

PRESLAV VARIETY – NEW ACHIEVEMENT OF THE BULGARIAN FODDER BEET BREEDING

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The aim of the publication is to acknowledge the scientific community and the agrarian business with the morphological and productive qualities of the new fodder beet variety Preslav. It is preliminary tested in the experimental fields of the Agricultural Institute – Shumen (2000–2003) in non-irrigation conditions on carbonic black soil. It is compared with the group standard of the semi-sugar beet hybrid Pliska and the fodder beet variety Tamara (Germany) in the three years trials of IASAS and certified in 2008. During the period of testing the mean exceeding over the group standard of the dry matter yield of Preslav is 9.2%. Characteristic for the root is the fading tail part of the root. The root form is conical. The variety Preslav is a multigerm population and the dry matter content in the roots is 8.6 to 16%.

Key words: variety; fodder beet; productivity

ВИДОТ ПРЕСЛАВ – НОВО ДОСТИГНУВАЊЕ НА БУГАРСКОТО ОДГЛЕДУВАЊЕ НА КРМНОТО ЦВЕКЛО

Целта на овој прилог е запознавање на научната јавност и аграрниот бизнис со морфолошките и производните квалитети на новиот вид крмно цвекло *ѝреслав*. Тој вид е прелиминарно тестиран на експерименталните полиња на Земјоделскиот институт во Шумен (2000–2003) во неирригациони услови на карбонатна црна почва. Споредуван е со стандардната група на полушекерни хибридни цвекла *ѝлиска* и крмното цвекло *ѝтамара* (Германија) во текот на тригодишни опити. Сертифициран е во 2008 година. Во периодот на тестирање просечното зголемување на приносот на сува материја на *ѝреслав* во споредба со стандардната група изнесуваше 9,2%. За коренот е карактеристичен неговиот слаб опашест дел. Формата на коренот е конусна. Видот *ѝреслав* е мултигерминативна популација и содржината на сува материја во коренот изнесува од 8,6 до 16%.

Клучни зборови: вид; крмно цвекло; продуктивност

INTRODUCTION

The healthy condition and the fertility of the stock are influenced mainly by their nutrition and growing. Many researchers consider that these factors have stronger effect on the breeding qualities than that of the species. The incorrect nutrition deprives stock of proteins, energy and mineral substances (Gaidarska, 2008).

One of the basic sources for juicy forage in our country are the forage root cultures, especially the fodder beet. Its roots are easily digested forage for most of stock (Shevcov, 1990; Fomichev, 1990).

The breeding schemes for obtaining maximum root yield for now is positively solved (Kovakova, Rajcanova, 1993). The present task is the increase of the quantity of the dry matters from an unit of area, which is a function of the root yield and the dry matter content in the roots (Uchkunov, 2006).

The fodder beet breeding is a comparatively new direction in our researches. Now the breeding houses, dealing with fodder beet breeding, work in two directions – breeding of fodder beet varieties, and second – of semi-sugar beet hybrids.

As a result of the breeding work in the last direction in our country the semi-sugar beet hybrids Pliska (1996) and Vessi (2003) are created. These varieties are hybrids between monogerm male-sterile sugar beet lines and fodder beet pollinators (Zahariev, 1997; Uchkunov, 2003). These varieties are with lower root yield, but with higher dry matter content.

With the present material we aim to acquaint the research community and the agrarian business with the productive and economical qualities of the new fodder beet variety Preslav.

MATERIAL AND METHODS

The preliminary tests of the Preslav variety are made in variety trials for four years (2000–2003) in the experimental fields of the Agricultural Institute. The soil type of the 6-field crop rotation is carbonic black soil. The experiments were made using lattice methods (36 variants in 4 repetitions) in non-irrigation conditions. As Standards the varieties Pliska and Vessi are used. The area of the experimental plot is 10.8 m². The indices root yield from da, dry matter content and dry matter yield from da were tested. A dispersion analysis of the results obtained was made (Shanin, 1977). The State variety trials are made in the fields of the IASAS in Radnevo, G. Izvor, Samovodene and Brushlian for 3 years (2004–2006).

The Preslav variety is a multigerm diploid fertile population, received as a result of individual and individual-family selection of breeding materials 802, 803, 804 and 805, with tracking of the progenies. In the early stages of breeding, the progenies of the selected plants were tested for determination of the combining ability. For this we used genetically monogerm diploid male-sterile line MS-201, maternal component of the sugar beet variety Elit. In 1999 the families with the best breeding indices were united under the number 802.

RESULTS AND DISCUSSION

The form of the root is conic with red colouring and with a fading towards the tail of the root. The appearance over the ground surface is from 1/2 to 2/3. The leaf rosette is very well developed. The leaves are green coloured, and the veins are

from rose to red coloured. The inner part of the root is white, with 6 to 12 concentric circles.

During the second year of the vegetation it develops very well formed flower stems, which reach to 1.80 m height. The mass of 1000 seeds is 26.8 to 34.6 g. The germination of the seeds is over 97%.

The preliminary tests of the Preslav in the experimental fields of the Institute regarding the indices root yield and dry matter content show, that for the four years of tests the average root yield is 12880 kg/da, the exceeding towards the Standard is 27.1%, which is a proved difference for the limiting value GD 1%. The dry matter content in the roots is lower (average 10.2%) than that of the Standard varieties Pliska and Vessi (mean of 14.3%).

On Fig. 1 the results of the tests for the index dry matter yield per da for the Preslav variety are shown. The average dry matter yield reaches 1322.2 kg/da compared to the Standard's yield which is 110.2%. The observed exceeding is mathematically proved for GD 5%.

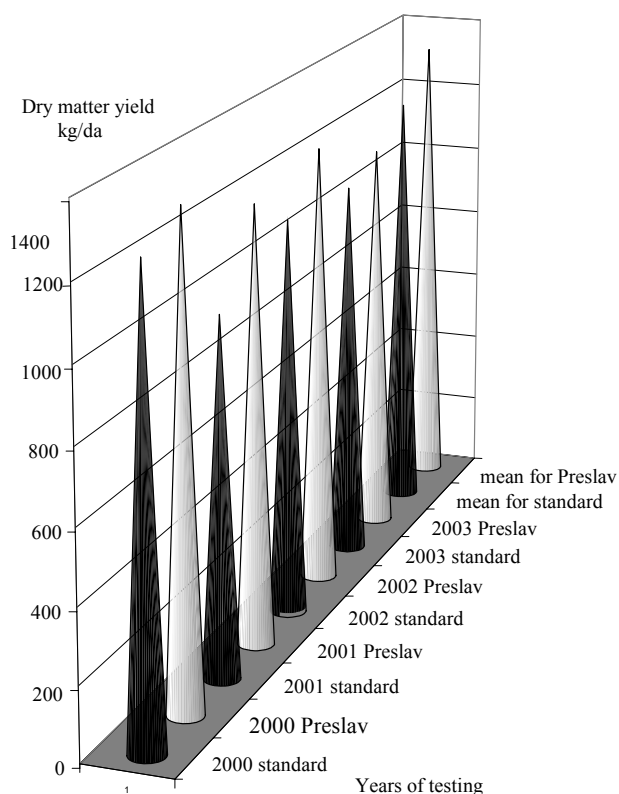


Fig. 1. Results of testing of the fodder beet variety Preslav 2000–2003, Agriculture Institute, Shumen. Standard: mean of the varieties Pliska and Vessi = 100%

The results of the State Variety Trials for the complex index dry matter yield per da are shown on Fig. 2. The data show that for the three-years testing period in the ecological network of IASAS for the country the mean dry matter yield per da from the variety Preslav is 723.1 kg/da. The mean results of the Standard varieties (Pliska and Tamara) are 666.3 kg/da. The experimental data show that the new Bulgarian variety Preslav exceeds in the complex index (dry matter, kg/da) the Standard varieties with 8.5%, and this difference is proven for GD 5%.

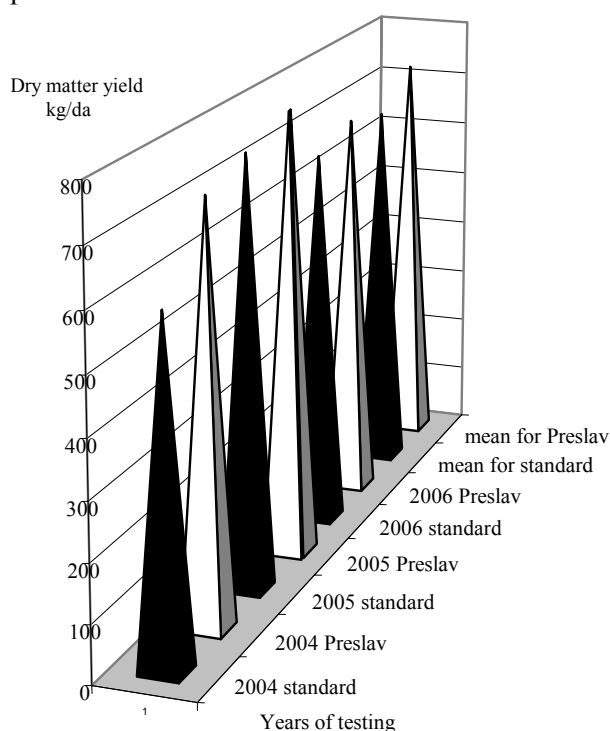


Fig. 2. State Variety Trials of fodder beet variety Preslav 2004–2006. Standard: mean of the varieties Pliska (Bulgaria) and Tamara (Germany)

CONCLUSIONS

The new variety Preslav is differing, homogenous and stable, with high productivity. In comparison with the Group Standard it realizes higher dry matter yield per da (108.5%), which gives reason to the Expert Commission to acknowledge it as a new original variety of fodder beet and the Preslav is confirmed for the List A of the Official Variety List of the Republic of Bulgaria under the requirements of Art.14, al. 2 of the ZPPM.

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