

## SECTION XI. AGRICULTURAL SCIENCES AND FOODSTUFFS

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### THE RESULTS OF THE CLUSTER ANALYSIS OF VEGETABLE PRODUCERS ON THE EXAMPLE OF THE KHERSON REGION, UKRAINE

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The size of the area of vegetable crops in agricultural enterprises depends on their production direction (specialization), natural growing conditions, the availability of labor and vegetable sales markets, provision of specialized equipment, vegetable storage facilities, etc. Vegetable production requires a significant amount of labor for weeding, harvesting, etc. Vegetable production is difficult to transport, perishes quickly, and therefore needs to be quickly collected and sent for sale. One of the important factors affecting the level of efficiency of commercial vegetable production is the degree of concentration of vegetable production in agricultural enterprises.

When determining the rational dimensions of the vegetable growing industry in agricultural enterprises, indicators that most fully characterize the efficiency of open ground vegetable production and depend on the volume of gross collection should be considered. This is the level of marketability, cost price, labor intensity, sales price and level of profitability.

The method of cluster analysis was used to determine typical farms of vegetable producers, in particular their structure [1–6]. Cluster analysis is a methodology for classifying heterogeneous statistical populations. Its task is to divide the original population into subsets of objects of the same type. These subsets are called clusters. It is the farms of the same type that we should define in order to establish the typical characteristics of production plans.

To carry out the cluster analysis, 3,464 farms of various forms of ownership and sizes were analyzed, the total sown area of vegetable crops was 262.2 thousand ha (Fig.).

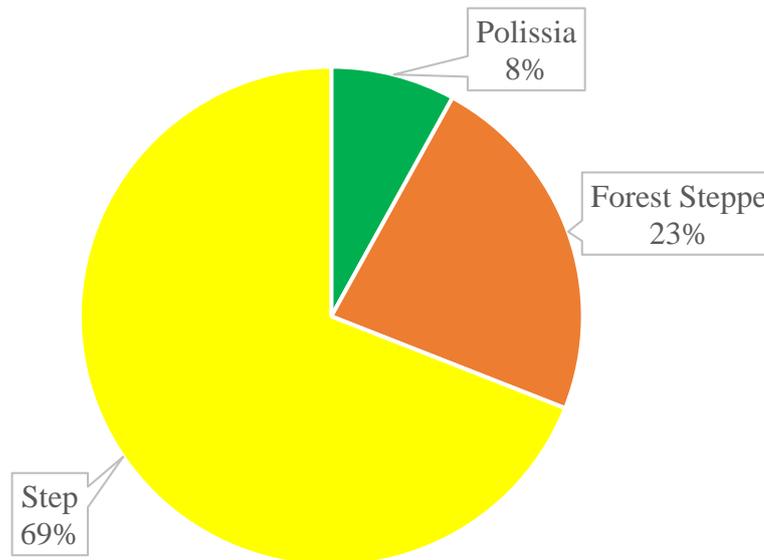


Fig. The share of vegetable production by natural and climatic zones of Ukraine [2]

As can be seen from the figure, the main producers of vegetables are farms located in the Steppe zone, their total cultivated area is 186.3 thousand hectares.

So, for example, in the Kherson region there are 332 farms with a total cultivated area of 24.3 thousand hectares that grow vegetables [2]. Farm data can be grouped into 4 clusters. The most widespread for this region is the farm cluster, which includes 44% of farms. It is characterized by the average value of the farm's sown area of 134.53 ha, in the structure of which the average sown area of vegetables is 21.4 ha with the dominance of green peas over 90%.

**Conclusions.** Having carried out the analysis, it was concluded that the minimum limit of the vegetable growing industry in agricultural enterprises is the presence of a specialized unit, the rational size of which is 100-150 hectares of vegetable crops, depending on the type of product and its varietal composition. Rational is understood as the size of vegetable production that provides the best result of activity under the condition of rational use of a set of factors: natural, economic, organizational, technical, which do not act separately, but in combination with each other. Therefore, a mandatory condition for ensuring the optimal size of vegetable enterprises is the rational territorial location of vegetable production, which determines the maximum possible use of the biological potential of vegetable crops for the production of competitive products, etc.

The advantages of the concentration of vegetable production in specialized enterprises are due to the more rational use of modern technologies, the introduction

of the achievements of scientific institutions, the availability of qualified personnel, which allows to ensure proper care of vegetable crops, a significant increase in their productivity, and the rapid intensification of the vegetable growing industry.

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