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# EVALUATION OF PARSNIP VARIETIES (PASTINACA SATIVA L.) ON PRODUCTIVITY AND ADAPTABILITY IN THE CONDITIONS OF THE RIGHT BANK FOREST STEPPE OF UKRAINE

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Providing the population with quality and environmentally friendly products is one of the main socio-economic problems of today. Parsnip is a valuable spicy-flavoured vegetable crop. The chemical composition of parsnip is quite multifaceted and includes a significant number of biologically active compounds that determine a wide range of its biological properties that can effectively affect various organs and systems of the body and maintain their health.

The problem of selection and use of ecologically plastic varieties is an important element of adaptive vegetable growing. Its correct decision allows to use of material and natural resources rationally, to reduce production costs.

**The purpose of the research –** selection of the most adapted, high-yielding varieties of a parsnip, with a high content of basic biochemical components.

**Material and Methods.** Experimental studies were conducted during 2015-2019 in a field experiment of the Department of Vegetable and Closed Soil in NL "Fruit and Vegetable Garden" NULES of Ukraine in the Right-Bank Forest-Steppe of Ukraine. The soil of the experimental site is sod-medium-podzolic, coarse-grained, light loam. The content of humus is 1.8%, the amount of absorbent bases is 6.43 mg eq/100 g of soil, the content of easily hydrolyzed nitrogen is 42.1 mg/kg, mobile phosphorus is 52 mg/kg and potassium is 41 mg/kg. The reaction of the soil environment is close to neutral (pH of the salt extract 6.1).

Varieties were studied: Petryk (control), Stymul, Boris and Pulse. The size of the accounting experimental plot was 11.3 $m^2$, repeated four times. Variants in the experiment were placed systematically. The predecessor for parsnip was cucumber. Sowing was carried out in the II decade of April according to the scheme 45x10 cm to a depth of 1.5-2 cm with a seeding rate of 3 kg/ha. In the phase of two true leaves formed the final density of plants.

**Research results and discussion.** During 2015-2019, a significant difference in yield was found in the varieties Stymul (46.2 t/ha) and Pulse (44.8 t/ha), which is 6.5 t/ha or 16.5% and 5.2 t/ha or 13.1% more than control respectively. The yield of Boris variety was at the level of control and amounted to 41.6 t/ha.

The varieties Stymul (ZAZ = 3.12) and Pulse (ZAZ = 1.76) were characterized by the highest total adaptive ability (ZAZ), which reflects the preservation of genotype traits in different environmental conditions. The lowest ZAZ was observed in the varieties Borys (ZAZ = 1.45) and Petryk (control) (ZAZ = 3.42).

In terms of specific adaptive capacity (SAP), the best stability had varieties Stymul (SAZ = 2.52) and Pulse (SAZ = 0.78). The worst in this parameter were the varieties Boris (SAZ = 0.71) and Petryk (control) (SAZ = 0.65).

The relative stability ranged from 1.96 to 3.43. Therefore, all studied varieties of parsnip can be attributed to a highly stable group.

It was found that the varieties Petryk (control) and Borys had the least sensitivity to growing conditions. Thus, with an increase in the average yield per 1 t/ha, the increase in root crops was 0.81 and 0.83 t/ha, respectively. Of the studied varieties,

Stimulus and Pulse varieties responded the most to changes in growing conditions (with an increase in the average yield level by 1 t/ha, the increase in root crops was 1.47 and 0.89 t/ha, respectively).

According to the indicator of SCGi, the best in descending order were the varieties of parsnip sown Stymul, Pulse, Boris and Petryk (control).

**Conclusions.** To obtain a consistently high yield of roots (44.8-46.2 t/ha) and their marketability at the level of 88-89% with a high content of basic biochemical components in the Right-Bank Forest-Steppe of Ukraine on sod medium-podzolic coarse-grained light loam soil is recommended to grow high-yielding varieties of parsnip Stymul and Pulse. In connection with the forecast of experts on climate aridization, the creation of varieties that are comprehensively resistant to drought, extreme temperatures, acidity, salinity and other environmental stressors is promising.