Mountain plantain- is one of the most widespread species of the genus *P. saxatilis* in mountainous regions. It is distributed in mountainous regions of the Nakhichevan Autonomous Republic. It is found in the upper forest, subalpine and alpine belts of Gunnut-Gapichik physiographic region. Widespread in forest glades, meadows, in stony places. It is included in vegetation groupings of forest glades, but is small in number. It is considered one of the main plants of southern slopes. Grows solitary on roadsides, mountain rocks, crops, and hayfields.

A perennial silvery-purple plant. Leaves are lanceolate to slightly lanceolate, with a very pointed tip. Flower stalk slightly longer than the leaves (5-25; 35 cm). The boll is oblong-ovoid, two-seeded. The seed is oblong, 4 mm long. Flowering in May-June, fruiting in July-September.

It is well eaten by small horned animals on pastures, and sufficiently by cattle.

P. lanceolata is a forage species. Widespread in all arid mountainous regions of Nakhichevan Autonomous Republic, from lowlands to subalpine meadows. On dry grassy slopes of Gunnut-Gapichik physiographic region as a weed plant has taken root in gardens, kitchen gardens, vegetable crops, along rivers and roads. It is a plant that requires little soil.

It is a perennial bare-rooted or densely pubescent plant. The flower stalk is 20-60 (80) cm tall, longer than the lancet leaves. It is a dicotyledonous plant. Seeds are oblong, black, with a bent apex. It blooms in May-July and gradually fruits. The ripening of fruits lasts until October.

According to studies conducted by scientists, it can be said that *P. lanceolata* is useful to eat in dry form and harmful in green form.

Alkaloid substances are also found in the leaves of *P. lanceolata* [13]. In Europe, it is recommended to plant a mixture of grasses on low-yielding dry pastures. To improve forage quality, it is advisable to use pastures as a forage plant.

Carum carvi are widely used in Azerbaijani cuisine, and it is also considered a valuable fodder plant as a medicinal herb. It is widespread in the mountainous part of the Nakhichevan Autonomous Republic. In all administrative districts of Gunnut-Gapichik belt it is found from middle mountain-forest belt to upper mountain-forest belt. It grows in the grass cover of subalpine and alpine meadows. This plant is often found in forests and on river banks. It is a perennial or biennial plant with an upright, branched stem 80 cm high. The root is vertical and horizontal. The leaves are oblong. Flowers are white or pink; the flower group is umbrella-shaped. It blooms in June-July and produces seeds in July-August.

It is a good forage plant. The plant is well eaten by livestock early in the growing season. It is desirable to include a mixture of dry grasses.

Fresh leaves and seeds are used together with other greens as a salad or as a spice for juicy dishes. In addition, cumin seeds contain up to 1.7% fatty oils and 4-6% essential oil. The main

components of the essential oil are ketones and terpenes. Essential oils obtained from the plant are used in medicine, perfumery, soap making, sweets, bread, vodka-butter production, cheese production, pickling cucumbers and cabbage. Cultivation of the plant for various purposes has been recommended [9].

There are also species that can be found both in subalpine meadows and from the mid-alpine to lower alpine belts and meadows in pastures and meadows: *Capsella bursa-pastoris*, *Brassica campestris*, *Bunias orientalis*, *Poterium lasiocarpum*, *Geum rivale*, *G. heterocarpum* Boiss., *Astragalus fabaceus* M. Bieb., *Astragalus angustiflorus* K. Koch., *Astragalus aegobromus* Boiss. et Hohen., *Astragalus mollis* M. Bieb., *Astragalus macrourus* Fisch. et C. A. Mey., *Astragalus hamosus* L., *Astragalus montis-aquilis* Grossh., *Astragalus arguricus* Bunge. and so on can be shown [4–8]. There are also their representatives that are both fodder and food plants, so the dynamics of abundance in nature has decreased and there is a danger of extinction (*Gundelia tournefortii*).

Thus, the above-mentioned does not fully cover the studied arid mountain territories. We consider it advisable to study the fodder plants occurring in the territory comprehensively in further studies.

References:

1. Alesgarova, A. N., & Ibadullaeva, S. Ch. (2011). Rol' vidov *Artemisia* v tipe rastitel'nosti flory Azerbaidzhana. *Otchety AMEA*, (1.1), 132-138.
2. Osmanova, G. O. (2007). Morfologicheskie osobennosti osobei i struktura tsenopopulyatsii *Plantago lanceolata* Leningrad. (in Russian).
3. Ten, A. G. (1982). Proizvodstvo kormov. Moscow. (in Russian).
4. Ganbarov, D. Sh. O. (2014). Bioekologicheskie osobennosti vidov roda *Astracantha* Podlech v Nakhchyvanskoj Avtonomnoj Respublike Azerbaidzhana. *Vestnik Altaiskogo gosudarstvennogo agrarnogo universiteta*, (4 (114)), 64-67. (in Russian).
5. Ganbarov, D. Sh., Ibragimov, A. Sh., & Nabieva, F. Kh. (2018). Dva novykh astragala dlya flory Nakhichevanskoj Avtonomnoj respubliki Azerbaidzhana. *Vestnik nauki i obrazovaniya*, 1(3 (39)), 17-21. (in Russian).
6. Ganbarov, D. Sh., & Alieva, S. E. (2015). Rasprostranenie vidov *Astracantha* i *Astragalus* v subal'piiskoi i al'piiskoi flore Nakhchyvanskoj AR. *Evropeiskie akademicheskie issledovaniya*, 15375-15379. (in Russian).
7. Ganbarov, D. S., & Ibrahimov, A. S. (2015). *Astragalus dasyanthus* L.(Fabaceae), a new species to the flora of Azerbaijan. *International Journal of Multidisciplinary Research and Development*, 2(1), 426-427.
8. Ganbarov, D. S., & Ibragimov, A. S. (2015). New species and their bioecological features of *Astragalus* spread in the area of Nakhchivan Autonomous Republic. *International Journal Multidisciplinary Research and Development*, 2(4), 696-697.
9. Ibadullaeva, S. S. (2004). Sel'dereinaya flora Azerbaidzhana. Baku. (in Russian).
10. Malikov, R. K., & Gurbanova, F. K. (2004). Bioekologicheskaya kharakteristika karaganskikh gruppirovok. *Nauchnye trudy Instituta Botaniki NANA*, 25, 317-320. (in Russian).
11. Malikov, R. K. (2006). Sostav flory pustynnoi i polupustynnoi polyni Azerbaidzhana i ego analiz. *Nauchnye trudy Instituta Botaniki NANA*, 26, 175-179. (in Russian).
12. Malikov, R. K. (2008). Klassifikatsiya pustyn' Azerbaidzhana. *Nauchnye trudy Instituta Botaniki NANA*, 27, 94-98. (in Russian).

13. Dzyubenko, N. I., & Vishnyakova, M. A. (2014). Geneticheskie resursy bobovykh v kontekste organicheskogo zemledeliya. In *Breeding and Genetics of Legumes: Modern Aspects and Perspectives* (pp. 108-110). (in Russian).
14. Koryazhnov, V. P., & Nazarkin, E. A. (1974). O perspektivakh ispol'zovaniya novykh kormovykh trav. A. O perspektivakh ispol'zovaniya novykh silosnykh kul'tur v proizvodstve moloka i myasa bolee nizkoi sebestoimosti. *Trudy Moskovskoi veterinarnoi akademii*, 75, 164. (in Russian).
15. Novoselov, Yu. K., & Rudoman, V. V. (1988). Kormovye kul'tury v promezhutochnykh posevakh. Moscow. (in Russian).
16. Mammadova, Z. D., Nasibova, G. M., & Ibadullaeva, S. D. (2023). O Primenenii bobovykh rastenii: etnobotanika, fitotsenologiya i produktivnost'. *Mezhdunarodnyi nauchno-issledovatel'skii zhurnal*, (1 (127)), 6. (in Russian). <https://doi.org/10.23670/IRJ.2023.127.105>

Список литературы:

1. Алесгарова А. Н., Ибадуллаева С. Ч. Роль видов *Artemisia* в типе растительности флоры Азербайджана // Отчеты АМЕА. 2011. №1.1. С. 132-138.
2. Османова Г. О. Морфологические особенности особей и структура ценопопуляций *Plantago lanceolata* L. Йошкар-Ола, 2007. 175 с.
3. Тен А. Г. Производство кормов. М.: Колос, 1982. 462 с.
4. Ганбаров Д. Ш. О. Биоэкологические особенности видов рода *Astracantha* Podlech в Нахчыванской Автономной Республике Азербайджана // Вестник Алтайского государственного аграрного университета. 2014. №4 (114). С. 64-67.
5. Ганбаров Д. Ш., Ибрагимов А. Ш., Набиева Ф. Х. Два новых астрагала для флоры Нахичеванской Автономной республики Азербайджана // Вестник науки и образования. 2018. Т. 1. №3 (39). С. 17-21.
6. Ганбаров Д. Ш., Алиева С. Э., Распространение видов *Astracantha* и *Astragalus* в субальпийской и альпийской флоре Нахчыванской АР // Европейские академические исследования. 2015. С. 15375-15379.
7. Ganbarov D. S., Ibrahimov A. S. *Astragalus dasyanthus* L. (Fabaceae), a new species to the flora of Azerbaijan // *International Journal of Multidisciplinary Research and Development*. 2015. V. 2. №1. P. 426-427.
8. Ganbarov D. S., Ibragimov A. S. New species and their bioecological features of *Astragalus* spread in the area of Nakhchivan Autonomous Republic // *International Journal Multidisciplinary Research and Development*. 2015. V. 2. №4. P. 696-697.
9. Ибадуллаева С. С. Сельдерейная флора Азербайджана. Баку: Элм, 2004. 321 с.
10. Маликов Р. К., Гурбанова Ф. К. Биоэкологическая характеристика караганских группировок // Научные труды Института Ботаники НАНА. 2004. Т. 25. С. 317-320.
11. Маликов Р. К. Состав флоры пустынной и полупустынной полыни Азербайджана и его анализ // Научные труды Института Ботаники НАНА. 2006. Т. 26. С. 175-179.
12. Маликов Р. К. Классификация пустынь Азербайджана // Научные труды Института Ботаники НАНА. 2008. Т. 27. С. 94-98.
13. Дзюбенко Н. И., Вишнякова М. А. Генетические ресурсы бобовых в контексте органического земледелия // *Breeding and Genetics of Legumes: Modern Aspects and Perspectives*. 2014. С. 108-110.
14. Коряжнов В. П., Назаркин Е. А. О перспективах использования новых кормовых трав. А. О перспективах использования новых силосных культур в производстве молока и мяса более низкой себестоимости // Труды Московской ветеринарной академии. 1974. Т. 75. С. 164.

15. Новоселов Ю. К., Рудоман В. В. Кормовые культуры в промежуточных посевах. М., Агропромиздат, 1988. 204 с.

16. Маммадова З. Д., Насибова Г. М., Ибадуллаева С. Д. О применении бобовых растений: этноботаника, фитоценология и продуктивность // Международный научно-исследовательский журнал. 2023. №1 (127). С. 6. <https://doi.org/10.23670/IRJ.2023.127.105>

*Работа поступила
в редакцию 30.09.2023 г.*

*Принята к публикации
08.10.2023 г.*

Ссылка для цитирования:

Маммадли Т., Баграмов В. Feed Crops of Nakhchivan Arid Mountain Lands // Бюллетень науки и практики. 2023. Т. 9. №11. С. 154-160. <https://doi.org/10.33619/2414-2948/96/21>

Cite as (APA):

Mammadli, T., & Bayramov, B. (2023). Feed Crops of Nakhchivan Arid Mountain Lands. *Bulletin of Science and Practice*, 9(11), 154-160. <https://doi.org/10.33619/2414-2948/96/21>