EVALUATION OF CHINESE SAFFLOWER VARIETY IN THE CONDITIONS OF TURKESTAN REGION

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https://doi.org/10.5281/zenodo.14024741

Abstract. *Turkiston viloyati sharoitida Xitoy aspir navini o'rganish. O'zgaruvchan tabiiy sharoitda etishtirish uchun istiqbolli moyli o'simliklardan biri bu aspir bo'lib, uning biologiyasi dashtning quruq sharoitlariga to'liq mos keladi. Ushbu moyli o'simlik mahalliy almashlab ekish uchun juda mos keladi, bu esa qishloq xo'jaligi ishlab chiqarishini diversifikatsiya qilishga yordam beradi. Aspir-Asteraceae oilasiga mansub bir yillik otsu o'simlik. Madaniyatda bitta tur ma'lum-bo'yoqli aspir (Carthamustin cforius). Aspirning poyasi tik, yalang'och, balandligi 85-95 sm, garchi bizning kuzatishlarimiz shuni ko'rsatadiki, qulay sharoitlarda o'simliklarning balandligi 1,2–1,3 m ga etishi mumkin. Dimorfizm o'simlik barglarida aniq kuzatiladi. Aspir inflorescence–diametri 2,5-3,5 sm bo'lgan ko'p gulli savat, bitta o'simlikdagi savatlarning o'rtacha soni 10 dan 25 donagacha. Aspir hasharotlar, ayniqsa asalarilar tomonidan o'zaro changlanadi, vegetatsiya davri 100-120 kun. Kungaboqar qurg'oqchilikdan aziyat chekadigan joyda, aspir ekish iqtisodiy jihatdan ancha foydali va xavfsizroq. Aspirning boshqa afzalliklari ham bor, masalan, uning urug'lari oq rangga ega va savatni o'rash barglari bilan yaxshi himoyalangan va odatda yovvoyi qushlar uchun bunday jozibadorlikka ega emas. Aspir yog'ida kungaboqar yog'iga qaraganda ko'proq linoleik kislota va ko'proq vitamin mavjud Qozigurt tumani hududining iqlimi o'ziga xosdir. Ushbu hududning dengiz va okeanlardan uzoqligi va mutlaq balandliklarda (tog ' etaklarida 700 m dan tizmalardagi dengiz sathidan 3500 m gacha) katta relyef padlari iqlimning kontinentalligini va iqlim omillarining xilma-xilligini belgilaydi. Iqlimning o'ziga xos xususiyati – izolyatsiya va issiqlik resurslarining ko'pligi. Shimoliy-g'arbdan sharqqa va janubi-g'arbdan shimoli-g'arbga Qozog'iston va Qarjantau tog ' tizmalari o'tadi va asta-sekin birlashadi. Ushbu zonaning iqlimi tekislik va tog ' oldi zonasidan farq qiladi. Yillik yog'in miqdori 320-390 millimetr. Ushbu zonaning erlari pichan va yozgi yaylov sifatida ishlatiladi. Quruq, issiq cho'l va yarim cho'l zonasiga Shanak qishloq okrugi kiradi. Ushbu zonaning relyefi tepalikli tekislik bo'lib, asta-sekin janubdan sharqqa ko'tariladi. Iqlimi issiq, quruqligi bilan ajralib turadi. Qish qisqa, asosan issiq. Qor qoplamining qalinligi o'rtacha 11 santimetrdan oshmaydi. Ushbu sohadagi asosiy begona o't o'simlik jantakdir. Bu yil biz juda kech ekdik, Shuning uchun xitoylik o'rtoqlar bilan uchrashuvimiz va muzokaralarimiz kech bo'ldi. Kech ekinlarga qaramay, biz 5-6 sentner hosil oldik. Agar biz tiqilib qolgan ba'zi joylar kesilmaganligini va ekishning 60-65% past unib chiqish darajasi yaxshi hosil olganligini hisobga olsak. Yomon Nihol ekish tufayli edi. Umuman olganda, bu yil Xitoy navi kech va sifatsiz ekinlar tufayli o'zining potentsial imkoniyatlarini namoyish eta olmadi. Turli xil odatlarning tuzilishi istiqbolli. Kelgusi yilda biz ushbu navning maksimal hosildorligini aniqlash uchun vaqt va yaxshi uchastkada ekishga harakat qilamiz.*

Kalit so'zlar: *maksari, harorat, urug'lar, quruq kontinental iqlim, begona o'tlar, vegetatsiya davri, Xitoy navi, potentsial hosil.*

Аннотация. *Изучение китайского сорта сафлора в условиях Туркестанской области. Одной из перспективных масличных культур для выращивания в меняющихся природных условиях является сафлор биология которой полностью адаптирована к засушливым условиям степи. Этот масличный культура хорошо подходит для местного севооборота, что способствует диверсификации сельскохозяйственной культуры.*

Сафлор однолетнее травянистое растение, принадлежащее семейству Астровые. В культуре известен один вид сафлор красочный (Carthamustin cforius). Стебель сафлора прямостоячий, голый, высотой 85-95 см, хотя наши наблюдения показывают, что в благоприятных условиях высота растений может достигать 1,2-1,3 м. В листьях растения отчетливо наблюдается диморфизм. Сафлор многоцветковая корзинка диаметром 2,5-3,5 см, среднее количество корзинок на одном растении от 10 до 25 штук. Сафлор перекрестно опыляется насекомыми, особенно пчелами, вегетационный период составляет 100-120 дней. Там, где подсолнечник страдает от засухи, экономнее и безопаснее сажать сафлор.

У сафлора есть и другие преимущества, например, его семена белые, хорошо защищенные листьями обертки корзинки, и обычно не так привлекательны для диких птиц. Масло сафлора содержит больше линолевой кислоты и витаминов, чем подсолнечное. Климат Казгуртского района уникален. Удаленность этого региона от морей и океанов и крупные участки рельефа на абсолютных высотах (от 700 м в предгорьях до 3500 м над уровнем моря в хребтах) определяют континентальность климата и разнообразие климатических факторов.

С северо-запада на восток и с юго-запада на северо-запад проходят и постепенно сливаются горные хребты Казахстана и Каржантау. Климат этой зоны отличается от равнинного и горного пояса. Годовое количество осадков составляет 320-390 миллиметров. Шанакский сельский округ входит в зону сухой, жаркой пустыни и полупустыни. Рельеф этой зоны представляет собой холмистую равнину, постепенно повышающуюся с юга на восток. Климат жаркий и сухой. Зима короткая, преимущественно теплая. Толщина снежного покрова в среднем не превышает 11 сантиметров. Основным сорняком на этой территории является жантак.

Несмотря на поздний посев, мы собрали 5-6 центнеров. Если учесть, что часть участка не была убрано в связи с сильным засорением жантаком. Примерно 60-65% участка от общего посева дали хороший урожай. В целом в этом году китайский сорт не смог раскрыть свой потенциал из-за позднего и некачественного урожая. Многообещающей является структура и габитус данного сорта В следующем году постараемся вовремя и на хорошем участке посадить этот сорт, чтобы определить максимальный урожай.

Ключевые слова: *сафлор, температура, семена, сухой континентальный климат, рассада, сорняки, вегетационный период, китайский сорт, потенциальная урожайность.*

Introduction

In recent years, we have all noted climate change. There is an increase in temperature everywhere, and animals and plants that predominate in the steppe and desert began to be noticed in the forest-steppe zones. According to the amount of precipitation, a trend towards drier summers and wetter winters is predicted. The adaptation of agriculture should be carried out by including highly profitable heat-loving and drought-resistant crops in crop rotations.

One of the promising oilseeds for growing in changing natural conditions is safflower, the biology of which fully corresponds to the arid conditions of the steppe. This oilseed crop fits perfectly into local crop rotations, thereby contributing to the diversification of agricultural production. The safflower stem is erect, naked, 85-95 cm high, although, as our observations indicate, under favorable conditions, the height of plants can reach 1.2–1.3 m. Dimorphism is clearly visible in the leaves of the plant. The lower leaves have a larger leaf blade size, and the appearance of thorns on them occurs only in truly prickly varieties. Breeders have also created non–thorny plant forms, but the development of thorns on the leaves and leaves of the wrapper is a form of adaptation of this plant to particularly arid weather conditions. At the end of the juvenile period, the leaf blades become rigid and are covered with a wax protective layer, which ensures a low water consumption coefficient of 125-200 m3/h.

The inflorescence of safflower is a multi–flowered basket with a diameter of 2.5–3.5 cm. The average number of baskets per plant ranges from 10 to 25 pieces. However, under favorable growing conditions on sparse crops, their number can reach 80 pcs. From 20 to 50 or more seeds can be formed in the basket. Even after full ripening, the seeds do not crumble, and the baskets do not fall off.

The seesd achene resembling a sunflower seed. Its shell is hard, hard to split, and makes up 40-50% of the seed weight. The weight of 1000 seeds is 20-50 g. The seeds do not crumble when ripe. From germination to the formation of 8-10 leaves, plants are characterized by a surface arrangement of leaves (rosette) and a period of slow growth of the ground part, which causes sensitivity to clogging. In the future, a rapid elongation of the internodes begins (the stalking phase), and the average daily linear increase exceeds 3 cm. The whole plant is prickly and crops are not exposed to cattle. Safflower is cross-pollinated by insects, especially bees, the growing season is 100-120 days. An important advantage of safflower is its very deep root system, which is able to extract moisture from deep layers of soil. And due to the structure of its vegetative mass (like desert plants), it consumes the resulting moisture sparingly. For its development, it needs much less moisture than other oilseeds. The plant is well adapted to a dry continental climate, undemanding to the soil, can grow even in saline areas.

Seedlings germinate at a soil temperature of 4-5 ° C and can withstand frosts up to -3 and –4 ° C. Safflower is especially demanding of heat during the flowering and maturation phases. In humid and cloudy weather, the flowers are poorly fertilized, and the baskets rot. Possible diseases of safflower: rust and ramulariasis (the disease manifests itself in the form of spotting on the leaves. The spots are yellow-brown or brown with a dark border, rounded). As a result of the conducted research, one of the harmful diseases of culture was revealed – alternariasis of safflower Alternaria carthami Chowdhury. The disease develops during prolonged rains during flowering. The pathogen persists in plant residues and infected seeds. Pests of safflower can be wireworms and scoops that damage other oilseeds. The specific pests of safflower are the sage scooper and the safflower fly. Compliance with crop rotations can reduce the risk of pest damage.

Advantages over sunflower. Where sunflower is suffering from drought, it is much more profitable and safer from an economic point of view to sow safflower. Safflower has other advantages, for example, its seeds are white and well protected by the leaves of the basket wrapper and usually do not have such an attraction for wild birds. Safflower begins to bloom earlier than sunflower and its flowering period is more extended – it lasts for a whole month. Safflower, unlike sunflower, does not emit adhesive resin and therefore, after cleaning, the seeds do not even contain stuck seeds of ragweed and other malicious weeds. Safflower oil contains much more linoleic acid

than sunflower oil and more vitamin E than other types of vegetable oils. Safflower is one of the oldest agricultural plants. It began to be cultivated in Mesopotamia 2500 years before our era. In ancient Egypt, safflower was used to make dyes for fabrics. According to one version, the culture got to Europe thanks to the Arabs. In the south of Russia, safflower was grown in vegetable gardens in the second half of the XVIII century, used in baking as a substitute for saffron.

- Safflower oil contains a lot of linoleic acid, which is used in cosmetology for skin care для ухода
- In ancient Egypt, strips of cloth were used for mummification, the dye for which was obtained from safflower flowers.
- The petals of the plant contain yellow and red pigments.

Agrotechnics of cultivation.

The best precursor for safflower is steam, winter and spring crops. The field should be free of root-sprouting weeds, with which safflower does not compete. Safflower itself is considered a good precursor for spring crops. Despite the fact that its roots penetrate to a great depth, it dries up the soil less than a sunflower. Tillage for safflower is the same as for cereals.

The depth of seeding is 5-6 cm, and with insufficient soil moisture 7-8 cm. The scientific literature describes wide-row sowing methods, with row spacing of 45 and 60-70 cm. However, safflower can also be sown in a simple ordinary way with seeders SZS-2.1; UPC 2.1 with a row spacing of 23 cm.

It is undemanding to soils, it can grow even on salt flats. Subject to the optimal sowing period and the norm, it has a good competitive ability: it suppresses and oppresses many annual and perennial weeds. Farmers who are already cultivating safflower say that they do not pay attention to weeds in safflower crops. Safflower is a very powerful plant and with normal herbage, its suppression by weeds has never been observed. The yield level of safflower is directly dependent on the presence of soil moisture in the critical phase of its development, which falls on branching-budding. Safflower is harvested by direct harvesting at a seed moisture content of 10-12%. Harvesting safflower does not cause difficulties due to the fact that its seeds do not crumble. It begins when the seeds are fully ripe. To prevent the stems from winding on the threshing drum, the height of the cut is increased, but not higher than 10 cm from the place of branching of the lower productive shoot. To prevent the seeds from collapsing, the speed of the threshing drum should be reduced to 500-700 per minute. The holes of the upper sieve are set at 7-8 mm, and the lower one at 5-7 mm. The collected seeds must undergo primary cleaning, and if necessary, drying to a moisture content of no more than 13%. Safflower seeds are difficult to separate only from sunflower, wheat and durnishnik, all other weeds are easily separated when cleaned. The basic norms, according to which the calculation is carried out for safflower seeds to be harvested for industrial processing, are humidity of 13%, the content of weed admixture of 2%, the content of oil admixture of 4%, pest infestation of grain stocks is not allowed.

The location of the site

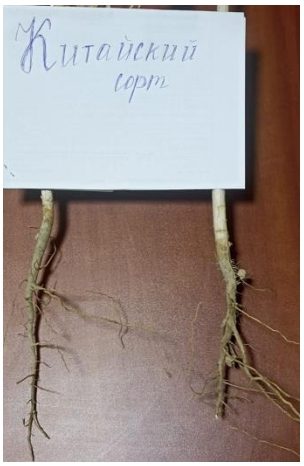
Turkestan region, Kazygurt district, Shanak rural okrug, Shanak village. Natural conditions of the research area. Climate The climate of the territory of the Kazygurt district is quite peculiar. The remoteness of this territory from the seas and oceans and large relief shifts in absolute heights (from 700 m in the foothills to 3500 m above sea level on the ridges) determine the continentality of the climate. A characteristic feature of the climate is the abundance of insolation and thermal resources. The Kazygurt and Karzhantau mountain ranges run from northwest to east and from southwest to northwest and gradually unite.The climate of this zone differs from the

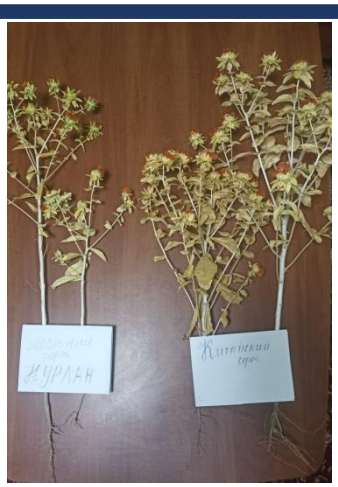
climate of the lowland and foothill zones. The summer is cool with thunderstorms, sometimes with hail. Winter is harsh, snow cover can lie for 3-4 months. The thickness of the snow cover can reach 8-10 centimeters. The annual precipitation is 320-390 millimeters. The lands of this zone are used as hayfields and as summer pastures. The arid, hot desert and semi-desert zone includes the rural district of Shanak. The relief of this zone is a hilly plain, slowly rising from the south to the east. The climate is warm, characterized by dryness. Winter is short, mostly warm. The average thickness of the snow cover does not exceed 5-10 centimeters. The last spring frosts, characterized by a sharp decrease in air temperature, were recorded in April, and the early ones in the second and third decades of October. Early autumn frosts occur after the end of the growing season and therefore do not have a harmful effect on plants. Steady snow cover in mid-December. Snowfall begins in early March. The wind regime is influenced by the surrounding mountain ranges, which change the direction of the winds and reduce their speed, the average annual speed of which is 5.7 m/sec. There are no strong winds.

Methods and timing of sowing.

The sowing was carried out from 24 of April to 26 of April, 2024 on an area of 100 hectares in the rainfed conditions of in the Turkestan region. For sowing, a grain planter SZN-3.6 was used. Sowing was carried out to a width of 30 cm. The sowing depth was from 2 cm to 5 cm, in moist soil since it rained 7 days before sowing. Therefore, we can say that the sowing was carried out at a favorable time. Seedlings were received on the 7th-10th days.

Results: The resulting seedlings averaged about 60-65% of the sowing. After germination, the air temperature increased every day. There was not a single rainy day during the growing season. Taking into account the dry weather conditions, they did not apply mineral fertilizers. During the growing season of safflower, weeds grew at the same time. The main weed plant of this field is zhantak. Considering that zhantak is a perennial legume plant, herbicides against legume weeds could not be used. Therefore, crops in many areas were severely affected by zhantak. According to the type and size of the leaves, the potency of this variety was high. Massive bushes and large leaves required more moisture, unfortunately, which we could not provide in the conditions of Bogara in the Turkestan region. This year we sowed very late, so our meeting and negotiations with our Chinese comrades were too late. Despite the late sowing, we received 5-6 quintals of harvest. If we consider that some areas where they were clogged were not mowed and the low germination rate of 60-65% of the sowing, then a good harvest was obtained. Poor germination was due to sowing drills. In general, the Chinese variety failed to show its potential this year due to late and poor-quality crops. The structure of the habitus and very strong roots of the variety is promising. Next year we will try to sow on time and in a good plot in order to determine the maximum yield of this variety.





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