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PRODUCTION AND BIOLOGICAL EVALUATION OF WINTER WHEAT VARIETIES RECOMMENDED FOR GROWING IN THE FOREST-STEPPE ZONE

ГОСПОДАРСЬКО-БІОЛОГІЧНА ОЦІНКА СОРТІВ ПШЕНИЦІ ОЗИМОЇ РЕКОМЕНДОВАНИХ ДЛЯ ВИРОЩУВАННЯ У ЛІСОСТЕПОВІЙ ЗОНІ

Voitsekhivskyi V., / Войцехівський В.
Ph.D., associate professor / к. с.-г. н., доцент
Kodola R. / Кодола Р.
student/ студент
Bashta O. / Башта О.
Ph.D., associate professor / к. б. н., доцент
National university of life and environmental sciences of Ukraine, Kiev
Poltoretskyi S. / Полторецький С.
d. a. s., professor / д. с.-г. н., професор
Uman national university of horticulture, Uman, Ukraine
Orlovskiy M. / Орловський М.
Ph.D., associate professor / к. с.-г. н., доцент
Head of the Western region Company «Dolina», *Ukraine*
Muliarchuk O. / Мулярчук О.
Ph.D., associate professor / к. с.-г. н., доцент
State agrarian and engineering university in Podilia, Ukraine
Balitska L. / Балицька Л.
Yushkevich M. / Юшкевич М.
Researchers / наукові співробітники,
Ukrainian institute for plant varieties examination, Kiev, Ukraine

Abstract. *Providing industry with high-tech raw materials is an important task of agriculture. Studies on the study of important economic and biological indicators of medium-grown wheat of different varieties conducted in industrial conditions found that the most valuable varieties in the set of studied indicators are Veselka and Zbruch. Conducted correlation analysis of the obtained data revealed a direct relationship between protein and gluten content, the regression equation was calculated.*

Key words: *grain, wheat winter, protein, gluten, variety, indexes.*

One of the most important reasons for the agrarian policy of Ukraine is the development of high-growth grain. At the same time, Ukraine will enter the village of wheat grain in the world. Up to 20-25% of the grain in the country falls on the forest-steppe zone of Ukraine [2, 5, 6, 8, 10].

Today, the domestic and foreign markets for grain and bakery products have changed, and exports of grain and high-quality flour are growing. All this requires new varieties of wheat, resistant to diseases and pests and adverse abiotic factors of cultivation, with a wide range of grain quality indicators. In modern socio-economic conditions, selection and seed production are among the available and effective means of stabilizing the production of soft winter wheat. Some scientists believe that more than 50% of the achieved level of grain production is provided by the introduction of varieties of intensive type [1, 7, 12, 13, 15].

The increase in the production of food grain of soft winter wheat largely depends on the potential of the variety used. In recent years, the set of adverse factors affecting plant growth and development has increased. Effective cultivation includes taking into

account the problems of snowy and snowless winters, spring frosts, various droughts, diseases and more. Therefore, the task of testing and selection of varieties for a particular area with high and stable potential for productivity, grain quality and adaptive properties is currently relevant and of great practical importance. [4, 11].

The aim of the research was to identify the most valuable samples of winter wheat grown in the Forest-Steppe of Ukraine depending on the variety.

Materials and methods of research.

The experiments were conducted at the department of technology of storage, processing and standardization of crop products after name B.V Lesika NULES of Ukraine, Dolyna Company and the Ukrainian Institute for Plant Variety Examination. The most common varieties of medium-grown winter wheat were used for the study. The fertilizer system included a set of measures for the planned yield of 6 t / ha (using perennial research). Sampling, accounting, testing of products were carried out in accordance with current regulations, statistical data processing according to generally accepted methods [3, 9, 14].

Research results and their discussion.

We analyzed economic indicators of winter wheat grain of domestic selection recommended for effective cultivation in the Forest-Steppe zone of Ukraine. The average yield of the studied samples is 5,55 t / ha (fig. 1). In the same Ostysta (6, 22 t / ha) and Zbruch (5,95 t / ha) had the highest yields. Below average this indicator was at grades Veselka, Glibovchanka, Kolomak 5, Ukrainka Poltava and Kharkivska 105. Maximum deviation for productivity between the studied varieties was – 1,04 t.

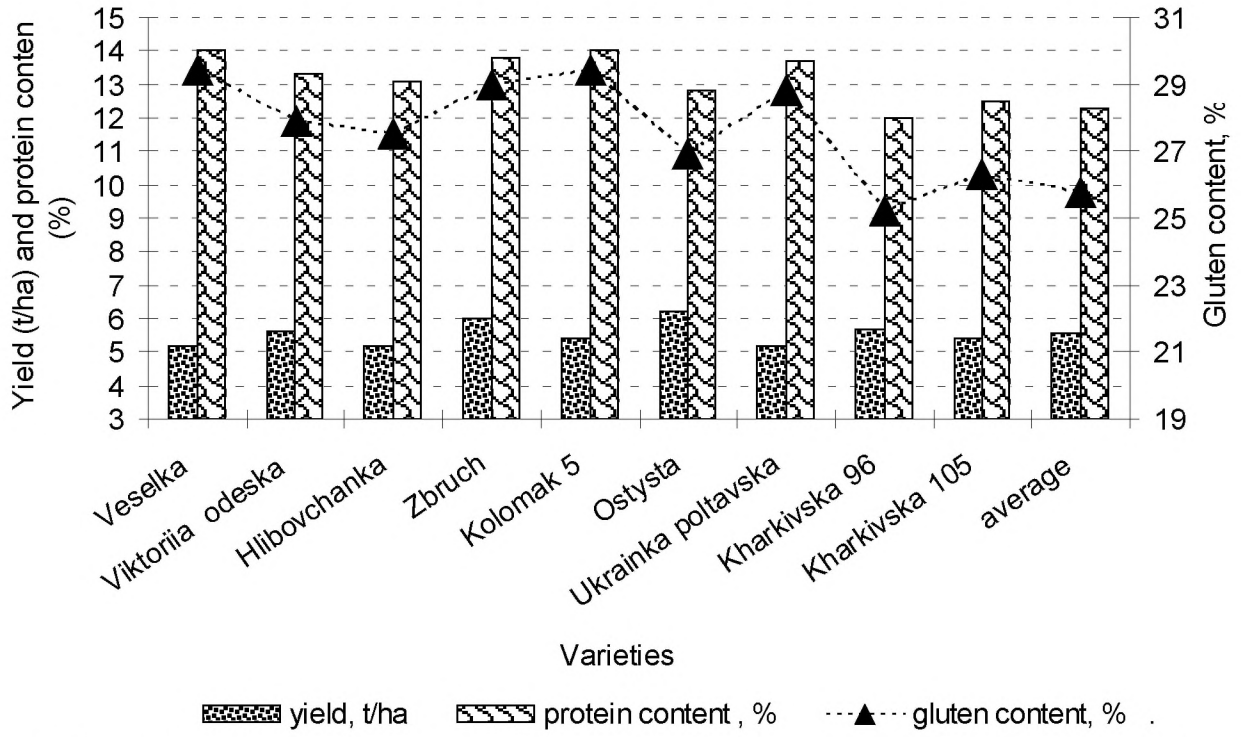

Figure 1 - Yield, gluten and protein content in the studied wheat varieties

For the production of quality bakery products, gluten content and its quality plays an important role. The average gluten content of the subjects samples is – 28%,

which corresponds to 1 quality class, according to the current standard. The highest content of gluten (above average) was noted varieties Kolomak 5 (29,4%) and Ukrainka Poltava (28,8%). Maximum the deviation between varieties according to this indicator is 4,2%. Gluten quality all samples were good.

The manufacturability of raw materials depends on the protein content. Average the concentration of protein in wheat grain of the studied varieties is – 13,34%, this indicator meets the requirements of class 2 of the current standard. More content protein was formed in the grain varieties Veselka, Kolomak 5, Ukrainka poltavska and Zbruch (above average). Low protein content of grain varieties Kharkivska 96, Kharkivska 105 and Ostysta (12,0-12,8%).

The rating included indicators such as winter hardiness, resistance to lodging, shedding, drought, powdery mildew, brown rust and fusarium wilt. The studied varieties have a fairly high winter hardiness (8,4-8,9 points), resistance to lodging (8,1-8,9), shedding (8,9-9,0), drought resistance (8,4- 8,9), resistance to powdery mildew, brown rust and fusarium wilt at the level of 9 points.

It is known that the formation of components of the chemical composition of grain and yields are interrelated, and according to the correlation calculation in analysis of samples revealed dependences of different strength. Yes, a straight line is installed relationship between gluten and protein content ($\eta_{yx} = 0,99 \pm 0,06$, $y = 2,0946\ x + 0\ 0806$) and the weak inverse between yield and formation of protein and gluten ($\eta_{yx} = 0,36 \pm 0,19$).

The calculation of the rating of each variety revealed a significant difference between samples (fig. 2). the most valuable varieties among the studied can be considered Veselka and Zbruch.

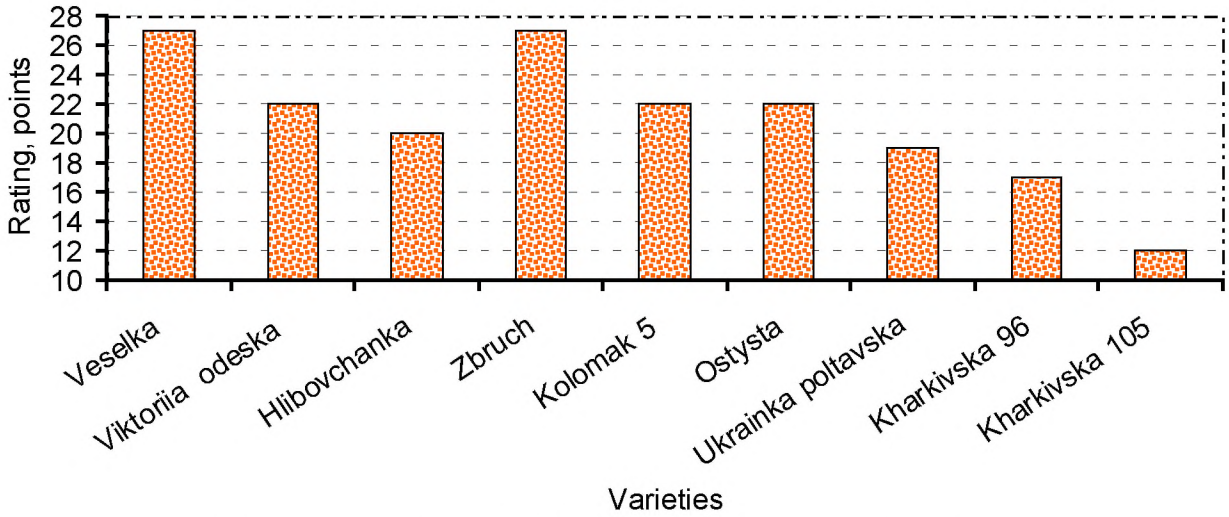

Figure. 2 - Rating of pre-harvest wheat varieties

Dispersion analysis of the influence of weather conditions of cultivation and variety on the studied indicators found that in most cases to a greater extent on their formation is influenced by varietal characteristics and less weather conditions cultivation and interaction of these factors.

Conclusions and suggestions.

Ukraine has extremely great potential and prospects for increasing the production

and export of quality grain wheat. A comprehensive analysis of economic and technological indicators of grain of medium-grown wheat recommended for cultivation in in the steppe zone of Ukraine, showed that they have very different properties. Comprehensive assessment of the studied varieties allowed to identify the most valuable samples are Veselka and Zbruch. It is expedient to use the received data at planning the cultivation of quality wheat grain In further research it is advisable to expand the list of varieties and the list of studied indicators and to deepen research on the impact of weather conditions, cultivation techniques and fertilizers for the formation of valuable economic indicators.

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Анотація. *Забезпечення промисловості високотехнологічною сировиною важливе завдання сільського господарства. Дослідження з вивчення важливих господарсько-біологічних показників середньо рослої пшениці різних сортів проведені у виробничих умовах виявили, що найбільш цінними сортами за комплексом досліджуваних показників є Veselka and Zbruch. Поведений кореляційний аналіз отриманих даних виявив пряму залежність між вмістом білку і клейковини, розраховано рівняння регресії.*

Ключові слова: *зерно, пшениця озима, білок, клейковина, сорт, показники.*

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