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RESEARCH INJURY WITH DIFFERENT SEEDS harvesters **Flowsheet thrashing**

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The results of the studies found: the threshing machine axial rotary increasing the rotor speed of 520 min-1 to 810 min-1 results in a corresponding increase microdamages seeds from 25-30% to 45-50%; in a threshing machine drum-type dekovoho increase the frequency of rotation of the drum700-760 min-1 to 820 min-1 results in a corresponding increasemicrodamages seeds from 37-38% to 41-44%. In order to reduce the level of injury and damage the seed when it is advisable to collect predict the development of the national seed-breeding combine harvester.

Combine harvesters,microdamages seeds makrotravmuvannya seeds threshing scheme.

Formulation of the problem. One of the most attractive types of modern farmers is the production and sale of seeds. Every year in our country on grain crops and industrial crops consumed more than 3.5 mln. Tons of seeds, representing 8.10 percent of the gross grain harvest [1].

Low quality of domestic seed caused significant injury seeds at harvest and its primary

processing that affect its similarity. Under such conditions, sometimes seeding rate increases by 20-25 percent compared with European countries. Use as a seed injured seeds leads to loss of yield per hectare, 0.5 tonnes of rye, 0.3 tonnes of spring barley, spring wheat 0.2 tonnes, 0.6 tonnes of oats, 0.8 tons of corn. In this case, every 10% of injured seeds as the seed of the future, reduce yields by an average of 0.1 t 1 hectare [2, 3].

High poshkodzhennist seed in its collection and primary processing is one of the reasons that hinder its advancement to the European and world markets.

Analysis of recent research. A characteristic feature is present dominance of consumer interest in high-performance cleaning equipment. According to these trends leading producers fill the market combines with the power of 150-600 hp that the technological scheme threshing and separation of the grain mass divided into three basic types: classic, rotary and combined. In modern combine harvesters increased as basic parameters - width harvesters to 12.5 m, engine output to 600 hp capacity to 14,000 liters of bunker and improved threshing-separyruyuchi devices (SMEs), electronic control systems and configuration process process, automatic driving and synchronization overload of grain moving vehicles, devices for collecting no grain of harvest. Getting clean grain from the combine, which does not require additional purification - is one of the requirements for modern harvesters. Clean grain bunker must be at least 98%, and the crushed grain less than 1%. So much attention is paid to the improvement of new combines both the cleaning of grain (POPs) and controls and optimize the settings for a given grain purity. However, the question of injury to the seed in its collection and primary processing and evaluation of its properties sowing paid enough attention.

The purpose of research. Improved production processes through research crops injury combines with a variety of seedstechnological schemes thrashing the conditions of use for harvesting crops to seed.

Research Methodology. The share of grain makrotravmuvannya (crushed, flattened and crushed with a damaged embryo or separate part of the seed) is about 3-5%. The amount of grain microdamages (damaged shell, hidden internal defects - scratches, dents, cracks, etc.) reach the level of 50-80% or more.

Injury grain obmolochuvannya, separation and transportation determined in accordance with ISO 4138-2002. "Seed crops. Methods for determination of quality "[4] and depends on many factors. These include:

1) physical and mechanical properties of the process material that is processed threshing determined moisture grain and grain not part ratio of the mass of grain and straw, shape and structure of the grains, the varietal characteristics and other properties;

2) factors related to the design of combine machines and equipment for postharvest processing of grain (types and parameters of working bodies of Assembly);

3) technological management and operation of the basic mechanisms combine, especially the threshing-separating device (speed

drum threshing gaps, filing);

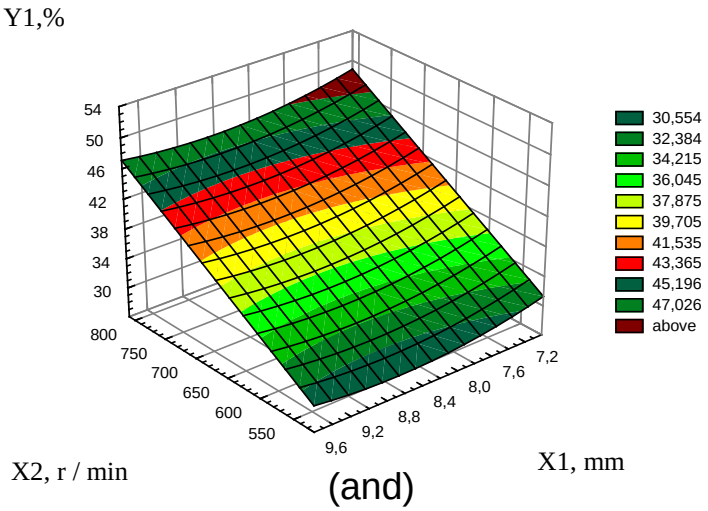
4) technical condition of equipment (depreciation whips, rods, screws, scrapers, etc.).

The degree of injury grain threshing affect specific, varietal characteristics, yield crops. With increasing number of crushed grain moisture is reduced and flattened and mikroposhkodzhenoho increases. On the injury affecting the size, structure grains, feed direction ears in the threshing machine and so on.

Results. At the NSC "IMESH" in recent years conducted a set of studies [5-11] to determine the degree of injury to the seed grain harvesters with different schemes of the process, including installation dependencies value mikroposhkodzhen seeds from the working mode of the threshing machine and load thresher offering weight. Also determine the influence of such factors as the filling hopper.

The study was conducted by direct harvesting spring barley the following conditions: productivity- 40 kg / ha, seed moisture 14-15% weediness on the actual height of cut - 3-5%, the ratio of the mass of seeds to nezernovoyi of 1: 0.92.

The influence of the parameters of the threshing machine rotary axial-on valuemikroposhkodzhen seeds carried by workers at the combine harvester KZSR-9 "Rotor". Found that a decisive influence on the value microdamages seed plays rotor speed: microdamages seeds increases from 25-30% at a value of rotor speed of 520 min-1 to a value of 45-50% rotor speed of 810 min-1 (Fig. 1, a, b, c). The character of the impact load on the threshing value microdamages seeds stored at all frequencies rotor, which conducted the study.



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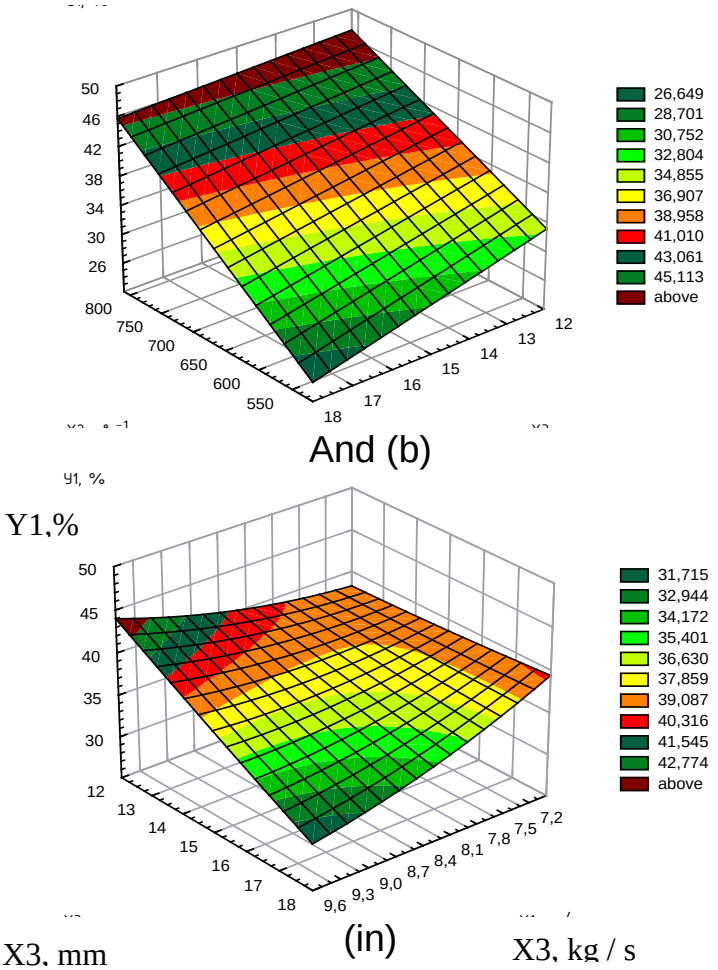


Fig. 1. Dependence mikroposhkodzhen change the value of the seed weight load thresher offering X1 and X2 rotor speed (a), rotor speed X2 and the gap between the rotor and deck X3 (b) X1 and download threshing gap between the rotor and deck X3 (c) .

In order to lower levels mikroposhkodzhen seeds should be reduced clearances between the rotor and the deck, and not to increase the rotational speed of the rotor (Fig. 1, B).

The influence of the parameters of the threshing machine drum-type dekovoho the valuemikroposhkodzhen seeds carried by workers at the combine harvester "Don-1500". Found that a decisive influence on the value mikroposhkodzhen seeds under the scheme plays a rotational speed of the drum (Fig. 2). Minimum values mikroposhkodzhen seeds that make up 37-38% in the range of change of rotational speed of the drum, which conducted the study, there are a value *n* = 700-760 min-1. Increase the frequency of rotation of the drum to *n* = 820 min-1 accompanied by increased levels mikroposhkodzhen seeds within 4-6%. Thus, depending on the mode of threshing-separating devices combine harvesters "Don-1500" and GLC-9P "Slavutich" value mikroposhkodzhen grains within 25-55%.

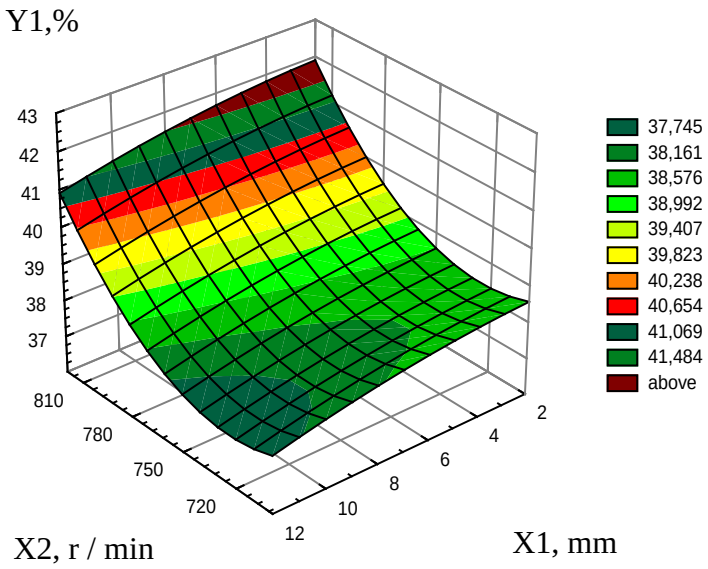
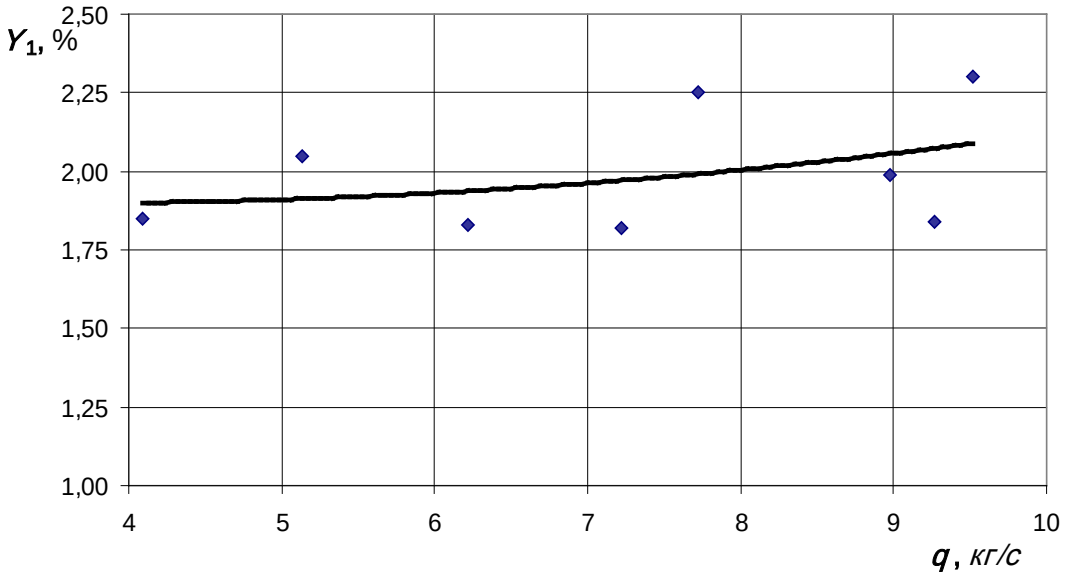


Fig. 2. Dependence of change mikroposhkodzhen seed value of the speed of the drum X2 and the gap between the drum and deck X1.

When selecting the optimal parameters of the threshing machine, provided a minimum loss of seeds, with minimal microdamages it should give priority to reduce the gap between the drum and the deck to increase the frequency of rotation of the drum. We noted that underemployment thresher combine to 30-40% leads to increased seed mikroposhkodzhen 2-5%.

The work combines with artificially overloaded hopper leads to increased levels mikroposhkodzhen seeds of 5-10%, and in some cases up to 40% compared to the blank.Research injury to grain harvester working bodies of trybarabannoyu threshing was carried out on winter wheat harvesting. During the studies measured impact load thresher combine the value of the macro and micro damage seeds. The study was conducted under the following conditions: a way of cleaning - a direct harvesting, yield - 35 c / ha.



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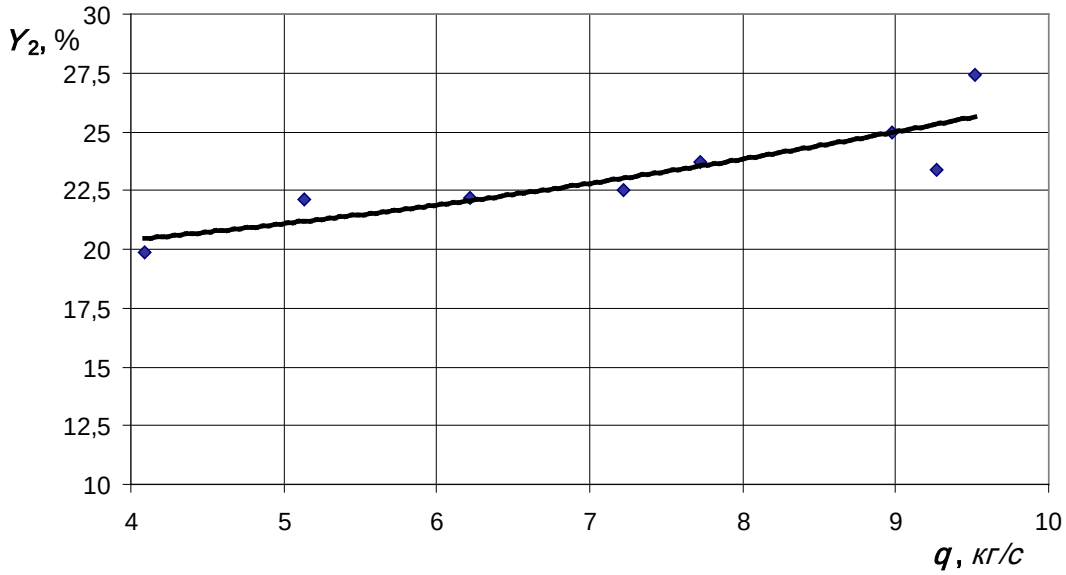

And (b)

Fig. 3. Dependence impact load q combine the value makrotravmuvannya Y1 (a) and micro damage Y2 (b) seed entering the combine hopper GLC-9 "Slavutich".

During the research the speed of the harvester changed within 0,9-2,3 m / s, corresponding bandwidth harvester 3,7-9,6 kg / s. Value makrotravmuvannya seed (Fig. 3, a) entering into the hopper of the combine, within 1,8-2,3%. With increasing load combine seed growing importance of injury to the entire range, which conducted the study. Value microdamages seed (Fig. 3 B) during the study was between 20-28%.

The results of studies on the impact loading on thresher injury seeds combine harvesters GLC-9m-1 "Slavutich" with trybarabannoyu scheme thrashing (winter wheat "Woodland-90" yield 57.95 t / ha

solomystist 1: 1.10, seed moisture 9 0% 8-9% moisture straw temperature 28-29°C is shown in Fig. 4.

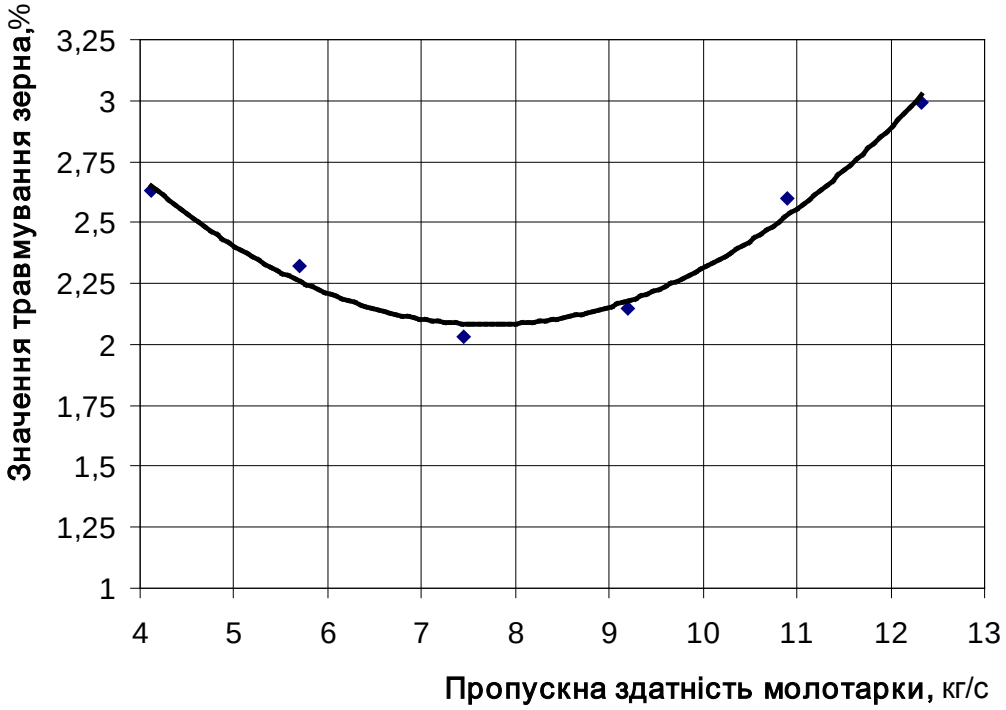

Fig. 4. Dependence injury grains of capacity combine harvester GLC-9m-1 "Slavutich" with trybarabannoyu scheme thrashing.

Combine harvesters GLC-9m-1 "Slavutich" with trybarabannoyu scheme thrashing the lowest level recorded for the injury seeds bandwidth of about 8 kg / s.

Conclusions

The results of the studies found: the threshing machine axial rotary increasing the rotor speed of 520 min-1 to 810 min-1 results in a corresponding increase microdamages seeds from 25-30% to 45-50%; in a threshing machine drum-type dekovoho increase the frequency of rotation of the drum700-760 min-1 to 820 min-1 results in a corresponding increasemicrodamages seeds from 37-38% to 41-44%.

Underemployment harvester thresher 30-40% leading to increasedmicrodamages seeds 2-5%.

Combine harvesters GLC-9m-1 "Slavutich" with trybarabannoyu scheme thrashing makrotravmuvannya seed entering the bunker is within 1,8-2,3% microdamages - under 20-28%.

In order to reduce the level of injury and damage the seed when it is advisable to collect predict the development of the national seed-breeding combine harvester.

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According to the results of research provedennыh set: the threshing apparate axial-type rotary Increase frequency of rotation of the rotor from 520 min-1 to 810 min-1 result for sootvetstvuyuschemu mykropovrezhdenyya semyan growth from 25-30% to 45-50%; apparate in threshing drum-type contrary to an increase frequency of rotation of the drum from 700-760 min-1 to 820 min-1 result for sootvetstvuyuschemu mykropovrezhdenyya semyan growth from 37-38% to 41-44%. With a view Reduction urovnja travmyrovanyya and ego at INJURIOUS semyan Other cleaning advisable predusmotret development otechestvennoho semennoho-selektsyonnoho zernouborochnoho combine.

Zernouborochnыy combine mykropovrezhdenye semyan, makrotravmyrovanye semyan scheme thrashing.

The results of the study found: in the axial-flow type threshing unit the increase rotor speed from 520 rpm to 810 rpm leads to a

corresponding increase microdamages seed from 25-30% to 45-50%; in the drum type threshing machine the increase in frequency of rotation of the drum with a 700-760 rpm to 820 to results in a corresponding increase in microdamages seeds from 37-38% to 41-44%. In order to reduce the level of damage to the seed it is appropriate to provide for the development of domestic seed-breeding combine.

Combine harvester, microdamages of the seeds,damages of the seeds,scheme of thrashing.

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IMPROVED DEVICE FOR PISLYAZBYRALNOHOSORTUVANNYA potato

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The analysis device for sorting potato and proposed direction to create new designs. Adjusted new device to sort the potato.

***Potatoes, sorting, screw classifier*.**

Formulation of the problem. Potatoes are a traditional food and an important raw material for the industry in many countries. The worldwide production of plant food that culture is the fourth after wheat, rice and corn. [1] It is grown on every continent in more than 125 countries and the area under this crop in an average of 18 million. Ha.

Sort potato is an important technological operation to be performed after the harvest in order to select parties potatoes intended: to implement, land and fodder. It provides high quality storing potatoes in the winter, which is especially important for seed.

In this regard, the study parameters of sorting and development of potato grader has scientific and practical interest and is an important task for the development of the potato industry in Ukraine.

Analysis of recent research. There are simple designs of devices, such as linen downhill slide. Due to the angle of slope slides potatoes and soil additives, which have a different coefficient of friction material on the working surface slides separated. Palmate slide consists of old conveyor belt with rubber fingers. The separation is due to different coefficients of friction-bearing, absolute size and weight of potatoes and