Grabak N.H.

TECHNOLOGY ADAPTATIO GROWING PLANTS TO SOIL AND TO OTHER CONDITIONS

Annotation: The modern technologies in plant growing frequently do not consider the whole row of circumstances, for instance: soil and weather conditions, the lay of the land, sort's specialities, territory organization character. The experiment results, which have proved significant influence of specified circumstances on productivity, erosion processes' discontinuation, energy conservation, etc. have been adduced.

Key words: differentiation of the root layer depth, chisel plowing, sorts' and hybrids' selection, adaptability to the lay of the land condition, differentiation of the fertilisation system, adaptability to the contour territory organization.

Agricultural Science at different times fulfilled the huge amount of research aimed at processing technologies of agricultural crops, most of which are recommended for implementation in production.

But huge part of processed and recommended for introducing technology is not tied to the soil type, landscape elements, weather conditions, varietal characteristics of plants used tillage systems and more.

For a long time (25 years) we have conducted a series of experiments aimed to the differentiation technology groving plants according to specified circumstances.

Thus, in terms of ordinary black plain, basic shallow cultivation under clean pairs in favorable years has led to a decrease in grain yield of winter wheat compared to conventional plowing, while in unfavorable years it decreased. On the slope steepness 3-50 shallow plowing under winter wheat after perennial grasses in favorable years led to the formation of grain on yields 4,0-4,6 kg / ha more than in versions with shallow cultivation, while in ordinary for weather conditions all year cultivation options were actualy equivalent.

Long-term use in the rotation untouched cultivation in the southern black soil arable caused differentiation (0-30 cm) soil layer on the main agrochemical indicators. If the upper 0-10 cm soil layer by plowing contained 3,12% humus, then the background untouched cultivation 3.18. The content of total phosphorus was respectively 0.13 and 0.17% and 1.8-2.2% potassium. At the same time in the layer 10-20 cm in soil humus content decreased by 0.04%; total phosphorus - by 0.03% and total potassium - by 0.3% compared to other. This figure as the amount eaten up ions had changed for individual layers on different backgrounds cultivation.

Normal sense suggests that these circumstances require the adjustment of certain manufacturing operations in growing crops, depending on weather conditions, terrain elements, tillage systems. Despite the fact that production is widely used innovative methods and systems of cultivation based on untouched tillage implements and minimize testing new varieties and hybrids being against the background of traditional farming in terms of flat terrain, resulting in a variety of different cultures often come not in the best conditions for them.

Scientific research related to the definition of response varieties (hybrids) crops on different elements of the terrain and different systems of cultivation made low amount, and in Ukraine this question almost no one did.

In our experiments varieties of sunflower Armavir 3497 and 101 in Kharkov background untouched cultivation had slightly (by 4.2 and 6.5%) lower field germination of seeds than for plowing. If the variety of spring barley Donetsk 8 formed almost the same grain yield as the background plowing, and the background untouched cultivation, the sort Zernohradskyy 73 significantly decreased performance on a background bezpolychkovoho cultivation.

Quite important issue in the technologies of growing crops is the differentiation rules seeding depending on terrain and steepness of slope and even its exposure. Slope land characterized worse compared to fulfield indicators of fertility and water regime. As a result, grain spiked culture growing worse, resulting in a need to increase seeding rate of these crops. Zaslavsky MN [8] found that the rate of sowing cereals on the slopes should be increased by 15-20%.

Research untouched ways of cultivation in many countries and in Ukraine are known to have been caused by the need to protect the soil from erosion, primarily due to plant remnants that remain on the surface and in the surface layer of soil. It

is therefore important as little as possible to destroy these remnants of excessive tillage, particularly issues relevant to cultivated crops.

Our results showed that the removal of early spring harrowing and cultivation of a precontributed much better preservation of post-harvest residues for sowing sunflower.

If plowed ploughland often requires early spring harrowing in order to level the soil surface, the ploughland raised untouched tools, practically does not require this measure.

Minimizing preplant tillage contribute to better preserve moisture meter soil layer at 13,0-19,2%.

Removal of the first pre-cultivation, of course, led to more weeds before sowing, but they destroyed preplant cultivation and subsequent growing season of maize and sunflower in versions with one preplant cultivation was observed weed-infested more than after two.

The yield of sunflower seeds and green mass of corn with minimized preplant tillage was almost the same as the traditional.

There is no need to convince an enormous importance in shaping the yield and quality of products owned fertilizer.

Question fertilizer plants generally well studied. Basically rate and ratio of nutrients to be put to the intended yield, easy to calculate according to current methods for the content of main nutrients in crop plants.

However, against the background untouched cultivation on sloping lands and research on standards, methods, timing, means fertilization carried little.

The issue of rational use of fertilizers becomes extremely important at this time when prices are rising. Therefore, farmers need reasoned recommendations on the use of standards, methods and timing of fertilizer on different terrain, soil backgrounds and more.

In the second half of the 80s of last century in Ukraine are known to have begun to implement a system of agriculture organization contour area. But due to political and economic events that occurred in the early 90s, this work was stoped.

However Landscape organization of land use and crop rotation, contour placement fields is surely a promising area of domestic agriculture, without which effective management or on the ground

This will cause some difficulties with growing row crops, especially in the performance of row cultivation. On the one hand it is necessary to strengthen the stability of the ground for a possible run-off, and the other - to effectively combat weeds with minimal sawing grown plant cultivators.

Abroad and in Ukraine at one time made some research in this area, but they were used in production. Thus, in the arid conditions of Texas (USA) developed the technology for growing corn, sorghum, cotton, where the rows creates intermittent cell. This measure prevents erosion, retains good productive moisture in the soil, leading to increased productivity.

In the former Institute of Agrarian Sciences maize care system researched corn crops on the slopes slope over 20, who was in furrowing at the first rows of cultivation hilling plants in rows at the latest. Flushing the soil with decreased compared with traditional cultivation 2-5 times, and grain yield increased by 2.5-3.0 t / ha.

We have over the years 1991-1993 to ordinary black (slope 1-30) performed an experiment where several options compare cultivation between the rows of corn in the contour of areas.

If the traditional cultivation between the rows of plants damaged by 12.0%, when surveyed - only 3,1-5,8%.

As for the yield of grain and silage corn, we can only speak of a tendency to increase the yield of the studied variants.

In summary, it is possible conclusions.

1) Field experiments on processing technologies for growing crops or their individual elements need to spend so much time to cover different weather conditions years and producing recommendations given not by the averaged data and specific weather conditions.

2) sort testing should be performed on different terrain and recommended for a particular zone (subzone) backgrounds cultivation, which significantly alter the properties of the root layer.

3) The same approach must be followed and in the processing of individual process elements such as seeding rate of seeds, plant density, method of sowing and caring for plants, and more.

4) In view of the fact that the organization of landscape areas with contour deployment of field crop rotation must inevitably be introduced in Ukraine, now is the time to process technology of growing crops cultivated under these conditions in view of earlier studies.

Literature

1. Akentyeva L.I Provide humiditywinter wheat, corn and sunflower field crop rotation with cultivation of soil eroded black soil Donbass // Agrochemistry and soil science. -1990. - №53. - S.45-51.

2. Sidorov Yu combination of tillage substances // Steppe prostory.- 1973. - № 9- S. 11-15.

3. ... V.N. and others. The variety and soil treatment // Zemledelie.- 1980.- № 11.- S.35-36.

4. Gnatenko A.F et al. Patterns of change factors under the influence of the use of technology St. crops // Theoretical control activities: Tez. rep. All-Union. Conf. Odessa, 25-26 September. 19792. - Odessa, Moscow 1979, Part 2 -. S.41-42.

5. Hrabak N.H etc .. Basics of agriculture and land protection. - K: "Professional", 2005. - 495 p.

6. Dzyubinsky NF and other ways of increasing the productivity of the St. crops under conservation tillage system // effectiveness of soil conservation technologies of processing of eroded soils Ukrainian SSR. Coll. nauch.tr. - K., 1987. - S.80-86.

7. Zaitsev V.N seeding rates, planting methods, and ... // Grain economy. - 1976. - №7. - S.21-22.

8. Zaslavsky M.N The norm of seeding on eroded soils // Soil erosion and conservation tillage: Coll. scientific. tr. - M .: Kolos, 1975. - P. 164-165.

9. Ivanov N.N et al. Soil cultivation and fertilizer application. - №4, 1971. - 180 p.

10. A.V Klachkov Advantage technologists with reduced tillage // Fields of agriculture abroad. - 1984 - №1. - p. 8-11.

11. V.M Krut The structure of crops and tillage in Ukraine in the hotel zone // Agriculture. - 1980.- №4. - S. -35-36.

12. Kuzmitchov V.P Erodovani lend Ukraine .. ïh produktivnist // Agrohimiya that pedology. - Kharkiv 1970. - № 14. - S. 3-30.