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THE RESULT OF CHOOSING VARIETIES TO PRODUCE EARLY POTATOES IN THE SOUTHERN REGIONS

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Abstract

In this article the role of potato in ensuring food security, the dynamics of the potato production in Uzbekistan, potato production capacity in the southern regions, the problems which study of gaining high yields are mentioned. Also, the growth, development and yield of fast-ripening varieties which brought from Netherlands, Germany and local varieties in the southern regions of plains and mountainous regions of the Republic and the results of experiments on tuber stability study are described.

Key words: potato, early yield, in southern regions, a mountainous region, varieties, productivity, stability

Potato not only in our country, but also all over the world, in ensuring food security is the most important. Currently, the consumption of this product is to fully satisfy a number of positive things in Uzbekistan. In particular, new techniques, technologies and varieties were introduced. In our Republic the potato yield an average of 9 tons (1992) and 19-22 tons (2014). But however, today because of that the country's population is increasing more than 31 million in the future, the demand for this product increase spontaneously from year to year.

The population of the Republic, especially demand for the early potato product is more in April-May and the market price of it is the highest level.

The population's demand of the Republic for early vegetables, including potatoes can be satisfied with the southern region farmers' products.

Surkhandarya soil and climatic conditions, short and warm winter, the coldless period of 240-260 days, the amount of useful heat 5700-5900 °C, despite annual precipitation of 130-360 mm, by reason of artificial irrigation facilities early potatoes give rich, high-quality and crop (Alibekov, 1986; Lukov, 1994; 1996).

But in spite of these the crop doesn't exceed 16-17 t/ha in Surkhandarya. However, in the southern regions more than 28-30 t/ha yield capabilities can be gained.

Thus, in the potato industry which ensuring food security there are some problems waiting for a solution to: very early, early and double crop plants and to create and choose new and prospective varieties, selection, and in this regard the world selection and the use of modern biotechnological methods, the establishment of local seed, in the various regions the creation of advanced production and storage technologies, scientific substantiation and introducing them to the production and so on will need to be solved.

Despite of the fact that under our conditions there is a real possibility to get over 25-30 t of the product/ha, especially in Southern regions and this index in the Republic doesn't exceed 16-17 tons. It testifies that there are a number of questions in potatoes-growing which demand the scientific substantiation.

Favourable soil-climatic conditions of Surkhandarya region, warm and short winter non-frosty period of 240-260 days, the annual norm of precipitations is 130-360 mm, availability of artificial irrigational constructions makes it possible to get high quality and cheap yield of early potatoes. The yield capacity of early potatoes mostly depends on elaboration of technologies of cultivation responding to the demands of standard, according to varieties and planting properties, which make it possible to get high yields of seed and marketable tubers, and also on the selection of

adaptable to local conditions medium early-ripe varieties, the organization of their seed-growing, productions of sufficient amount of seed tubers.

Taking into account the above problems, we carried out some experiments on different soil and climatic conditions in the southern region of the country – Surkhandarya.

MATERIAL AND METHODS

In the plane zone of Surkhandarya (Jarkurgan) the experiments with planting potato varieties of 15 fast ripening and 20 average fast ripening which brought from the Netherlands, Germany and local ones, in mountainous area (Uzun District) were carried out, estimated their growth and development.

Fields and the range of the experimental plant, vegetative process, harvest, calculation and analysis were recommended by the Ministry of Agriculture (1984, 1989, 1990), the Russian Institute of Plant Lean (1984, 1986), Russia Scientific Potatoes Research Institute (1967, 1989) Uzbekistan Vegetables, Legume and Potatoes Scientific Research Institute (1978), the State Commission on testing of new varieties of Agriculture plants (1974).

The following methods have been used in tire humus in the soil by Turin, total nitrogen, phosphorus, potassium – Malceva and Gricenko, nitrate nitrogen Granvald – Lyaju, ammonium nitrogen on Nessler reactive to the mechanical composition of the soil by Kachinskiy processing phosphorus Machigin by Changing Potassium method by Protassov.

Climate. The climate of the province is sharp – continental, very hot and dry, change of temperature in the seasons. The winter is mild and warm. Average temperature in January is 3 – 7 °C in the June 39 – 41 °C. This month in terms of the temperature and Jarkurgan reached as high as 48 °C (Alibekov, 1986).

The change of climate is because of the high altitude of mountains, valleys wide location. In summer there are almost no Precipitations. Most Precipitations are in autumn and winter months with the weather changing.

RESULTS AND DISCUSSION

In the plain zone of Jarkurgan area samples of all varieties tested in the context 70 x 25 cm scheme 4 times re-planted on February 10-12.

When studied potato varieties such as fast ripening and average fast ripening varieties germination of 17-26 days was observed, by varieties, its budding in 26-33 days, stages of flowering plants in 7-12 days and the vegetative period in 71-89 days were noted.

The vegetative period of studied potatoes fast ripening and average fast ripening varieties in 30-33 (7-10. IV), 40-43 (17-20. IV), 50-53 (27-30. IV), 60-63 (7-10. V) and 70-73 (17-20. V) days were tested under biometric measurements. All stages of potato varieties tested in a period of 30-33 days to 60-63 days plant height vegetative period of rapid growth and development of the 40-43 day varieties on plant height 39-53 cm, while knowing the next 70-73 days plant height 57-75 cm was noted.

In lowland areas studied varieties yield of 16.5 t changed to 29.2 tons.

Most crop capacity was gained from fast ripening varieties such as Binella (25.9 t/ha), Quvonch-16/56m (25.5 t/ha), Impala (25.0 t/ha), average fast ripening varieties such as Kondor (29.8 t/ha), Yaroqli-2010 (29.2 t/ha), Almera (28.7 t/ha), Bahro-30 (27.6 t/ha), Ayaks (27.1 t/ha).

Even the crop expenditure was higher than 95.0 – 98.2%. The rest of the studied varieties in these conditions, that's the yield was less than 25 tons.

So, in lowland areas of Surkhandarya potato fast ripening varieties: Binella, Quvonch-16/56m, Impala, average fast ripening: Kondor, Yaroqli-2010, Almera, Bahro-30, Ayaks varieties are planted every 25-30 t/ha story has the potential to grow potatoes.

The experiments carried out in the area in the mountainous regions of the samples of 12 varieties planted in their assessment of the development of growth and yield.

According to the scientists characteristic feature in the mountainous conditions, where a strong solar radiation, soil is rich in humus (more than 3 – 5%), due to the physical properties of the plant rapid growth, development, and plenty of yield (Zuevet al., 2005; Astanakulov, Hamzaev, 2008).

In the mountainous regions potato irrigation and lacks of the road network in some cases, the lack of population in these areas may interfere with the production of potatoes. However, either the consumption quality of potatoes grown or seed quality is higher in this condition (Fonina, 1972; Astanakulov, 2001; 2008).

The vegetative period of studied potatoes fast

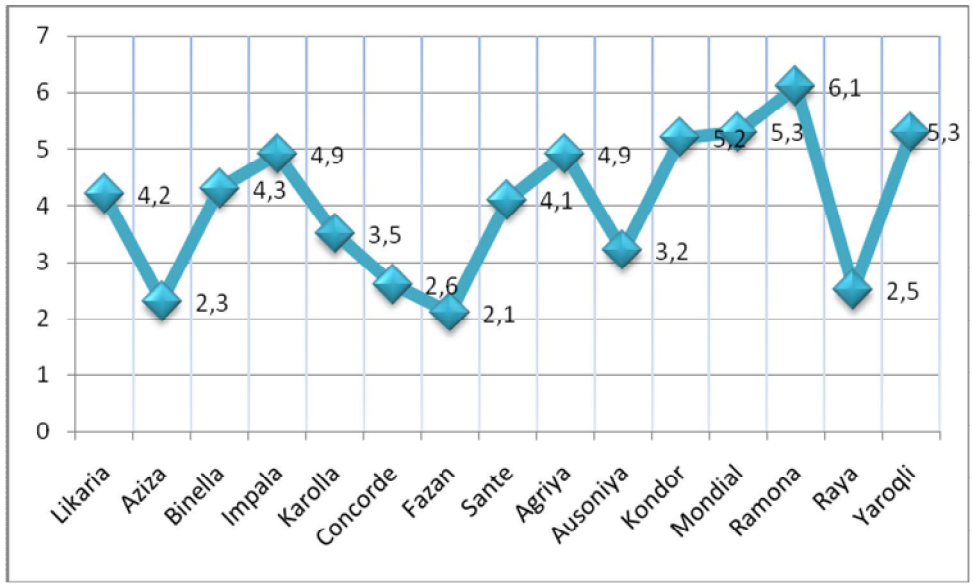

Fig. 1. The resistance of tubers in some varieties (9 point scale)

ripening and average fast ripening varieties in 30, 40, 50, 60 and 70 days were tested under biometric measurements. All stages of potato varieties tested in a period of 30-day to 60-day plant height vegetative period of rapid growth and development of the 40 day varieties on plant height 44-53 cm, while knowing the next 60-70 days plant height 61-76 cm was noted.

Studied potato varieties during the vegetative period of 30-40 days plant height was varieties 18-24 cm, of 40-50 days was 9-17 cm, of 50-60 days was 4-10 cm tall, the next growing period of 60-70 days slowed and by varieties it showed an increase in plant height of 1-3 cm. These conditions of studied potatoes average fast ripening such as Kondor (76 cm) and Yaroqli-2010 (74 cm)'s plant height is tallest.

Similarly, the base of the plant leaves growing, weight, root weight and size was relatively higher than the lower area of cultivated potato, disease and pest infection rate was observed to be very lower.

Studied 12 varieties crop capacity varied from the lower area of cultivated potato production.

Studied varieties yield of 18.5 t changed to 31.8 tons. The highest yield was gained when such varieties: Kondor (31.8 t/ha), Yaroqli-2010 (30.6 t/ha), Binella (30.2 t/ha), Impala (29.4 t/ha), Kuvonch-16/56m (28.8 t/ha), Bahro-30 (28.2 t/ha) were planted.

We kept samples of seed tubers after harvest had been gathered and their resistance was assessed according to the international classification.

The resistance of tuber was assessed taking into consideration of the natural withering, forming sprouts, diseases and injuries due to wet and dry decomposition.

Used on each output coefficients, $\mathbf{C = \Sigma\, a_x k}$ formula identified the tubers resistance.

At the same time, C - resistance points standings; a - output point; k - output coefficients.

The total loss of studied varieties changed from 8.9 to 22.4%. The main part of the losses (7.1 – 14.2%) due to tubers natural weight loss, withering and drying.

Best (6.1 – 5.0 points) saved seed tubers of such as Ramona, Kondor, Yaroqli-2010, Mondial varieties, the level of bad resistance such as Aziza, Concordia, Fazan, Raya varieties were noted.

The resistance of studied some varieties of seed tubers is showed in the Figure 1.

CONCLUSIONS

The soil-climatic conditions of Surkhandarya are easy to grow potatoes. In the plain areas of the province, when fast ripening potato varieties: Binella, Quvonch-16/56m, Impala, average fast ripening potato varieties: Kondor, Yaroqli-2010, Almera, Bahro-30, Ayaks varieties are planted more than 25-30 t/ha early potato production may be gained.

In the mountainous areas of the region is very suitable for seed potatoes production, where all the studied varieties biometrik indicators, productivity, crop quality, the biochemical structure of the high plains region of cultivated potato column,

these features remained in the subsequent reproduction.

Mountainous areas varied varieties yield of 18.5 to 31.8 tons. The highest yield was gained from varieties such as Kondor (31.8 t/ha), Yarokli-2010 (30.6 t/ha), Binella (30.2 t/ha), Impala (29.4 t/ha), Quvonch-16/56m (28.8 t/ha), Bahro-30 (28.2 t/ha).

In the conditions of Surkhandarya region when the varieties were planted such as Ramona (6.1 points), Kondor (5.2 points), Yaroqli (5.3 points), Mondial (5.3 points), though seed tubers be kept in normal warehouse conditions there will be a rotation crop and the resistance quality for early and late planting.

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