Untraditional feeds influencing on poultry growth

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Abstract. Poultry farming is one of the most precocious and important branches of animal husbandry. It makes it possible to get food products such as meat and eggs in the shortest time. The main factor affecting the development of poultry farming is the feed base. For poultry, the lack of protein and minerals is very harmful. Far East has all the opportunities to realize its genetic potential. Primorye region makes it possible to widely use inexpensive seafood and waste products, as well as plant raw materials in animal and poultry feeding. Marine and fish products, as well as waste from their reprocessing, are rich in protein and minerals necessary to ensure the fullness of animal and poultry rations. Additions of marine origin have antioxidant, radioprotective activity, increase the body's resistance to diseases, increase the immune system, and improve metabolism. In addition, the region has a fairly rich plant feed base. In particular, to improve metabolism, increase the body's resistance, improve digestibility and digestibility of feed, we can use Galega orientalis. So that, the purpose of our research work was to study the possibility of including these additions in poultry rations.

1. Introduction
An effective way to compensate for protein, mineral and vitamin deficiencies is to introduce marine additions into the poultry rations. In Amur region, such seafood as cucumaria, kelp, bivalve mollusks are introduced into the compound feed. These additions in the complex have a positive effect on the growth and development of young chickens, improving egg productivity due to better absorption of nutrients. Marine hydrobionts have also been studied in feeding calves and pigs. Their role in feeding, their influence on the increase in live weight, and the reproductive qualities of experimental animals were studied. [1, 2]

In Primorye region, the using of Japanese Corbicula in the rations of pigs, boars, piglets was studied. It has been proved that the feed concentrate from Japanese Corbicula has a positive effect on growth and development, resistance, meat productinvost, environmental safety of the resulting products, digestibility of nutrients. Based on these studies, we set a goal to determine the effectiveness of including Corbicula flour in the diets of young poultry and determine the optimal doses of its inclusion.[3]

The use of grass flour from the Eastern goat (Galega Orientalis) in the rations of young ducks in the amount of 3-6%, and the parent herd-10-15% of the mass of mixed feed instead of grass flour from alfalfa has a positive effect on the productive and reproductive indicators of poultry, contributes to
increased digestibility and use of feed nutrients. And so that, we decided to study effect of Gallega Orientalis and Corbicula Japonica on hens.

We conducted research experiments in Primorsky region on the hens of the Haysex White cross. The purpose of the research work is to study the possibility of including Corbicula flour and plant feed complex made from Galega in the diets of young hens. We had the following tasks: to determine the optimal doses of feeding these feed additions in the diets of hens, to study the growth when including feed additions.

The purpose of our research was to study the possibility of using a feed additions in the rations of young poultry, to determine the optimal feeding doses which provide maximum gain, growth and development index.

2. Methods and materials

We conducted two research experiments. In each scientific experiment, we formed 4 groups of chickens at the age of 5 weeks with 150 heads by means the method of pairs of analogs (control and three experimental ones) to study the effect of each feeding. The research scheme is shown in table 1.

| Feed complex       | Group          | Length of research | Amount of poultry | Diet       |
|--------------------|----------------|--------------------|-------------------|------------|
| Corbicula feed flour| control        | 90 days            | 150               | BR*        |
|                    | I experimental | 90 days            | 150               | BR+2%      |
|                    | II experimental| 90 days            | 150               | BR+3%      |
|                    | III experimental| 90 days         | 150               | BR+5%      |
| Galega plant flour | control        | 90 days            | 150               | BR*        |
|                    | I experimental | 90 days            | 150               | BR+1,5%    |
|                    | II experimental| 90 days            | 150               | BR+2%      |
|                    | III experimental| 90 days         | 150               | BR+3%      |

*BR – Basic ration (diet)

We entered the following doses of Corbicula feed flour in the diet of poultry: 2, 3 and 5 % in the ration and plant flour – 1.5, 2, 3%. The control group was fed a diet adopted by the farm, the experimental groups received basic ration plus feed flours according the scheme. Young poultry were kept in cell batteries during the experiment. The scientific research lasted 90 days (12 weeks), according to the methodology.

3. Results

The using of additions had a positive effect on the growth and development of experimental poultry.

The results of the research are presented in table 2.

| Index                                      | control | I experimental | II experimental | III experimental |
|--------------------------------------------|---------|----------------|-----------------|------------------|
| Live weight at the begging of the research, g | 335.5±2.17 | 335.81±2.12    | 334.5±2.50      | 335.16±2.30      |
| Live weight at the end of the research, g  | 1105.85±15.9 | 1151.17±12.26  | 1153.53±11.4*   | 1159.9±11.1*     |
| Absolute increase of gain, g              | 770.35  | 815.36         | 819.03          | 824.74           |
| Daily gain, g                             | 8.56    | 9.06           | 9.1             | 9.2              |
| Safety, %                                 | 97.1    | 98.0           | 98.3            | 98.3             |

*Plant flour (Galega)
Live weight at the beginning of the research, g

|                | III experimental | II experimental | I experimental | control     |
|----------------|-----------------|----------------|---------------|-------------|
| 335.7±2.33 g   | 335.4±3.02 g    | 334.7±2.68 g   | 335.4±2.98 g  |             |

Live weight at the end of the research, g

|                | III experimental | II experimental | I experimental | control     |
|----------------|-----------------|----------------|---------------|-------------|
| 1110.8±14.3 g  | 1143.13±12.0 g  | 1145.03±12.3 g | 1149.1±13.2 g |             |

Absolute increase of gain, g

|                | III experimental | II experimental | I experimental | control     |
|----------------|-----------------|----------------|---------------|-------------|
| 775.1          | 807.73          | 810.33         | 813.7         |             |

Daily gain, g

|                | III experimental | II experimental | I experimental | control     |
|----------------|-----------------|----------------|---------------|-------------|
| 8.61           | 8.97            | 9.0            | 9.04          |             |

Safety, %

|                | III experimental | II experimental | I experimental | control     |
|----------------|-----------------|----------------|---------------|-------------|
| 98.1           | 98.1            | 98.2           | 98.3          |             |

*P ≤ 0.05 **P ≤ 0.1

The use of marine feed flour in the diets of chickens had a positive effect on growth. In the experimental groups, the absolute and average daily gain were maximal in the III experimental group. The absolute increase of gain was 824.74 grams, and the average daily gain was 9.2 grams. Similar results were obtained with the use of a plant flour from Eastern goat (Galega). The maximum gains were also obtained in the experimental groups and amounted to 813.7 grams and 9.04 grams.

We studied the development of an experimental poultry. We took measurements, in particular the length of the carcass in age of 120 days. The results are shown in table 3.

**Table 3. Length of carcass of experimental poultry, mm.**

| Group          | Corbicula flour | Plant flour (Galega) |
|----------------|-----------------|----------------------|
| control        | 179.3           | 176.9                |
| I experimental | 183.9           | 183.2                |
| II experimental| 197.1           | 195.8                |
| III experimental| 200.3          | 198.6                |

The table shows that the highest index were in the experimental groups. The advantage of the experimental groups over the control when using Corbicula flour was 4.6-21 mm. Using Galega plant flour had positive effect and equal 6.3-21.7 mm. The superiority of experimental groups over control can be seen in more detail in figures 1 and 2.

**Figure 1.** Length of carcass (Corbicula Jponica).
4. Discussion
Research experiments proved our assumptions that this feed complex help increase growth and development index. Flour from Japanese Corbicula and plant flour have a positive effect on the growth and development of chickens. The research results are reliable and authenticity. During the experiment, all poultry were kept in the same conditions. By the end of research experiments poultry of experimental groups had the higher index than control group.

Using Corbicula flour absolute increase of gain was higher by 40.35-54.39 g than control and daily gain higher by 0.5-0.64 g than control. The highest length of carcass was in III experimental group (200.3 g)/

Including feed flour of plant origin has also positive effect on gaining and length of carcass. Absolute increase of gain was the highest in the III experimental group (813.7 g), it was higher by control on 38.6 g.

Safety of poultry population also was insignificant higher in experimental groups. It amount to 98.1-98.3% in comparison with control 98.0-98.1%

As for optimal doses of plant additions, we confirmed the doses maximum 10%. Also growth of young poultry is to up 5% [4-10]

Thus, using untraditional feed additions (marine feed and plant feed flours) in feeding of poultry Haysex White has a positive effect on growth, gaining, safety and length of carcass.

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