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ECOR-SP IS A RUSSIAN DEVELOPER AND MANUFACTURER OF ENVIRONMENTALLY FRIENDLY ORGANOMINERAL BIOLOGICS BASED ON PEAT EXTRACT, MICROORGANISM STRAINS, HUMIC ACID GROUPS, LOW MOLECULAR WEIGHT ORGANIC ACIDS WITH UNIQUE CHARACTERISTICS THAT PROVIDE COMPETITIVE ADVANTAGES IN THE AGRICULTURAL MARKET.

THE COMPANY'S MISSION IS TO EXTRACT AND TRANSFORM THE ESSENTIAL POWER OF NATURE FOR THE BENEFIT OF RUSSIA.

THE COMPANY'S GOAL IS THE INTRODUCTION OF EFFECTIVE BIOTECHNOLOGIES WITH THE MAXIMUM ENVIRONMENTAL AND ECONOMIC EFFECT.



HIDDEN RESERVES: BIOTECHNOLOGY IN THE SERVICE OF AIC



Zair Syamiullin,

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Global challenges in the development of the world agro-industrial complex accelerated growth in food demand, as well as increased consumption of livestock products significantly increase the burden on agro-ecosystems and contribute to the growth of long-term risks of instability on international agrifood markets. According to FAO and OECD estimates, as a result of population and income per capita growth, global agricultural production should increase by 60-70% in 2050 compared to 2000s, which will mean the need to produce additional 940 million tons of grain and 200-300 million tons of meat annually.

Experts assume a long-term risk of exceeding the growth rate of demand over the growth rate of supply. It is explained by the fact that average annual productivity gains in agriculture are gradually declining, while population growth rates are stable.

The global goal for Russia, set by President V.V. Putin, is to increase exports of Russian agricultural products to \$ 45 billion by 2024. The Ministry of Agriculture of the Russian Federation and the regions plan to take appropriate measures to develop the export potential of crop and livestock products, including the stimulation of:

- reserves for increasing yields;
- use of innovation technologies in production;

- large-scale implementations of precision farming models.

Being a Russian producer of organomineral products for agriculture, ECOR-SP believes that the drivers and solutions for the goal set by the President of Russia will be:

- A) Introduction of technologies revealing the genetic potential of crops with levelling of the yield limiting factors (reserve No.1);
- B) Creation of new collaborative designs and partner models for providing agricultural producers with affordable, innovative, efficient agrarian technologies and their analysis (reserve No.2).
- C) Systemic, long-term, attentive attitude to the agricultural lands fertility and providing producers with a sufficient number of complex, environmentally friendly organic prolonged action fertilisers at an affordable price (reserve No.3).

It gives confidence that the system of views between government and business in solving this problem lies in the field of a deeper understanding of the physiological processes of plant growth, their genetic expression and development of the industry in closer contact with technical progress, that in turn will give a programmed increase in yield with improved quality characteristics while reducing the cost of production.

Where can the reserves be found?

Reserve No.1 is in the intensive crop production model itself (a.k.a the Norman Borlaug model), brought by Nikita Khrushchev from the USA in the mid-60s of the 20th century. The model consists of four fundamental "immutable truths":

- best cultivar or hybrid;
- large amount of mineral fertilisers;
- great plant protection by means of chemicals;
- sufficient water supply.

Unfortunately, it turned out later that this model significantly weakens soils and in fact deprives them of long-term fertility, since a progressive, systemic deactivation of active humus occurs. This determined the fixation and reduction in yield and blocked even the theoretical possibility of crops achieving their genetic potential.

The final understanding that new advanced farming technologies are impossible without introducing the principles of biologically influenced farming into the model of intensive crop production became obvious being proved by specialist scientists and research organisations.

In other words, it is necessary to provide competent plant protection together with high-quality humic fertilisers. It helps, above all, to increase the resistance

of crops to adverse environmental factors (heat and cold), contribute to the use of pesticides and other stressful situations, and as a result, leads to an increase in yield and product quality. Due to the impact on the plant immune system, the humic agro-agent helps reduce plant damage by bacterial and fungal diseases, which allows optimising the use of chemical plant protection products and increasing their effectiveness.

The use of tank humate mixtures with plant protection products has already entered the practice of many advanced farms, and the results of this application are excellent. And adding to this process the support of soil fertility through the work with crop residues and seed treatment with the use of high-quality humic agents removes the question of how to get high results with the highest possible cost optimisation.

It is apparent that the constant use of high-quality humic fertilisers in agronomic processes helps the crop to realise its maximum genetic potential of yield and quality. A logical conclusion is being emerged that the large-scale introduction of nature-like humic technologies increases the profitability of domestic crop production and should be supported by the state.

This is a new level of agriculture, which awakens the essential force of Nature, and this is the high time for this reserve to be taken advantage of!

Reserve No.2 means innovations in collaborative designs and partner models, the purpose of which is to support the market and their own needs with effective agrotechnologies and services.

One of the "designs" with understandable mathematics and general economic effect of the introduction can be the design of a scalable, innovative line of production of high-quality, environmentally friendly organomineral, humus-containing fertilisers with specified characteristics and implementation according to the principle of "state plan".

The peculiarity of this model is in creating a production for the agreed needs of agricultural holdings and large farms, which, working together on the implementation of this model, would minimise production costs, sales and lo-

ECOR-SP offers a NEW GENERATION OF HUMATES – concentrated potassium humate ECO-SP. This is a 100% natural organic product from environmentally friendly raw materials of low-lying centuries-old peat.

ECO-SP is a complex organomineral fertiliser with a full set of nutrients (NPK), humic acids, fulvic acids, amino acids, low molecular weight organic acids, chelated micro and macro elements.

The presence of beneficial microflora and biologically active organic hormones creates all the conditions for the full chemical regulation of crops growth and development.

Modern production technology, filtration, ozonation, homogenization and the use of structured, prepared water were able to extract the living force of nature and transform it into a systemic, positive impact on the soil, seed and plant metabolism.

The formula for the economic efficiency of the use of humic-containing organomineral fertiliser ECO-SP in modern farming technology is as follows:

- increase in the yield of crops;
- improvement of the quality of the agricultural crops;
- improvement of fertile soil properties;
- reduction of mineral fertilisation;
- reduction of applying PPP rates;
- reduction of weather conditions force.

gistics costs. As for medium and small farmers, they would receive products on-time at the lowest price and maximum quality making online orders for the production of fertilisers prompt.

With the support of the state, such model will make it possible to apply liquid organomineral fertilisers on a large scale without a significant financial burden on the processing of a hectare, to improve the fertility of the lands and increase the yield.

This approach fits perfectly into the ideology of forecasts and strategy development of agriculture in Russia, CIS and EEU for the next decade. This model can show its vitality and prospects for further planning to scale and expand within the Eurasian integration in the implementation of the economic and agricultural experiment.

Based on current trends on the digitisation of the economy, the whole process of the implementation of the experiment should be reflected in the online service with the involvement of research organisations, agro-UAV for monitoring of fields, analytical data processing software and support in the specialised media. A significant amount of data will form the basis for the construction of artificial intelligence in the segment of biologized progressive agriculture.

Under the Reserve No.3 ECOR-SP considers the technology of processing litter and manure into complex, environmentally friendly organomineral fertilisers of prolonged action providing long-term stability in increasing the power of the Russian agro-industrial complex. Strategically, this can become a "supporting structure" to solve the problem of low fecundity of crop production while stabilising phytosanitary risks.

According to the Institute of Agroengineering and Environmental Problems of Agricultural Production, poultry litter amounts to about 11% of the total organic waste of livestock and poultry farming, that is 45.0–55.5 million tons per year of organic matter with a humidity of 40–68%.

Data analysis for processing organic waste indicates large volumes of available raw materials, result-

ing in a loss of valuable resources in the form of organic substances and nutrients that our agricultural enterprises urgently need to reach new heights in growing quality products and maintaining soil fertility.

The endless ascertainment of violations of environmental protection legislation and the imposition of penalties for poultry farms do not create the conditions for a practical solution to poultry manure disposal. And the versatility of this problem eliminates the possibility of "flat" solutions.

The introduction and scaling of the technology offered by ECOR-SP will bring a significant environmental and economic efficiency and create a new high-performance export-oriented production and logistics sector of granulated bird droppings with a volume of up to 7 million tons per year. This process will start the cyclic nature of the agroecosystem, create new workplaces and mark the prospects for reaching large-tonnage exports. Many regard this as an additional impetus for the expansion of modern agricultural infrastructure (ports, warehouses, processing industries) and the addition of projected transport indicators to the large-scale Chinese "One Belt, One Road" logistics initiative.

ECOR-SP develops innovational solutions, the essence of which lies in economically sound, waste-free continuous litter processing technology and production on its basis of high-quality, highly efficient, environmentally friendly organomineral prolonged-action fertilisers with low capital and operating costs.

The basis of the technology is the accelerated bioconversion of fresh litter with environmentally friendly organic reagent ECO-SP. Accelerated bioconversion is a transfer of fresh litter from 3rd hazard class to 4th class at minimum labour, time and financial costs while retaining the maximum possible beneficial properties of the litter mass as a raw material for the production of fertilisers.

The organomineral degradator **ECO-SP** is an organic reagent with unique indicators of the enzymatic activity of biological catalysts, high reducing activity and humic compounds.

In the age of total increase in the cost of resources and reduction of soil fertility, the models of sustainable intensification of crop production are becoming increasingly important, while preserving and improving natural resources. This is a competent long-term business approach that has replaced the traditional stereotypes.

Significant for all people challenges of our time are firmly connected to the issues of Eurasian aero-integration and

the need to create prerequisites for the formation of innovative approaches to solving long-term food security strategies.

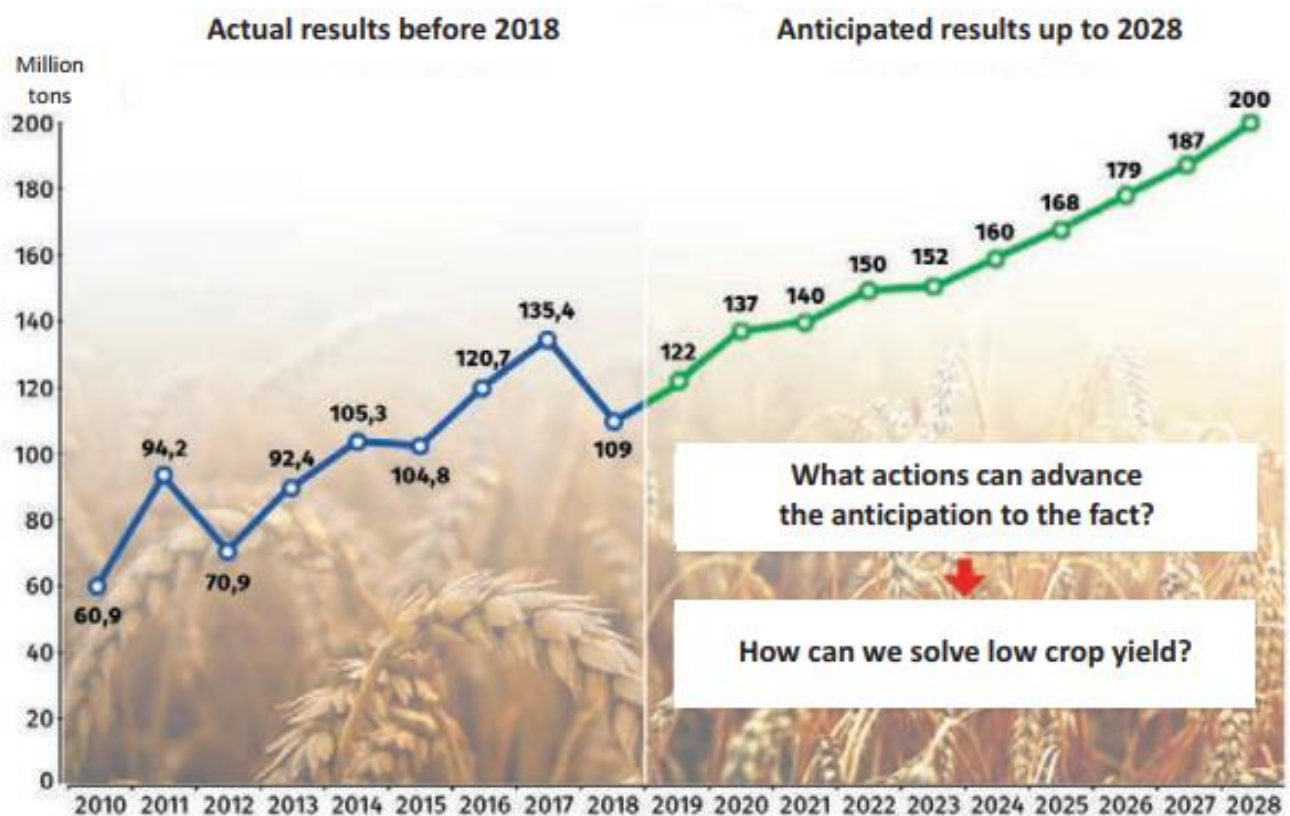
In this situation, Russia and its partners in the CIS and the EEU need to make timely start-up of reserves for improving resource efficiency in the agro-industrial complexes and introduce actively promising technological innovations. These actions will strengthen the formation of a globally competitive, ex-

port-oriented and innovative agribusiness and become a solid foundation for the expansion of export potential.

The Global Breakthrough scenario, considered in the forecast of scientific and technological development of the agro-industrial complex of the Russian Federation for the period up to 2030, approved at a joint meeting of the Presidium and the Collegium of the Scientific and Technical Council of the Ministry of Agriculture of Russia on March 30, 2016, is possible to be implemented! Russia has every chance of becoming the world's largest producer of agricultural products.

Technologies and products promoted by ECOR-SP are low-cost for enterprises, cost-effective and environmentally friendly. This is a unique combination of careful nature management and nature-like technologies of the circular economy, which provides the formation of strategic reserves in ensuring the independence and competitiveness of the Russian domestic agro-industrial complex.

Gross output of grain in Russia



What actions can advance the anticipation to the fact?

How can we solve low crop yield?

SOURCE: ROSSTAT, MINISTRY OF AGRICULTURE, «PROZERNO»

ANTICIPATED RESULT