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Model variety - perspective directions of formation for organic farming

Theoretical and experimental substantiation of perspective models of varieties of crops is one of the main directions of joint interaction of genetics, physiology, biochemistry and plant breeding. It has been particularly intense over the last two decades. The progress made in this direction is related to the development of photosynthetic productivity theory, the study of the genetic nature of disease resistance and the adverse effects of environmental factors, and the development of new breeding methods. A variety model is a scientific prediction that anticipates what the variety should be and the individual characteristics of its plants, in order to best meet the requirements of production for a particular crop under the specified growing conditions. The main requirements are maximum and stable yield, high quality products [1].

Theoretical aspects of varietal modeling were also developed by Ukrainian breeders. This is especially true for organic farming, which is gaining popularity in Ukraine. Unfortunately, it should be noted that breeding for organic farming has not yet said its strong word. After all, during the last decades (after the “green revolution”), breeding has been focused on the technology of varieties in order to maximize the yield response to mineral fertilizers, remedies, stimulants, etc. Organic movement, which began in developed countries (USA, EU, Canada), naturally reached Ukraine, agrarian potential (and especially soil quality), which can meet the needs of the market of environmentally friendly products [2,3].

The solution to this problem is related to the formation of properties in the following directions:

1. Resistance to negative abiotic factors (the main of which are):

- frost and winter hardiness;

- drought resistance;

- resistance to lodging and shattering.

2. Resistance to negative biotic factors, namely:

- weeds;

- pests;

- diseases.

3. Ensuring an appropriate level of product quality;

4. Optimization of productive potential.

5. Reaction - response to a nitrogen source, alternative to mineral fertilizers.These may be:

- sidereal fertilizers;

- legumes as precursors;

- associative nitrogen fixation;

- organic fertilizers.

And, obviously, plants for the effective absorption of nitrogen of different origin must have certain adaptations.

It is obvious that varieties for conditions of organic farming are varieties of not intensive type, and therefore it is necessary to revise the requirements to the level of potential of the variety, which in the conditions of non-use of mineral fertilizers should be optimized. It is advisable to redirect the released bio-potential to increase resistance to biotic and abiotic factors, as well as to improve product quality. It takes a considerable amount of time to create a variety specifically for organic farming, so at this stage it would be advisable to organize a special variety trial of modern breeding varieties, as well as the best retro varieties that were bred in due time for extensive farming. This would increase the potential of organic farming in the coming years.

Bibliographic list

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