UDC 631.5

ANALYSIS OF FEATURES TECHNICAL AND TECHNOLOGICAL SUPPORT growing winter wheat

VM Zubko, Ph.D.
Sumy National Agrarian University

The article deals with improving the biological and "record" wheat yields by providing optimal conditions for the growth and development of plants.

Winter wheat, study requirements plants, agricultural machinery, quality assurance, increase.

Problem. Since independence, Ukraine winter wheat yield increased from 26-28 kg / ha to 60-75 kg / ha. And that is not fully used the potential of culture. To increase yields significantly affected: the quality of seeds, pesticides, which are used for seed treatment and in the growth and development of plants, plant growth regulators, fertilizers, introduction of foreign cars that improve the quality of mechanical technology operations and reduce its duration performance.

However, the full potential of the plant prevents incomplete and sometimes that does not take into account the needs of the plants on each phase of development, which inhibits its growth, which can not be compensated for other phases.

Analysis of recent research. Grain production in recent years is growing, albeit less than the population. Due to urbanization in countries increasing prosperity in some developing countries, the structure of human nutrition changes. Today a growing proportion of meat in the diet and the trend

will produce in the future. The demand for grain in the future will further increase. Moreover, increased demand for meat and grain and population growth in areas of the world will be different [1]. Growing wheat spread around the world. Grain is of great importance in ensuring food growing world population, as growth in its production is especially important [1].

Wheat - staple food for about 35% of the world population and accounts for about 20% of energy needs of the population. Refining of not for the food industry or feed purposes (non food) while negligible.

The world wheat harvesting process takes place throughout the year [1].

From the foregoing it can be concluded that the high interest in the grain market of agricultural products. However, without the knowledge of when and what it requires in plant development and harvesting, due to low quality and delayed or even complete failure needs at all plants, there is shortage of high yield, leading to an increase in the cost of production, increase in debris field and as a result to increase its spending on post-harvest soil [4].Analysis of the literature, the results of years of research scientists of the Institute of Agriculture Northeast NAAS Ukraine, scientists Sumy National Agrarian University, the results of its own cooperation with "Loture-Agro" found that in case of ensuring optimal conditions for growth and development plants can get a good harvest.

So some of the elements of yield formation are described below.

For different soil and climatic zones and under different macroeconomic conditions optimal technology for each region will also be different. The lower the potential yield and purchase price, the lower the specific costs recovered [1]. Therefore, an important factor in shaping the harvest is the choice of high-performance and, most importantly, zoned, of sorts. An important factor in the formation yield is the total sum of temperatures in a particular area and using PAR. Practice shows that the potential yield of crops tight using insolation in the second half of the growing season (Fig. 1) [1].

For the rapid development of the plant had to choose good seed. For intensive growth of plants necessary to provide initial conditions, namely to conduct a qualitative and Pre-primary tillage machines working bodies which it subsequently selected for culture, provide improved access Stubble substances and moisture to the stem, and spend quality crop seeder, which optimally " put seed "sown in bed. This will ensure the acceleration of root growth in depth and thus allow the plant to be more competitive against the weeds and lay a good potential for yield formation [2]. So, after a quality training ground for sowing and planting of the same during plant growth and development is very important in the reduction phase to ensure the allocation of productive shoots. The reduction is due to competition between cultivated plants and weeds competition and vnutrishnoroslynnoyi competition defeat diseases and pests.

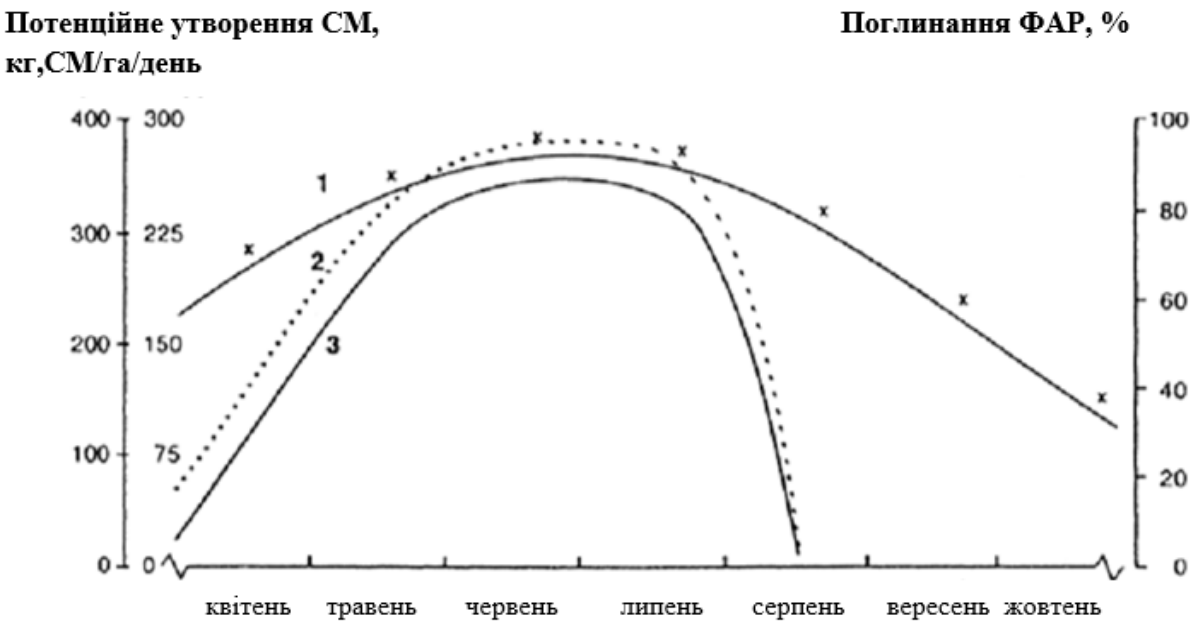

Fig. 1. the potential production at full absorption of PAR (1), using PAR (2) and really possible daily increase of dry weight of winter wheat (3) in Central Europe.

During flowering crops have their final number of productive stems. In wheat, it ranges from 350 to 700 pcs. / M2. Through farming practices using machines so that they are in time, and its quality meet the requirements of the plants should strive for in order to get it in the reduction of the number of productive stems, which provides for a variety of optimal growth conditions, and as a result highest grain yield [1].

When growing grain sold today is more or less a small part of the initial potential productivity. This is due to the fact that the individual components of productivity during growth is influenced by various negative factors [1]. A number of researchers believe that the average yield of winter wheat 60 ... 70 kg / ha sold an average of just 25 ... 33% of the initial yield potentially mortgaged [5].

Today, in some regions are already receiving up to 100 kg / ha of wheat. This suggests that grain yields in comparison with other cultures, is quite high. And this genetic potential has not been exhausted [1].

The task of scientists today is to provide increased yields due to factors and machines in the respective phases of crops so that their performance in general led to optimum yield for the area [3].

The period from sowing to harvesting in various different kinds of grain, as well as the duration of individual phases. Depending on the environmental conditions and the genotype it may change.

When growing grain must clearly understand for what purpose grown crops. In practice, the growing intensity of specific production (use of nitrogen fertilizers, fungicides, growth regulators), an increasing proportion of protein, but at a lower intensity of cultivation and with a

sufficient supply of water - starch [1]. For efficient economically and environmentally sustainable production of agricultural products [1]:

– providing access to facilities for scientific and technological progress, modern machinery and equipment, fertilizers and various forms of plant protection products;

– scientific and technical services and agricultural enterprises network of private and public research and production facilities.

This modern machines should be called so not because he made recently, namely that the plant can efficiently provide the conditions that they require.

To significantly reduce unit costs may be appropriate strategy: reduce working time by further rationalization of production technology of grain as a result of biological and technical scientific progress [1].

The purpose of research there islearn how to develop a plant to continue to pick up machine that will perform quality mechanized production operations for all the needs of the plant.

Results. Cultivation of any crop complex and crucial. Provided that the owner wants to get a good harvest in quantitative and qualitative terms, you must thoroughly examine all the necessary condition of life of the plant. Just knowing what and when required by the plant, you can determine which working body of the needs of the plant. Accordingly, to determine for each stage of development or agricultural machine if the machine with the necessary working tools that provide plant requirements, there is to offer agricultural machine builders to design a machine that would meet the needs of the plant. The use of machines should be monitored ensuring quality indicators. These are the best indicators for each technological operation and tolerance of the optimum.

To establish how much influence software quality requirements of plant growth and development on its yield, analyzed three variants of winter wheat based on the results of years of research scientists of the Institute of Agriculture Northeast NAAS Ukraine, scientists Sumy National Agrarian University, the results of its own cooperation with " Loture-Agro "(Fig. 2) [4]:

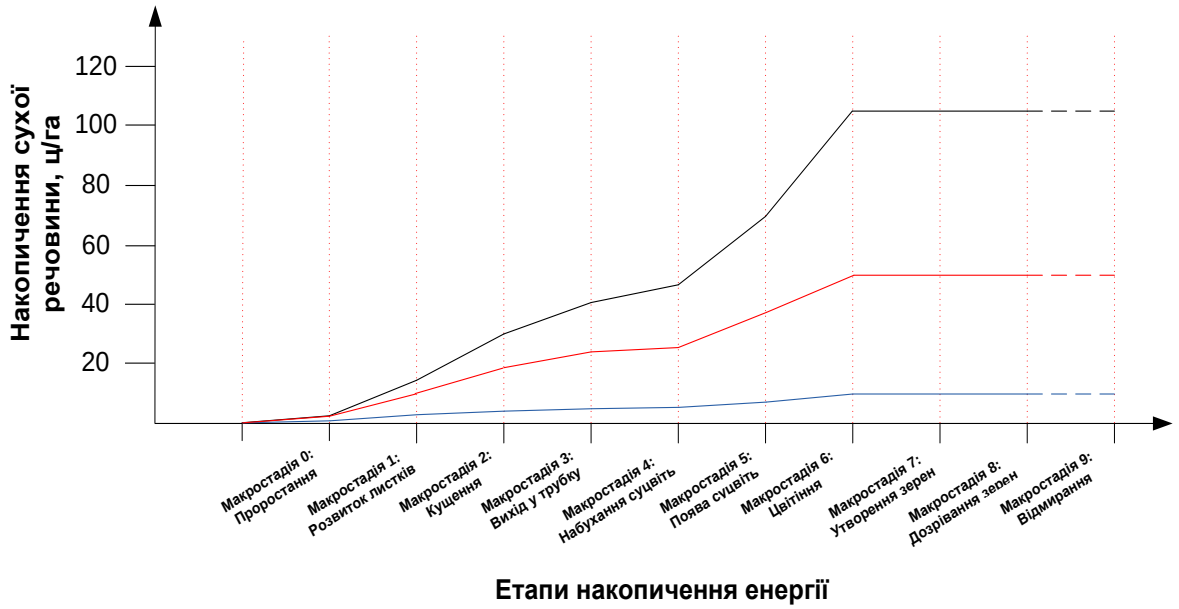

Fig. 2. The stages of growth and development of winter wheat.

– First option: winter wheat cultivation took place with all the requirements of each plant makrostadiyi its development, the number of mechanized operations was the maximum, compared with the technologies under study, operations performed in a shorter period, deviations from the requirements of technological operations were minimal;

– the second option: winter wheat cultivation took place with the main requirements of the plants on each makrostadiyi its development, the number of mechanized operations was average, compared with the technologies under study, operations performed in a timely ahrostroky deviation from the requirements of technological operations were within tolerance;

– third option: for this option was implemented crop, processing crops with herbicides, fungicides and insecticides (if necessary), the number of mechanized operations was minimal compared with the technologies under study, operations performed within ahrostrokiv deviation from the requirements of technological operations were within tolerance.

Fig. 2 is a line indicating the following:

– (———) - The maximum amount of energy savings while ensuring all conditions for plants;

– (———) - Energy Storage if all agronomic techniques ahrostroky in a timely and quality;

– (———) - Energy storage, subject to the minimum set of agronomic techniques in ahrostroky and quality.

To analyze the intensity of the plants in each phase analyzed the

rate of formation of the dry matter of the plant. At each stage of dry matter accumulation was recorded. However, all three options analyzed. As a result, obtained the following data:

– maximum dry matter accumulation was observed in the experiment where most followed the requirements necessary for its winter wheat growth and development. In this experiment accumulated dry matter was 105 kg / ha;

– average yield obtained in the experiment where all operations performed in ahrostroky and subject to quality indicators within the prescribed limits. Accumulated dry matter in this experiment was 51 kg / ha;

–

Conclusions

1. On the basis of research on the needs of the world population, found that the need for crop production, especially grain growing rapidly. This is due to the rapid population growth and the changing patterns of food (use more animal products). Also, production of cereals is used not only for food but also for alternative energy production of starch for the food and chemical industries. It is reasonable to growing crops and to improve the environmental component of human life. All these factors increase every year and the importance of expanding the area under cereals.

2. Literature and from our own research proved that today the effectiveness of grain crops is very low. Large grain losses accompanying low profitability and further clogging fields vegetation. The current yield at 60-80 kg / ha is about 30% of the biological plant yield. The research phase of winter wheat makes it possible to establish the control points where we get lost, so their further studies not only provide storage of crops to date but also a chance to raise it by ahropryyomiv and more effective use of technology.

3. Analysis shows to get a good crop of winter wheat it needs "help" develop on each mikrostadiyi, manufacturing operations must be carried out as smoothly meet the needs of the plants and in the shortest time possible.

4. Our goal is to provide increased yields through efficient selection of machines which in relevant phases of crops provide the conditions for plant growth and development, it needs [3].

References

1. *Diter Shpaar and others*. (Vыraschyvanye, Cleaning the, dorabotka and Using) / Under GENERAL ed. D. Shpaara. - M .: Eid OOO «DLV AHRODELO" 2008 - 656 p.

2. *Schilling, G.* Pflanzenernährung und Düngung / G. Schilling // Verlag Eugen Ulmer. - Stuttgart, 2000. - 464 S.

3. *Reiner, L.* Weizen aktuell / L. Reiner // DLG-Verlag Frankfurt. - Main, 1992. - 280

S.
4. *Zubko VN* Analysis stages of growth and development as a basis for the design of complex machines and their working bodies / VM Zubko // Journal of Kharkov National Technical University of Agriculture. P. Vasilenko. - H., 2013. - Vol. 148. - P. 204-208.
5. *Zubko VN* Features biological yield formation of winter wheat / VM Zubko // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. - K., 2013. - Vol. 185, p. 3. - P. 328-334.

Article posvyaschena question Increase byolohycheskoy and "zachetnoy" yield winter wheat, putem optymalnыh uslovyy Provision for growth and development plants.

Ozymaya wheat Studies, Requirements plants, selskohozyaystvennaya machine Quality Provision harvest.

This paper is devoted to issue of increasing biological and "record" yield of winter wheat by providing optimal conditions for growth and development of plants.

Winter wheat, test, claims plant, agricultural machinery, assurance quality, yield.

UDC621.86.063.2

OPTIMIZATION motion mode JAWS HIDROZAHVATA CRITERIA FOR DYNAMIC

VS Loveykin, PhD
PV Lymar Engineer

The article presents a method of optimizing motion mode jaws grab hidrozahvata. Evaluation criteria selected acceleration energy system. Optimum dynamic mode of movement of the jaws, which provides a minimum dynamic loads on the mechanism of capture.

Hidrozahvat, optimization, dynamic loads, power grabbing, jaw.

Problem. Grapple for logs - a mechanism for wood, which can be attached to the crane system manipulyatornoho loader, logging tractors, forwarders, and other machines for loading, unloading, sorting and stacking operations in warehouses or forest groves. Grapples logging tractors are widely used in the timber industry for many years. Statistics