



## Bio-inputs enhance sustainability of agricultural production in Brazil



Strengthening the use of bio-inputs in Brazilian agriculture follows a global trend in agriculture, striving to improve yields while reducing costs and developing farming systems based on more sustainable resources. This is the view of the MAPA's Secretary for Innovation, Fernando Camargo, foreseeing for Brazil, through the National Bio-input Program, a unique opportunity to become the transforming agent on this shift in agriculture. This will offer not only to Brazilians, but also to the world community, a greater variety of food, produced under higher quality standards.

"Consumers benefit not only from increased food supply, but also from lower prices and improved nutritional quality of products through use of superior technologies, able to add value to farming systems", he points out.

Based on these different aspects and their impacts, the program was developed from a broader concept, which involves products, processes or technologies from animal, plant or microbial origin, intended for use in farming, storage, processing and refining agricultural goods. These are components of a chain that positively interfere in growth and development of response mechanisms in animals, plants, macro and micro-organisms, with additional use of derived substances such as proteins, sugars and enzymes.

"Our program follows the path of bioeconomy, we value our biodiversity, based on a global vision of increasingly sustainable production systems, considering environmental, economic, social and productive aspects", explains the secretary, highlighting that the program is transversal. The world undergoes today a new paradigm, he observes, transforming relationships between people themselves and with animals, plants, the environment we live in. It is in this sense that bio-inputs are gaining more and more space and higher demands from different stakeholders, both in Brazil and worldwide.



Thus, Brazil, as one of the world's largest food producers, tends to have increasingly more responsibility in ensuring food security. Poor and populous nations are experiencing food insecurity. About 821 million people are in famine and 25,000 die of acute hunger every day. Brazil already produces enough to feed more than five times its population, counting over 210 million people today.

## Growth

Currently, there are already dozens of farming activities, in different parts of the country, using different types of bio-inputs, obtained from biological resources. The bio-input portfolio is wide and includes everything from inoculants, plant growth promoters, biofertilizers, ingredients for plant and animal nutrition, plant extracts, pest, parasites and diseases controlling agents. These are made from beneficial microorganisms such as fungi, bacteria and mites or herbal compounds, reaching technologies that have biological agents in their composition, either for plants and animals, as well as for post-harvest and food processing.

Camargo recalls that the area planted, for example, with soybeans in Brazil, about 40 years ago was small and the use of inoculants was unknown. Today it is estimated that there are about 30 million hectares of soybeans planted with inoculants, which act as biological nitrogen fixers, boosting plant growth, what generates annual savings for the country in the order of USD 13 billion, since they spare the use of fossil nitrogen fertilizers. "Why not to expand innovations like this to other crops? This is our great challenge", says the MAPA's Secretary for Innovation.

The number of biological pest control products registered with the Ministry of Agriculture, Livestock and Food Supply (MAPA) has been increasing. There are 265 products, including bioacaricides, bioinsecticides, biofungicides and ant control agents, as well as 315 inoculants, a biological input that contains microorganisms with beneficial action for plant growth. (date: until April 8th).

The registration of a biobased pest control agent in Brazil, undergoes procedures for evaluating effectiveness and application in the field under responsibility of MAPA. Regarding the degree of toxicity to humans, the analysis falls to the National Health Surveillance Agency (Anvisa) and the assessment of toxicological impacts on the environment is responsibility of the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama).