Effectiveness of using the Feed-Food Magic Antistress Mix additive in broiler chicken diets for sustainable agricultural development

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Abstract. The article presents the results of using the anti-stress additive when introducing it into the mixed fodder for broiler chickens. Studies were carried out at the research base of Volgograd State Agrarian University. The birds of the control group were given a basic diet. The birds of the experimental group I received an anti-stress additive "Feed Food Magic Antistress Mix" 0.05% per ton of mixed fodder in addition to the basic diet, and experimental group II - 0.02% of anti-stress additive per ton of mixed fodder. Good results were obtained in terms of poultry survival, and good dynamics of growth and development of chickens were observed in all groups and sections. At all ages, the body weight of broiler chickens was within the standard values of the broiler breed. When comparing the indicators of live weight of a bird at the age of 35 days, it was found that the experimental group I prevailed over the control group by 2.96%, and over the experimental group II by 0.76%.

1. Introduction
Livestock breeding is a whole complex of industries. One of the fastest-developing against the background of its other sub-sectors is poultry farming. It allows you to get at the lowest cost of labor a very high percentage of the output of products - meat, by-products and eggs [1, 2, 3].

One of the main problems of this segment of livestock breeding, which can significantly reduce the volume and quality of the products are stresses [4, 5, 6].

Stresses affect the body at the cellular level, worsening the blood parameters of poultry and its condition in general. In order to reduce the occurrence of stress and its negative effects, anti-stress preparations, which are biologically active additives, are introduced into the diet of farm poultry [7, 8].

The aim of the experiment was to study the effect of the anti-stress preparation "Feed-Food Magic Antistress Mix" on the productive qualities of experimental poultry.

2. Materials and methods
The object of the study to study the impact of this additive on the body of farm poultry were chickens meat cross "Ross - 308".

At the enterprise JSC "Poultry farm Krasnodonskaya" were bought 360 heads of chickens at the
age of 1 day. After that, they were randomly divided into three groups, one of which became the control and the other two - experimental under the order numbers I and II. Each group had 120 chicks. The duration of the experiment was 35 days.

In accordance with the requirements of All-Russian Scientific Research and Technological Institute of Poultry Farming, the birds of the control group were given a basic diet. In addition to the basic diet, the birds of the experimental group I received an anti-stress additive "Feed Food Magic Antistress Mix" 0.05% per ton of mixed fodder, and experimental group II - 0.02% of anti-stress additive per ton of mixed fodder (Table 1).

### Table 1. Experiment execution scheme.

| Group       | Nutritional conditions for experimental chickens           |
|-------------|------------------------------------------------------------|
| Control     | Basic Diet (BD)                                            |
| I experienced | BD + Feed Food Magic Antistress Mix (500 g/t feed)        |
| II experienced | BD + Feed Food Magic Antistress Mix (200 g/t feed)        |

At the same time, it should be noted that, in accordance with the requirements of All-Russian Scientific Research and Technological Institute of Poultry Farming, the content and feeding of poultry of all groups was identical.

3. **Results and discussion**

Individual weighing of daily broiler chickens was performed before planting (Figure 1).

![Weighing day old chicks before planting](image)

**Figure 1.** Weighing day old chicks before planting.

After seating, the chicks adapted well to the conditions created. Chicks felt comfortable, quickly found nipples with water, began to actively consume pelleted feed. The results of control weekly weighing of poultry are clearly presented in Table 2.
Table 2. Live weight of a bird in dynamics (n = 120).

| Group          | Age, days |                                            |                                            |                                            |                                            |                                            |
|----------------|-----------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
|                |           | 1 day | 7 7 days | 14 days | 21 days | 28 days | 35 days |
| Control        |           | 40.81± | 200.09± | 456.16± | 880.53± | 1479.25± | 2201.93± |
|                |           | 0.43  | 0.99     | 4.04    | 7.84    | 10.21   | 20.4     |
| I experienced  |           | 41.35± | 214.11± | 458.31± | 896.54± | 1493.25± | 2267.12± |
|                |           | 0.48  | 2.04     | 3.98    | 7.12    | 9.83    | 21.78    |
| II experienced |           | 40.88± | 208.00± | 460.46± | 892.5±  | 1491.74± | 2238.84± |
|                |           | 0.41  | 2.17**   | 4.25    | 7.91    | 10.45   | 22.1     |

* P > 0.95, ** P > 0.99, *** P > 0.999.

Analysis of growth and development of experimental broiler chickens showed good growth dynamics in all groups and sections. At all ages, the live weight of broiler chickens was within or slightly exceeded the normative indicators of the cross. The excess of the live weight indicator at the age of 7 days in the I experimental group was 7.91 g (3.95%), and in the II experimental group - 14.02 g (7.01%) relative to control.

The indicator "live weight" at day 35 of the experiment in poultry of group I experimental prevailed over this indicator of group II by 1.26 percent. However, it should be noted that the difference in this indicator between the control group and groups I, II experimental group was respectively 65.19 and 36.91 g higher (Figure 2).

![Figure 2. Live weight of the experimental bird on the day of slaughter, g.](image)

The safety of poultry is presented in Table 3.
Table 3. Poultry safety at the time of slaughter (n = 120).

| Group          | Number of heads |
|----------------|-----------------|
| Control        | 116             |
| I experienced  | 120             |
| II experienced | 119             |

According to the Table 3, the safety of birds in the I experimental group was 100%, in the II experimental group this indicator is 0.84% lower. The control group showed 96.66% safety, which is 3.33% lower than the indicator of the I experimental group.

Fodder costs per 1 kg of live weight gain in all groups were within the standards throughout the entire period of fattening and by the end of rearing were: in the control group 1.52 kg, and in I and II experimental groups 1.53 kg, which is slightly higher than in the control (Figure 3).

Figure 3. Feed consumption per 1 kg of live weight, kg.

Taking into account the obtained results of the research in the course of the experiment, a conditional calculation of economic efficiency was made. Due to the fact that all production costs, except for feed, were the same in all experimental groups, we calculated the efficiency of using the feed additive on this basis (Table 4).

Table 4. Economic efficiency of use feed additive of the studied groups.

| Indicators                  | Group              |
|-----------------------------|--------------------|
|                             | Control            | I experienced | II experienced |
| Absolute gain, kg           | 87.118             | 85.730        | 86.374         |
| Feed consumed, kg           | 132.379            | 131.198       | 132.090        |
| Feed consumption, kg        | 1.52               | 1.53          | 1.53           |
| Feed cost, RUB              | 4032.87            | 4072.51       | 4053.56        |
| Cost of 1 kg of growth, RUB | 46.29              | 47.50         | 46.93          |
| Selling price, RUB          | 85.00              | 85.00         | 85.00          |
| Sales proceeds, RUB         | 7405.06            | 7287.62       | 7341.78        |
| Profit, RUB                 | 3372.19            | 3215.11       | 3288.23        |
| Profitability level, %      | 83.62              | 78.95         | 81.12          |
Profitability of poultry meat production was the highest in the control group and was 83.62%, and in the experimental groups 78.95 and 81.12% respectively.

4. Conclusion

In order to reduce the negative effects of stress, an anti-stress drug was included in the diet of meat chickens, which had a positive effect on their performance. Good results were obtained in terms of poultry survival, and good dynamics of growth and development of chickens were observed in all groups and sections. At all ages, the body weight of broiler chickens was within the standard values of the broiler breed. However, it was noted that a significant difference between the control and experimental groups was observed only in the first week of life. Analyzing the data of growth indicator in all the groups it can be noted that the bird of the group I experimental, received in the composition of the diet we studied the feed additive at the dose of 500 g/t mixed feed, showed greater gains than the bird of the group II experimental. When comparing the indicators of live weight of a bird at the age of 35 days, it was found that the experimental group I prevailed over the control group by 2.96%, and over the experimental group II by 0.76%.

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