The use of new bio-intensive technology of organic product production in the stock-breeding

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Abstract. The Altai Territory is a breadbasket not only for Siberia, but for the whole country. It is the largest grain producer in the Russian Federation, the region is one of the Russian subjects - leaders in the development of the livestock industry and has serious prospects for the further development of agricultural production. The region's potential is connected both with the domestic market and has high export opportunities. The main value of Altai products is their environmental friendliness, which allows you to focus on the attractive international markets for organic products. According to the strategy of socio-economic development of the Altai Territory until 2035, the main goal of the agro-industrial complex of the Altai Territory is the formation of a competitive high-end production that ensures the country's food security, the production of high-quality (environmentally friendly) food products, an increase in their export and the creation of conditions for improving the living standards of the rural population. [1].

1. Introduction
Along with an increase in the production of traditional agricultural products in the region, a stake will be made on the development of the organic segment. The adopted federal law of August 3, 2018 No. 280-FZ "On organic products and on amendments to certain legislative acts of the Russian Federation" creates a legal basis for regulating the production and circulation of organic food, introduces a unified system for the identification and labeling of such products, creates conditions for development of measures to support eco-products. The Altai Territory has absolute competitive advantages for the development of this area, including land, human and technological resources, niche product lines, including premium, personalized, baby and health food. For this purpose, it is planned to create an organic cluster in the region, which will include scientific and educational organizations, experimental sites, biotechnological organizations and agricultural producers. The “pilot” sales markets at the first stage of implementation will be the tourist complex of the Altai Territory, as well as the countries of the Asia-Pacific region, where organic products, primarily animal husbandry, are in great demand [2].

2. Materials and methods
Based on theoretical and methodological research - the work of domestic and foreign scientists on the development of organic agricultural production; Land development; research and recommendations of the Russian Academy of Agricultural Sciences, laws, presidential decrees and executive orders of the Government of the Russian Federation, regulations of the subjects of the Russian Federation, EU regulations on the development of environmental agriculture, IFOAM standards. The study uses a systematic approach to ensure the complexity and focus of scientific recommendations, analytical,
abstract-logical, calculating-constructive, economic-statistical, economic-mathematical, monographic methods of research.

3. Result
The terms of the provision of arable land and agricultural land on agricultural land, the Altai Territory occupies a leading position among the regions of the Russian Federation.

| Land types                        | thousand ha as of 01.01.2018 | thousand ha as of 01.01.2019 | Difference |
|-----------------------------------|------------------------------|------------------------------|------------|
| 1. Arable land                    | 6505.0                       | 6506.5                       | +1.5       |
| 2. Deposit                        | 336.5                        | 334.8                        | -1.7       |
| 3. Perennial plantings            | 19.0                         | 19.2                         | +0.2       |
| 4. Hayfields                      | 1136.4                       | 1136.4                       | -          |
| 5. Pastures                       | 2602.2                       | 2601.9                       | -0.3       |
| 6. Total agricultural land        | 10599.1                      | 10598.8                      | -0.3       |
| 7. Forest areas                   | 58.7                         | 50.3                         | -8.4       |
| 8. Forest plantations not included in the forest fund | 188.1 | 187.6 | -0.5 |
| 9. Under water bodies             | 134.0                        | 133.9                        | -0.1       |
| 10. Building land                 | 35.3                         | 35.3                         | -          |
| 11. Under the roads               | 84.9                         | 84.9                         | -          |
| 12. Marshes                       | 235.5                        | 235.6                        | +0.1       |
| 13. Disturbed lands               | 1.4                          | 1.5                          | +0.1       |
| 14. Other land                    | 207.6                        | 207.6                        | -          |
| 15. Total land                    | 11546.3                      | 11537.2                      | -9.1       |

In the sown area of the Altai Territory, 739.0 thousand hectares are occupied by forage crops. In the region, from 2014 to 2019, there is an increase in grain production from 3294.9 thousand tons to 5010.7 thousand tons, of which about 500 thousand tons of grain and 553.6 thousand tons are consumed for feed for livestock and poultry, tons are processed for feed purposes. The region produces about 530 thousand tons annually. Compound feed, which is 2% of the production of compound feed in the Russian Federation and about 20% of the production of compound feed in the Siberian Federal District. The production capacity of the region is capable of producing 891.7 thousand tons of compound feed per year. Thus, there is potential for the production of feed for organic livestock products. For the effective functioning of livestock industries, an essential condition is the availability of a forage base, including areas for sowing forage crops, forage processing capacities, productivity of forage lands, etc. categories of farms.[4] A balanced feed ration is an essential condition for the productivity of animals, the quality of raw materials, in turn, depending on the breed factor.

| Indicators                                          | 2000  | 2005  | 2010  | 2015  | 2019  | 2019% 2000 |
|-----------------------------------------------------|-------|-------|-------|-------|-------|------------|
| Feed production, thousand c.u.                      | 19739 | 15241 | 11911 | 4433  | 3987  | 20.2       |
| Feed consumption for 1 head, c.c.ed.                | 33.3  | 32.8  | 36.6  | 22.7  | 21.8  | 65.4       |
| Productivity of 1 cow, kg                           | 2082  | 1987  | 2315  | 3736  | 3754  | 180.3      |
| Productivity of 1 ha of fodder area, c.c. units     | 11.7  | 9.4   | 6.5   | 1.2   | 1.1   | 9.4        |
The significant reduction in the number of animals in agricultural organizations and households of the population is partially explained by the predominance of the grain wedge as the most profitable industry. The negative demographic situation in the region is aggravated by the prevalence of the older generation of the rural population, which, in turn, affects the level of the personal backyard of the population: a reduction in the number of cattle, sheep, pigs with a slight increase in the number of poultry. Against the background of the annual reduction in the cultivation of forage crops and the variation in yield, the level of procurement of quality forage is also decreasing. The negative trend is intensified by the reduction in processing feed shops and factories (table 2) [5]. The obsolescence of the material and technical base only aggravates the state of the industry, for example, the need for forage harvesters per 100 hectares is 1.9 units with a supply of 0.16-0.18 units.

During the study period, feed production decreased by 80%, feed consumption by 1 conv. Goal. cattle -35% with an increase in productivity of 80%. At the same time, the productivity of one hectare of fodder areas decreased by 90%, which indicates the negative state of the fodder production industry in the region. Thus, the strategic development of the fodder production industry should provide for the optimization of crops for fodder crops, the modernization of fodder plants and fodder shops for fodder production, the creation of conditions for the development of small businesses in this industry and the stimulation of household farms, which will increase the level of animal reproduction in the region, including will ensure the production of organic products with feed [6,7].

Forage in organic farming. The requirement for energy and protein, as well as other nutrients, must be met by the digested feed. The maximum feed intake is limited by the volume of the gastrointestinal tract, therefore, the quality of feed and their nutritional value are of great importance. The need for nutrients cannot be met by giving the animals a large amount of defective, poor in these nutrients. The amount of feed consumed also depends on the live weight of the animal; the more it is, the more feed it needs. However, there are feed consumption rates (in dry matter of feed) per unit of live weight. Cattle require a dry matter of 2% of live weight, sheep and goats about 4% (for example, a cow weighing 500 kg requires 10 kg of dry matter per day, for a sheep with a live weight of 50 kg 2 kg of feed dry matter per day).

When feeding in organic animal husbandry, all feed permitted for the normal keeping of animals cannot be used. It is difficult for highly productive animals to formulate balanced diets, due to the lack of essential amino acids, primarily lysine, methionine, tryptophan, cystine and threonine. The use of synthesized amino acids and animal feed in organic animal husbandry is prohibited. Own feed produced in the enterprise must be analyzed by energy feed units (ECU), for correct planning and preparation of balanced rations. Organic feeds generally contain less digestible protein and valuable amino acids than conventional feeds. This should be taken into account when compiling rations for animals. The most important feeds are: grains, legumes, grasses, foliage and roots. The feed ration must contain micro-macro elements and vitamins. The goal of any enterprise is to provide animals with feed of its own production. But purchases of missing feed are also possible. The livestock of animals in organic animal husbandry should be guided by the possibility of producing feed in the enterprise. Thus, it makes no sense to keep a large number of pigs and poultry in regions with large areas of pastures and hayfields, where it would be necessary to purchase a large amount of concentrated feed. These areas are best for keeping cattle and other ruminants. Pigs and poultry are best kept in regions with developed agriculture, where arable land is used mainly for grain production [8].

Along with adequate feeding appropriate for the animal species, it is necessary to provide animals with an adequate water supply and a sufficient amount of minerals. Minerals, vitamins and salts are needed in the form of feed additives, which must be included in the diet individually for each species of animals, for each sex and age group and productivity. Animals should also receive adequate amounts of water. Lack of water affects not only the disruption of vital processes, but also poor digestibility of feed. Part of the water requirement is covered by the moisture in the feed.

Fresh, for example, grass and root crops have a moisture content of 80-90%, silage 65-70%, and grain and hay only 12-14%. Contaminated water is harmful to animals, such water adversely affects the health of animals and the products obtained from them (harmful substances in milk, meat or eggs). Water
for drinking animals must meet the same requirements as drinking water for humans. The water requirement of animals depends on the ambient temperature and the work performed. At an air temperature of 10 °C, ruminants need about 2-3 liters of water per 1 kg of dry matter of feed, at 30 °C, the need for water increases by 4-6 liters of water, lactating animals need an additional 0.87 liters per kilogram of milk. Therefore, care must be taken to ensure that animals are always provided with clean water [3,9].

Thus, in organic animal husbandry:

- All livestock should be fed 100% natural feed;
- More than 50% of feed must be of local origin and production;
- The feed table must always be full;
- Animals should always be provided with clean drinking water;
- Use of synthetic growth stimulants, dyes, amino acids, emulsifiers, urea, etc. completely prohibited.

The most important area of organic agriculture is the use and procurement of organic feed. Such feeds are represented by traditional silage, hay and haulage, however, organic animal husbandry cannot use all feeds allowed for the usual keeping of animals and the following requirements are imposed on them:

- lack of meat from animals raised in industrial conditions;
- absence of pesticides and stabilizers for storage of raw materials;
- absence of genetically modified organisms;
- no artificial flavors;
- no chemical preservatives;
- lack of chemical dyes and attractants;
- lack of fungicides, herbicides, artificial fertilizers and anti-biotic.

Russia has experience in the production of organic feed - these are small enterprises such as LLC Ugleche Pole in the Yaroslavl region (milk, meat), LLC Organic Eraund, Stavropol Territory (grain, legumes, industrial crops, vegetables), LLC Siberian organic products »Tomsk region (grain and leguminous crops, 14,000 hectares), LLC Agro-Krasnoyarsk Krasnoyarsk Territory (crop production), Eco-farm" History in Bogimovo "Kaluga region (animal husbandry), etc. At the moment, 82 organizations for the production of organic products and 6 organizations for the production of biological products for it have been certified.

After analyzing the experience in the production of organic livestock products, we can say that a feature is the raising of animals at home on mini farms, where a closed production cycle is observed. Animals are raised at home (on mini-farms) without the use of mass rearing technologies, which eliminates stress and the use of stimulants. Animals are kept in natural conditions - in pastures, yards, they are provided with sufficient walking and careful care. The cultivation takes into account the specific properties of each individual species of plants and animals. The farm is viewed as a living organism with a natural cycle. The animal feed comes from our own fields and meadows. Animal manure is composted, mixed with useful plant matter and additives of natural bioactive preparations, then introduced into the soil of fertile fields. The produced biological products are introduced into the soil in very small quantities, their effect can be compared with the homeopathic one. Seedlings grow in accordance with the biological rhythm of each particular plant. The fruits obtained on the land of bioorganic farms reach their maximum natural size and contain the optimal amount of vitamins and microelements. Independent research has shown that the soil becomes better and more fertile with this care year after year.

Organic feed with this approach has the following advantages:
• provide the animal with food from complete products containing natural amounts of nutrients;
• supply the body with high-quality natural vitamins and microelements;
• avoid the risk of poisoning the body with substances used in conventional agriculture;
• allow you to minimize the risk of allergic reactions (it has been established that allergies most often arise due to the content of artificial additives and preservatives or antibiotics in raw meat in conventional feed);
• allow you to achieve good palatability, as they have a 100% natural taste;
• help cleanse the body from the effects of environmental pollution.

Williams, which offers to organic livestock a system of preservatives, devices for the preparation of feed and the introduction of biologicals. These include bacterial preparations: Biotrof, Biotrof 111, Silzak, Biosib, Lactofid, Biolakt, etc.; enzyme: Ferkon, Biopharm, etc.; complex compositions of drugs: Ferkon + Bosib, Biopharm + Bosib, Cel-LoLux-F and others.

4. Conclusion
According to the strategy of socio-economic development of the Altai Territory until 2035, the region will focus on the development of the organic segment. In the Altai Territory, there is practically untapped potential for the production of organic feed, namely the presence of an extensive resource base, including land and natural resources. In the sown area of the Altai Territory, 739.0 thousand hectares are occupied by forage crops. In the region from 2014 to 2019, there is an increase in grain production from 3294.9 thousand tons to 5010.7 thousand tons, of which about 500 thousand tons of grain and 553.6 thousand tons are consumed for feed for livestock and poultry, processed for feed purposes. The region produces about 530 thousand tons annually, compound feed, which is 2% of the production of compound feed in the Russian Federation and about 20% of the production of compound feed in the Siberian Federal District. The production capacity of the region is capable of producing 891.7 thousand tons of compound feed per year. Thus, there is potential for the production of feed for organic livestock products. The sown area of forage crops is 739.0 thousand hectares. Out of 5000 thousand tons: - for livestock feed - 500 thousand tons; for feed purposes - 550 thousand tons. 530 thousand tons of compound feed are produced with a production capacity of 900 thousand tons. (production capacity is not fully used).

In the production of organic fodder, deposits or unused fertile arable land can be an important territorial reserve. Thus, there is potential for the production of feed for organic livestock products.

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