

## REGIONAL PROBLEMS OF ORGANIC GRAIN PRODUCTION

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The increasing of agricultural production is impossible without increasing of land use efficiency. For the production of organic food it is necessary to use modern technologies, which are based on the care of soils fertility increasing and its protection from toxic and poisonous substances. However to exclude the toxics and mineral fertilizers — does not mean that you pass to organic production.

Organic production assumes preventive measures of struggle with weeds and illnesses of plants, without chemical preparations, increase of soils fertility with the help of biological structurization of the land and use of organic fertilizers, and as the final result of all these measures is to increase the level of productivity and quality of products. Organic production allows to build the following logic chain: from the healthy land – to a healthy plant; from a healthy plant – to a healthy product; from a healthy product – to the healthy person.

Even when the market dictates its own conditions, population interrogation about priority factors at a choice of the foodstuff, spent worldwide, has shown the following results [Burakov 2008]:

- food safety of a foodstuff – 47%,
- food value – 20%,
- the product price – 15%,
- potential product deficiency – 8%,
- taste and product marketable state – 8%.

What is the ecological or organic agriculture? Organic production in Europe is named agriculture at which soils are not fertilized by minerals, are not processed chemicals and natural products (not GMP) are grown.

A little bit different definition gives the encyclopedic dictionary according to which organic agriculture; the ecological agriculture is a special form of conducting agriculture. Within the frames of this form there is a conscious minimization of use of synthetic fertilizers, pesticides, regulators of growth of plants, the fodder additives, genetically modified organisms. For increase of the productivity, maintenance of cultural plants with elements of a mineral food, pest control and weeds, more actively applied the effect of crop rotations, organic fertilizers (manure, composts, etc.), various technologies of cultivation.

The modern agriculture of the Zaporozhye area of Ukraine has 84,8% of the land occupied under agriculture. From them of 70,1% – an arable land, 1,4% – long-term pastures and 11,1% – haymaking and pastures and only 1% of the land is used for organic agriculture.

Economic difficulties have led to sharp reduction of chemical protection. At the same time in the Zaporozhye area reduced quantity of mineral and organic fertilizers that is used in agriculture. Use of mineral fertilizers was reduced in 3.2 times, organic – in

Last years poor yield of grain crops were explained by low level of inputs for 1 hectares of an area under crops. Really, in comparison with 1996 expenses have increased in 6,6 times. Nevertheless, the general opinion agricultural producers, who specialized on grain production, is for achievement of high indicators it is necessary to put in each hectare not less than 1500 grn.

The numerous experiences that were done in foreign countries and allows to compare action and affects of modern technologies on quality of production and level of soils pollution, have proved, that organic methods of cultivation of grain crops with smaller material and power expenses allows to receive practically the same harvest, as well as at traditional technologies. That fact is positive, that in soil mineral fertilizers, herbicides and pesticides do not collect.

In the Zaporozhye area one of farm that produce using an organic technologies, is farm „Danko” of Orehovsky region. The harvest of grain crops is on 12% less than at traditional technology, but at the same time material inputs are on 60% less because of full absence of herbicides and pesticides, and power inputs were reduced to 40%, because of considerable inputs reduction of mineral fertilizers.

However it is necessary to consider, that the Zaporozhye area concerns a zone of risky agriculture, and if to account the global warming this area can come nearer to a climate, characteristic for semidesertic areas. Therefore it is extremely necessary to connect the further development of agriculture with an irrigation. It is necessary to consider, that the expenses connected with an irrigation, make more than 1200 grn./hectares. Such expenses could be too high for most enterprises of this area.

The quality of produced grain is a big issue too. More than 10 years in Zaporozhie area were not made grain of firm varieties, and grain soft varieties of 1 and 2 classes makes not more than 3% from total value.

The introduction of Ukraine into the WTO compels landowners to change essentially approaches to the quality of grain from the point of view of its rating (contains of fiber and gluten), and from the point of view of presence in it of harmful substances. Our country has all bases to become the basic exporter of biologically pure grain products for the European Union countries. It is necessary to mean, that in Ukraine the labor much cheaper than in the European countries. Natural reduction of fertilizers and chemicals inputs in the conditions of an economic crisis forms the price that is much lower, than at our western neighbors. Some experts estimate that the price difference on organic food and on food that is growing by traditional technology will make 40-50%.

The production of biologically high-grade and safe grain is very important for the population of a planet, as one of the main product with a high food value. The average annual world production is about 600 million tons of wheat is equaled to its world consumption. The basic exporters are 10 countries while get it more than 100. Thus demand for high-quality grain is unsatisfied.

The nearest competitor for the Ukrainian producers of grain is Russia which also can make and deliver ecologically safe grain on the world market. To become the world grain leader who use the organic technologies, for Ukraine it is necessary to carry out reforming of grain branch, to make it highly profitable, as development of the most important branch of agrarian production can give a push to the development of other branches of agriculture.

Table 1. Grain production in agrarian sector of economy in the Zaporozhye area in 1990-2008

Contents	The level of production [[thousand t]							
	1990	1995	2000	2005	2006	2007	2008	2007 to 1990 in %
Grain in total, including:	3093.7	1533.0	1150.1	1806.4	1762.0	1241.4	2780.1	89.9
wheat	2402.5	487.9	528.5	1160.8	874.7	924.8	1820.2	75.8
rye	11.8	8.7	15.5	8.5	5.4	4.8	*	*
barley	362.2	788.6	430.7	461.5	699.9	237.9	744.1	205.4
corn	177.7	135.6	120.6	143.1	130.9	54.2	123.8	69.7
oats	36.7	30.8	11.1	4.7	7.1	2.6	*	*
millet	10.9	23.9	28.7	13.2	18.8	5.4	*	*
buckwheat	2.5	8.0	3.9	2.9	3.9	0.7	*	*
leguminous	88.5	44.2	8.5	12.8	24.0	7.1	*	*

\* data are absent (According to Central statistics department in the Zaporozhye area of 1990-2007)  
Source: own study.

In our country the wide circulation is got the new grain production technologies – no-till and mini-till, that allow to minimize cultivation expenses and, that is important, essentially to lower quantity of the chemical inputs in soil for increase of productivity and protection of plants from wreckers and illnesses. And the most important advantage of these technologies – reception of high-quality ecologically safe grain.

However, it is necessary to mean, that using only new technologies will not give desirable result. It is needed the complex of actions providing not only production sphere, but also sphere of storage and grain marketing. For the Zaporozhye area the harvest of 2008 became serious test as 40% of a crop could not be stored, therefore grain has partially been realised directly from fields under the lowest price – 500-600 grn. per ton (table 1). Another part was stored in the facilities that not adapted for long storage.

It is known, that 70% of territory of Ukraine are used under agriculture. It twice more than on the average across the CIS. But due to extensive technologies we annually lose hundreds hectares of fertile lands, moreover, we are importing products from abroad. Many experts of agrarian sector agree, that reorientation to organic agriculture and introduction of corresponding standards could make our country the leader of the food market of Europe. And for casual consumers it would mean occurrence in supermarkets of a foodstuff from natural raw materials without addition of ecologically dangerous components.

For the purpose of the decision of the problems specified in the article and other questions of grain branch, creation of territorially-branch structure (the cluster type), that was developed by farmers of the Kharkov area and improved by us, is expedient and very timely (fig. 1).

Creation of organic plant growing system, and its first stage – bio protection of crops and grain, especially wheat, will allow to reduce expenses essentially for its production and is guaranteed to receive biologically high-grade and safe grain according to WTO standards.

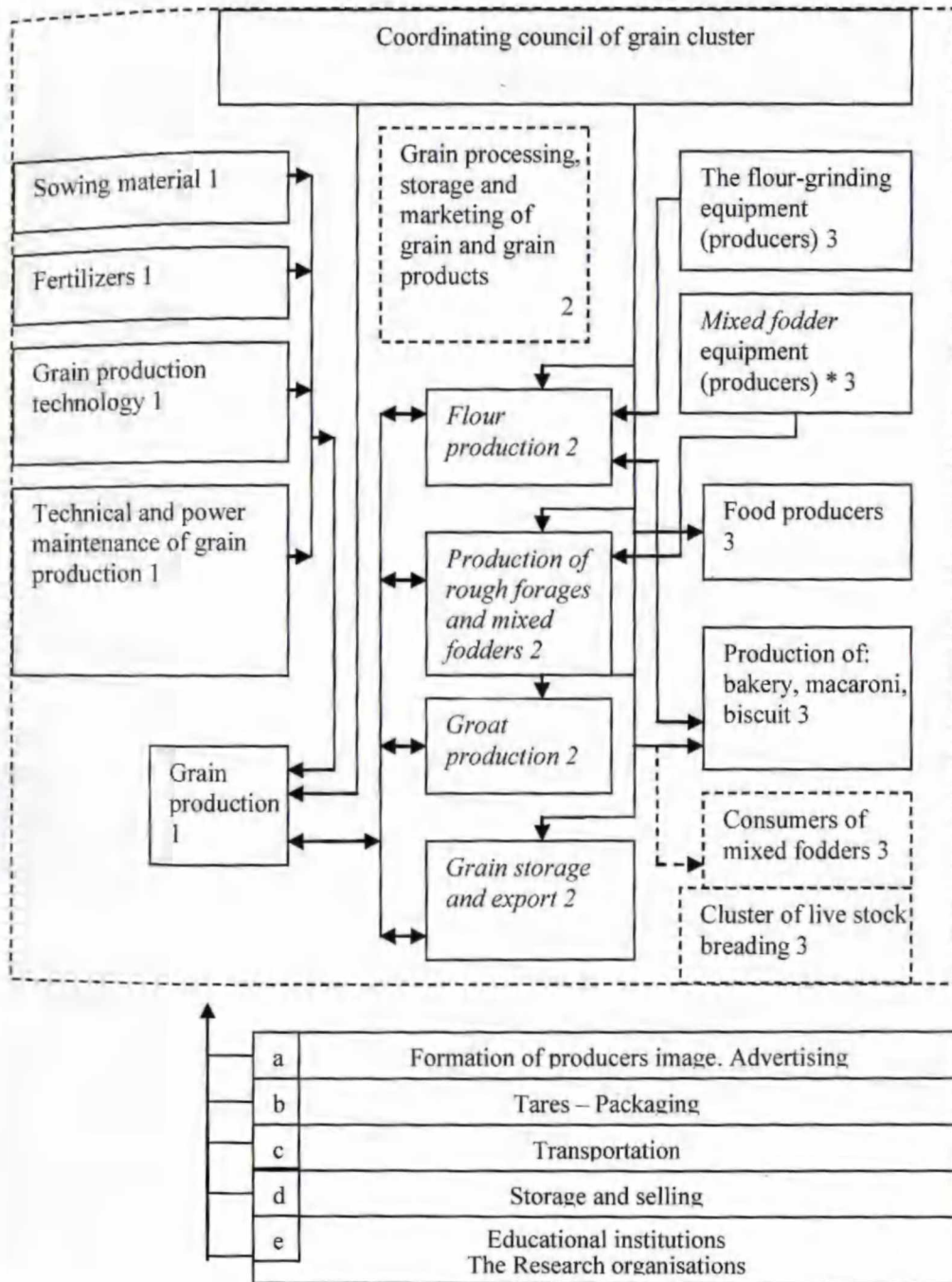


Figure 1. Grain cluster of Zaporozhye region

Source: own illustration

a-e) common components for sub-clusters

\* - Cluster participants who are desirable to be included in the cluster

1,2,3 - technological clusters

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# **ECOLOGICAL INNOVATIONS AS THE GROWTH FACTOR OF ENTREPRENERIAL ACTIVITY EFFICIENCY AT AGRICULTURAL ENTERPRISES**

## **POSING THE PROBLEM**

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Efficiency, as it is known, is the main measure which determines the success of any enterprise activity and is constantly in the centre of attention of economic science. The increase in efficiency in the field of environment improvement can be achieved upon the simultaneous use of technological and organizational and economical innovations in the development of agriculture.

Most of the agricultural enterprises abroad, including the developed European countries, have made considerable progress in sustainable development introducing ecological innovations steadily and regularly. Among those which have been widely used there are such managerial elements as the concept of eco-efficiency, the ecologically safe production model, international standards of eco-management and audit, methods of the resource capacity increase based on the MIPS concept, new systematic ecological design and special production marking which guarantees high level of ecological safety of manufacturing production and services and improvement of business positions at the same time. Use of appropriate modern instruments in Ukraine is still relatively limited, it is often located in certain regions – participants of international projects or concentrated at the export-oriented enterprises and does not properly influence technological and organizational and managerial approaches being in use.

## **The main data of research**

To determine the effectiveness of agricultural enterprises certain indexes were accepted and are still being used such as productivity of labour, capital productivity ratio (which reflects technical and economic aspect of a problem), profitability (which defines financial and economic aspect), etc. The main shortcoming of these and similar traditional indexes is the fact that they do not take into account ecological and resource effects of production.

The necessity to account ecological and natural resources factors in complex estimating of their efficiency caused working out the eco-efficiency concept. This concept is based on the following principles: attention to producing goods or services; preference to the human needs and bringing quality of life, including ecological aspects; estimating the whole life-cycle of goods and services (from getting raw materials necessary for manufacturing to safe recovery/disposal of consumed goods); estimating the degree of affecting the eco-system accounting the necessity of development and promotion of goods and services with high ecological features.