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ABSTRACTS

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TESTING OF STATISTICAL HYPOTHESES AND ITS APPLICATION IN AGRICULTURAL PROBLEMS

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Mathematical analysis of research results with a theoretical and practical conclusion is one of the most important questions for each researcher. In this paper, a one-factor dispersion analysis of the experimental results and its application in solving agricultural problems is proposed. The mass data obtained as a result of scientific and practical experiments is mostly a probabilistic-random nature. For their processing, mathematical statistics methods are used, which include: correlation, regression analysis, and oth. [1–3].

In this paper, we propose the application of methods for testing statistical hypotheses in problem solving and from agriculture. It is advisable to note that the work is of a scientific and methodological nature, which will be useful for specialists engaged in scientific research to process experimental data obtained in field and laboratory conditions. In many theoretical problems of statistical analysis of results, it is necessary to compare two means or two variances for the studied process.

From the definition of a statistical hypothesis, it follows that it can relate either to the distribution law or to a separate distribution parameter. An example of statistical hypotheses can be suggestions that the live weight of calves in farms of the district is subject to normal distributions; the average yield of potatoes of one variety exceeds the average yield of another variety; the average yields of cotton obtained on two farms are the same. In practice, two types of hypothesis testing tasks are most often solved: the first type of task is related to testing the hypothesis that there are significant differences between the parameters of statistical aggregates. An example of such tasks can be evaluating the reliability of differences between the mean, variances, correlation coefficients, regression, etc.

The second type of problem is related to testing hypotheses about the significance of differences in the distribution laws. These include the tasks of determining the correspondence of the sample distribution to the theoretical, most often normal, assessment of the proximity of two empirical distributions, the homogeneity of the composition of several populations, and others.

The work studied the influence of the live weight of two types of cows on their milk productivity. Using Student's criterion, we tested the hypothesis about the equality of the means of two independent samples with unequal variances. By processing the experimental date, it was found that the actual value of the Student's criterion falls in the critical region and the null hypothesis of equality of means in the general population is rejected. So, a difference between the averages of the cow's breed affects their productivity.

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