OPPORTUNITIES OF GROWING BEETROOT WITHOUT PLANTING SEEDLINGS IN ZARAFSHAN OASIS

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The article indicates for the first time in the soil and climatic conditions of the Zarafshan Valley, the varietal agricultural technology of non-planting cultivation of seeds of fodder beet varieties Uzbekistan-83 were improved, entered in the State Register, optimal timing and rates of seeding have been established, providing optimal plant density and high seed yield. It was found that with an increase in seed sowing rates, the winter hardiness of plants increases, development accelerates in the spring, interfacial periods are reduced, and seed formation is delayed. Depending on the timing and sowing rates, an increase in sowing rates from 120-130 thousand / ha to 140-150 thousand / ha, the duration of the growing season is reduced by 14-16 days, and the seed yield decreases by 4.3-5.1 centners / ha. There was a regularity in the decrease in the yield structure of the number of shoots per plant, the number of seeds due to an increase in seeding rates and a delay in sowing dates. With the optimal sowing time, the seed yield per plant increased on average by 18.5-25.8 g, the weight of 1000 seeds increased by 21.4 g, and a high seed germination rate of 91.0% was observed. As a result of optimization of plant density, sowing terms and rates, recommendations have been developed for obtaining high seed yields, which ensure high efficiency. Under the influence of the studied factors, to evaluate the growth, development of fodder beet, the formation of fruits and seeds, the weight of the plant, the structure of the yield, and it was proved that the possibility of growing up to 27.5 ts / ha. Cost-effectiveness of growing pocket beet seeds without a planting method rather than growing with a planting method, as well as kneaded manual labor 2.5-3.0 times and the growing period from 2 years to 9-10 months. Agricultural technology of cultivation of seeds of non-planting fodder beet in a short time according to resource-saving technology, the timing and rate of seeding, plant density was introduced into production on farms and household plots of Samarkand, Jizzakh and Navoi regions.

Keywords: with seedlings, without seedlings, innovational technology, region,Uzbekistan-83 breed, method, biometric, photosynthesis, transpiration, organic and mineral substances,cost-effectiveness

It is well known that comprehensive study of the history of growing root crops (sugar, half sugar, feeding, edible, leaf, etc.),the existence of their ability to withstand heavy winter days by planting them on irrigated land without planting seedlings led to studies of researches on adaptation of beet seeds not only for two years (sapling), but also adaptation for specific soil-climatic conditions.This allowed for a dramatic reduction in the growing season by simultaneously increasing the yield and quality of the beeeroot. Currently, sugar, feeding, leafy and edible beetroot area in the world is estimated at 700 million hectares according to 2017 data and the average yield per hectare is 251,8 centners which fully satisfies the population's needs in industrial and food resources.

While world agricultural research focuses on using modern methods, primarily raw materials for the industry, the next challenge is to effectively use the land by exploring soil-climatic conditions and applying innovative technologies.Nowadays, with the use of high technologies in all areas of agriculture, the ability of short-term seed production and effective use of land in the regions of developed countries of the world and especially in root crops is increasing, which enables the creation of high-yielding varieties of agricultural crops and the use of high-tech techniques, the use of high-quality seeds and harvests of beetroots, suitable for different climatic conditions of the world [1].

The scope of the research. The research studies of S. A.V. Dobrotvortsova, V.N. Balan, V.A. Chernova, others carried out in various climatic conditions of the CIS countries on the root plants after the second half of the 20thcentury show thatthe non-seeding method has great potential for seed production. The plant maintains root structure and leaf vegetation in adverse conditions and this allows it to grow and develop in the early spring and to produce a good quality seed [2, 4].

Moreover, in accordance with the opinions of A.V. Dobrotvortsova, S.D. Aliev, Kh.F. Batirov, I.V. Martynyuk, R.A. Yunusov and others the beetroot that have been harvested during the winter have higher energy to produce leaves and stems as spring temperatures begin. At the same time, beetroot planted without seedling has a strong chlorophyll pigmentthat exhibits high intensity and activity in plant development. Another advantage of rootstock is that they get enough sugar and dry matter when they start to winter in the field, and as a result, they get through the winter better and healthier.

As a result of the introduction of new intensive technologies in the 21st century in agriculture, the scientists like Yu.G. Mikhiyev, V.A. Chernova and others have conducted research in various soil and climatic conditions of the CIS countries. Scientists such as Nobbs D.A., Kaffa N., Siervo M., Ahhor A.W., Berger V.W., Bailey S.J., Lansley K.E., Kelly J. in leading countries such as the US, Denmark,

and England have shown that root crops can be used as feedin material in industry [3–5].

Especially, such scientists like A.V. Dobrotvortsova, V.N. Balan, E.P.Gorelov, H.F. Botirov later scientists like B.M. Kholikov made effective efforts to improve the seeds of root crops and create promising varieties on agricultural development in the republic, on the selection of beet varieties and high-yield agricultural technologies [2,6]. Nowadays, scientific advances and the use of innovative technologies indicate that yields of beetroots and seeds can be achieved at different times of the year. Large-scale reforms implemented in the agricultural sector in Uzbekistan during the past short period of independence have resulted in large-scale agricultural activities that have led to a focus on the productivity and quality of seeds, which has provided the livestock sector with a rich supply of fodder and compound feeds.Particular attention is paid to the creation of high-yielding varieties of plant species adapted to soil and climatic conditions, increasing productivity through the use of advanced technology and ensuring the rational use of existing land and environmental protection.

At the same time, the practical application of the benefits of growing seedlings and seedless plants, definition of optimal timing and rates of sowing,the study the characteristics of germination in autumn-winter and early spring periods,improvement of seed quality and efficiencyand the implementation of research on its wider application in practice is of great importance.

The purpose and objectives of the research. Due to the soil-climatic conditions of the Zarafshan oasis differ from other regions of the country, the key issues of the development of seed production and productivity, various methods of cultivation of sugar, semi-sugar, hashish, salt and leaf beetles from rootstock, determination of optimal sowing time and norms, development of plants in autumn-winter period, study the characteristics of growth and development in early spring, nutrition and the use of modern intensive technologies are not yet fully solved.

Depending on the above-mentioned,based on our scientific researches for the years of 2016-2019 we aimed to determine terms, norms of sowing of Uzbekistan-83 breed of beetroot in the conditions of irrigated meadow soil of the Zarafshan oasis, and peculiarities of germination in autumn, winter and spring, bringing their growing season from 2 years to 9-10 months and to determine the cost-effectiveness of non-seeded bean cultivation. The objectives of the study include:study of biological possibilities of cultivation of beetroot seeds for feeding, studying of processes of seed beet in autumn, winter and spring,to determine the optimal timing and rate of sowing beetroot, Evaluation of the quality characteristics of the beetroot seed, Evaluation of the quality of seeds of beetles and their value as a nutritious animal feed, and the cost-effectiveness of breeding beetrootsand recommendations for production have been addressed during our research studies.

Experiments, biometric measurements and related calculations Methods of State Variety Testing Stationand Methods of Dispersive analysis by B.A. Dospekhov in “Methodology of field experiments”, and Field and Laboratory Experiments Based on the All-Russian Scientific Research Institute of Plant Science, phenological observations and biometric analyzeswere carried out in accordance with testing of varieties of agricultural crops was carried out according to the methodical manual of the State Commission.

The experiments were carried out in three stages depending on the seeding time period, namely on 12 fields, which were sown on 0.6 hectares between september 1, 15 and 30.The experimental sites, separated in three stages, were placed in 4 repetitions. They are separated by special labels and symbols, with a length of 25 meters, width of 5,6 m, the remainder is designated as a protective zone. Their total surface area is 140 m^2, of which the calculated part is 90 m^2. Production experiments were conducted on the area of 1-2 hectares and zoned beetroot of Uzbekistan-83 breed were studied [7]. Field experiments were carried out in the conditions of Samarkand Research Station (Taylak District) of the Uzbekistan Research Institute of Vegetable and Horticultural Crops and Potato. The soil and climatic conditions of the region were recorded on the basis of generally accepted methods, based on the data of the Samarkand regional weather monitoring (meteorological) station. Phonological observations were conducted using generally accepted methods, with each phase starting at 10 % and complete passing as 70 %.

Results of the research.For the first time, the survey showed that Uzbekistan-83 breed of sapless beet in the grassy-sandy soils of the Zarafshan oasis are the best option for sowing at different times and rates, namely September 1, and the seeding rate is 1 m. 20 pieces of seeds were consumed between rows and 11 kg of seeds was used per a hectare.

Phase transition in seedling and seedless beetroot cultivation methods (2016–2019)

№	Phases of growth and development	Methods of cultivation		Plant height, cm	
		Seedling (sown in March)	Without seedling (in September)	Seedling	Without seedling
1	Release	April 11	September 12	14	5
2	Leaf formation	-	October 10	21	12
3	Growth in early spring	April 22	March 12	38	19
4	Removal of stem	May 2	April 16	65	89
5	Flowering	May 27	May 12	92	138
6	Ripening	July 15	June 25	110	159
7	Productivity%	71-76	82-87		
8	Fertility	14-15	26-27		

In autumn, winter and spring, when the features of germination are studied, the temperature in the beginning of autumn is sufficient, the seeds germinate within 7-8 days, and the seeds germinate for 10-12 days, and the late germination due to the decrease in temperature and there was an increase of 14-16 days.

The study of the effects of seedless seed beetles on the growth and development of the physiological processes during the autumn, winter and spring seasons shows that the storage of seedlings per 10 pieces per a meter differs from the storage of seedlings of 20 and 30 seeds, preserving the germination of the beetles during their first growing season and It has been scientifically proven that the concentrated organic and mineral matter and the germination of germination are close together. Determination of the optimal sowing time and the rate of seed beet production can be achieved by 26,0-27,5 canters/hectare, beetroot cultivation during the summer after harvesting beetroots in the winter, with the use of qualitative seed for winter feed were identified during the research.

Our observations have shown that growing non-traditional beetroot, such as beet seeds, has a number of biological advantages over traditional biennial seedlings.In particular, when planted without seedlings, the plant grows in part due to the autumn-winter heat and moisture, keeping the roots of the plant from early spring. The leaves are also small-celled and maintain high metabolism and vitality.As a result, such biological processes allow the leaf surface to absorb low temperatures and humidity.

The same is true of the root system, where they begin to absorb nutrients from the bottom of the plating layer.Another important point is that winter crops have more accumulation of dry matter and sugar before winter. If we compare the features of the beetroot crop in March and the non-sapling in September, the seeds of early spring sowing will germinate in about two weeks, and when seeded in early September, it an be seen that they germinate for 8-10 days, B.M. Kholikov, H.F. Botirov, G.Y. Rakhimov [6, 7]. The second important thing is that when beets are grown in a non-seeded manner, it is able to absorb mois- ture and heat from early spring.This allows 2-3 times more nutrients in the soil than the normal method, resulting in rapid growth of the beetroot and facilitating the rapid and smooth transition of the phases to the formation (Table).

From the table data, it is clear that during the cultivation of non-seeded beet, the growth and development phases occur almost 20-25 days earlier than the usual method,and this affects their fertility and seed quality.Field productivity was 71-76%, 77-82% seedless, seedling yield was 14,0-15,0 centners / ha, and seedless method was more than 26,0-27,0 centners / ha.The most important thing is that the seedling time of sowing is only 9-10 months. From this we can conclude that the use of innovative technologies implemented in agriculture in recent years can be considered as one of the ways to increase the yield and quality of seeds and root crops in different climatic conditions.

Generally, experiments with seedlings and without seedlings planting on all representatives of root crops show that the method of growing seedlings is more versatile than planting with seedlings.Particularly, the latest technologies in various soil and climatic conditions of the Ukraine, Belarus, Russian Federation and other countries have shown that high quality seeds can be obtained from plants in different soil and climatic conditions. Understanding the importance of these methods, the authors based on the introduction of the results of scientific research on beet root and effective

seed production systems.Therefore, nowadays, high-yielding seeds and high-yield seeds are achieved in agriculture as a result of the introduction of high-tech technologies in agricultural areas of the soil.

Conclusions

1. In the conditions of irrigated meadow-gray soils of Zarafshan oasis, the average annual temperature is 15.5 °C degrees, the average temperature is 10 °C, the period is 212-218 days, the relative humidity is 56.0 %, the total annual precipitation is 337.5-509.7 mm. It was found that the growing season of winter is 45-56 % and the amount of spring precipitation is 71-82 mm.

2. As a result of delays in sowing of beet seeds, the germination rate increased by 7.0 % compared to the control variant of 83 varieties of Uzbekistan, the number of seedlings overwintered by 12-14 %, root diameter 3.9 cm, the number of leaves per bush 11 leaf level 361, 0 cm^2, mass up to 80.0 grams, sugar content in root vegetables decreased by 1.6 % and dry matter content decreased by 2.7 %.

3. It has been observed that with the increase of seed sowing norms, the plant overwintering rate increases, spring development accelerates rapidly, seed formation is delayed with the shortening of the interfacial growth period. Depending on the sowing period and norm, it was found that as a result of increasing the sowing norm from 120-130 thousand units to 140-150 thousand units / ha, the duration of the growing period was reduced to 14-16 days, and the yield decreased by 6.3-8.5 t / ha on average.

4. In the structure of seed beet yield, the number of branches per plant and the number of seed grains decreased due to the increase in sowing norms and the delay in sowing. Seed yield per bush at an acceptable sowing time and rate increased by an average of 18.5-25.8 grams, the amount of quality seeds with a fraction of 4-5 mm increased by 65.0 %, the mass of 1000 seeds increased by 21.4 grams and the germination rate 91.0 percent.

5. As a result of the study, the root mass was 1; The average sowing period for September 15 and 30 was 250.2: 220.1 and 180.3 grams, the leaf yield was 205.0: 167.6 and 125.0 grams, and the amount of sugar and dry matter in them was 10.3 and 13, respectively. , 8 %, 10.7 and 14.2 % in the second, and 9.2 % of sugar and 11.4 % of dry matter in the root crops sown on September 30, ie a significant decrease in germination of seeds formed by sowing in the late period.

6. In case of lack of vitamin and succulent fodder, livestock should be fed 3.9-5.8 t / ha due to processing of hay beet at different times, the number of plant bushes planted and germinated in different periods, and the unification of the number of plant bushes in excess of the norm before harvest. was able to provide the unit.

7. Formation of maximum seed yield of 27.5 ts / ha, sowing period September 1, norm 20 seeds per 1 meter (11 kg / ha), 8-9 plants per 1 meter after sowing (120.0 thousand bushes / ha) The average yield was 6.3-8.5 t / ha more than in the 15th and 30th of September.

8. The highest cost-effectiveness indicators are 1 m on September 1st. It was found that the cost per hectare was 1,188,000 soums, the net profit was 13,545,000 soums, the yield was 114.0 percent, and the price of 1 kg of seeds was 4,980 soums. These economic indicators were found to be 2.5-3.0 times higher than that of traditional beet cultivation.

9. Irrigated meadows of Zarafshan oasis in the conditions of gray soils are sown from seeds without seedling method, which is traditional in the practice of beet sowing, to grow a resource-efficient high-yield and low-cost seed crop:

Sowing of seeds of 83 varieties of Uzbekistan in autumn, in the 1st decade of September at the rate of 20 seeds (11 kg / ha) per 1 meter with a width of 70 cm between rows and obtaining 180-200 thousand seedlings, single quality transfer after winter to harvest and 1 It is recommended to leave 8-9 seedlings per meter, ie 120 thousand bushes per hectare.

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