

AGROTECHNOLOGY OF FUTURE POTATO GROWING IN THE SOUTH

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Abstract

Potato cultivation and planting at different times is one of the main agricultural technologies around the world. Therefore, information is provided on the results of our scientific experiment on the cultivation of fairy potatoes in the southern regions.

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The soil and climatic conditions of the southern Surkhandarya region of our republic, with warm winters, even temperatures above 4.3-6.3°C in January-February, 61-66% of the main precipitation falling in January and March, heat, light, and artificial irrigation opportunities, provide conditions for obtaining high and high-quality yields of fairy potatoes.

Considering that growing potatoes as a future crop and obtaining an early harvest largely depends on the selection of productive varieties adapted to the crop, the technology of pre-sowing preparation of seed tubers, the determination of favorable planting dates, and the types of mulching, we conducted a field experiment on the light gray soils of the Surkhan farm, Jarkurgan district, Surkhandarya region, which have long been irrigated.

The purpose of the study is to determine the optimal planting date and mulching type based on the assessment of growth, development, productivity, total and marketable yield by growing the medium-early maturing potato varieties Arzona and Lucinta under specific conditions at different planting dates and mulching types. In the field experiment, the medium-ripening potato varieties Arzona and Lucinta were planted in 4 periods (15-18, 30.01-05.02, 15-20.02 and 2-7.03 (control), and 4 different mulching types were studied in each period - without mulch (control), manure, film and mulching with manure film).

The planting pattern was 90x20 cm, the area of the plot was 144 m² for varieties, 36 m² for mulching, the number of repetitions was 4. All work on the experimental plot, including planting, care measures, observation, measurement, calculation, and harvesting, was carried out based on generally accepted methods and recommendations.

According to observations, when the tested varieties of fairy-tale potatoes were planted on January 15-18, rapid and abundant germination (on days 31-32 or 3-7 days earlier than in the unmulched version) was observed when mulched with gung+film. In years when the air temperature was cold, regardless of the type of mulch, the plants that sprouted died due to the cold and then sprouted again, continuing their growth and development. When sowing was carried out from 30.01 to 5.02, germination without mulch (standard) was observed on the 25th day in the Arzona variety and on the 21st day in the Lucinta variety. When mulched with manure, germination was observed on the 22nd and 20th days, respectively, and when mulched with film, on the 20th and 19th days, that is, 2-5 days earlier depending

on the variety.

It was found that when sowing was carried out on February 15-20, the effectiveness of mulching was reduced and germination was accelerated by 2-3 days for the studied varieties. It was found that in the studied potato varieties, early planting (30.01-5.02) and mulching with manure and film extended the plant's growth period by 2-4 days, depending on the variety. When the medium-ripening potato variety Lucinta was planted without mulch (control) between 30.01-5.02, the plant height at the beginning of the growing season (10-15.04) was 24.5 centimeters, and in the mulched variants it was 30.1-33.8 centimeters or 8.1-11.6 centimeters. The height of this plant was maintained throughout the growing season, and at the last measurement (20-25.05) it was 70.8 and 79.6-84.0 or 9.8-15.2 centimeters, respectively. The same pattern was observed in other studied planting dates and the early-maturing Lucinta variety.

When the tested potato varieties were planted early (30.01-5.02), the plant height was 8.3-10.2 centimeters higher in the unmulched version and 6.6-10.0 centimeters higher in the mulched versions compared to the late (2-7.03) versions. The effect of planting dates and mulching types on the stem formation of the Fairytale potato varieties was not noticeable, but the Lucinta variety produced 4.0-4.5 seeds per bush, and the Arzona variety produced 3.6-4.3 seeds. The influence of planting dates and mulching types on the change in the leaf surface of the studied potato varieties was significant, and when planted early, from 30.01 to 5.02, the leaf surface of the studied mid-season varieties in the unmulched variant at the beginning of the growing season (April 10-15) was 0.18-0.21 m². The advantages of the bush in the formation of the leaf surface in the mulched variants at the beginning of the growing season were preserved until the end, and a higher leaf surface was noted when a manure film was used for mulching.

When potatoes were sown late on March 2-7, the leaf surface area formed by varieties in the unmulched (control) variant at the beginning of the growing season (10-15.04) was 0.12-0.15 m², and in the mulched variants - 0.25-0.26 m², and its formation proceeded rapidly until 10-15.05. Then the leaf surface formation slowed down in the studied varieties.

When planted early at the end of the growing season (30.01-5.02), the studied varieties formed a leaf surface area of 0.55-0.64 m², respectively, when mulched with manure - 0.70-0.86 m², when mulched with film - 0.78-0.86 m², and when mulched with manure + film - the highest 0.81-0.93 m². When planting was delayed and carried out on March 2-7, the plant leaf area did not exceed 0.43-0.53 m² in the unmulched version, and 0.50-0.76 m² in the mulched version. Mulching the soil with various materials in the cultivation of fairy potatoes not only increases the soil temperature, but also increases the moisture content.

At the same time, delaying the planting date will lead to low soil moisture, which will negatively affect the subsequent growth and development of potatoes. When studying the effects of different planting dates and mulching types on tiller, root mass, and nodule formation in the tested varieties of fairy potato, the pattern of increasing tiller weight due to mulching and decreasing tiller weight with delayed planting dates was observed in all potato varieties studied and was maintained until the end of the growing season.

At the end of the growing season, on May 20-25, the weight of one bush of spinach when planted on 30.01-5.02 was 345 grams for the Arzona variety in the unmulched version, 320 grams for the Lucinta variety, and 352-370; 375-391; 382-405 grams for the varieties in the mulched version, respectively. When sowing late, that is, March 2-7, these indicators were relatively small, and in the unmulched variant, the weight of one tuber was 305 grams for the Arzona variety, 297 grams for the Lucinta variety, and 312-314, 338-346, 345-358 grams for the mulched variants, respectively.

When the medium-ripening Arzona potato variety was sown early, from January 30 to February 5, the yield in the unmulched (control) variant was 25.3 tons per hectare, when mulched with rotted manure -

28.0 tons, when mulched with film - 31.1 tons, when mulched with manure + film - 32.9 tons, and the mulching types provided an additional yield of 2.7-7.6 tons per hectare. This indicator was 2.2-6.4 tons per hectare for the Lucinta variety.

The highest yield of the studied varieties (29.7-32.9 t/ha) was obtained when sowing was carried out in the period 30.01-5.02 and mulched with manure + film. The lowest yield (19.0-19.6 t/ha) was recorded when sowing was carried out late, that is, on March 2-7, without mulch. Thus, the Surkhan farm of the Zharkurgan district of the southern Surkhandarya region has long been cultivating medium-ripening potato varieties Arzona and Lucinta in irrigated light gray soils, early - in late January and early February, and mulching with manure and film, creating favorable conditions for the early growth and development of the plant by controlling the soil temperature and moisture regime, resulting in a tall (74.6-87.0 cm), leaf area (0.74-0.88 m²), strong pods (352-405 g). As a result, it allows for an early (by June 1) and high-quality harvest of 28.3-30.9 tons per hectare.

REFERENCES

1. Eshonqulov B. Ergashev I. Obloqulov F. "Potato production from True Potato Seed" Wissenschaftliche Zeitschrift „European Applied Sciences” ISSN 2195-2183, №4 2016
2. Ibragim Ergashev. Laws of distribution and development of potato viruses and their insects in Uzbekistan. European Journal of Agricultural and Rural Education (EJARE) Available Online at: <https://www.scholarzest.com> Vol. 2 No. 11, October 2021, ISSN: 2660-5643
3. Ergashev I..D. Normurodov Effective way of potato ropagation "Potato and Vegetables" ISSN 0022-9148, , № 3 2016.
4. [www.http://kartofel.org/bolezni/bolezni.htm](http://kartofel.org/bolezni/bolezni.htm)
5. <http://potato veg.ru>