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Opinion

Biotechnology in the Brazilian Agricultural Sector

Livia Maria da Costa Silva*

Fluminense Federal University, Brazil

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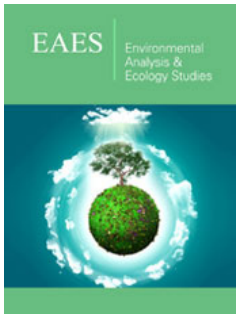

***Corresponding author:** Livia Maria da Costa Silva, Fluminense Federal University - UFF, Niterói, Rio de Janeiro, Brazil

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In Brazil, according to Center for Advanced Studies on Applied Economics (CEPEA), in 2019, agribusiness corresponded to 21.4% of the Brazilian Gross Domestic Product (GDP), with 14.6% referring to agricultural production. In addition, it is important to note that, in the same year, the sector grew 1.3%, totaling R$ 322 billion, according to the Brazilian Institute of Geography and Statistics (IBGE). The growth of the sector was due to both the positive performance of agriculture and livestock.

Despite being an activity of economic relevance in the country, it is necessary to analyze how agricultural activity has been carried out in accordance with the principles of the Federal Constitution of 1988, in particular, the Principle of Sustainable Development. Therefore, not only the economic aspect must be taken into account in a productive activity, it is important to analyze the socio-environmental aspect as well.

Since the late 1990s and early 2000s, the Brazilian agricultural sector has managed to substantially increase its production, without increasing the plant area in the same proportion. In this context, Brazilian agricultural productivity has increased significantly in recent decades, especially soybeans, corn and cotton. This advance in the field occurred, among other factors, by the insertion of Biotechnology, in particular, the recombinant DNA technology, through the use of transgenics. In Brazil, the first GMO approved was Monsanto's soybean, in 1998.

In this context, in 2018, according to the Council for Biotechnology Information (CIB), of the transgenic plants approved in Brazil, 48.5% had tolerance to herbicides and pest resistance and 32% only tolerance to herbicides. That is, more than half of the plants require the use of specific pesticides that, in general, are marketed by the same business group that produces the plants.

Therefore, in addition to the Precautionary Principle, as genetically modified organisms are inserted in a risky activity with scientific uncertainty, according to art. 1° of Law no 11,105/2005, there is also a possibility of environmental degradation due to the indiscriminate and inappropriate use of agricultural inputs, which consequently affects the quality of drinking water.

On the other hand, it is important to bring a positive advance in the Brazilian scenario of insertion of Biotechnology in the field, which is the National Bioinsumption Program, instituted by Decree no 10,375/2020, which aims to boost the use of biological resources in agriculture. Its application areas are: plant production; animal production; post-harvest and processing.

In the context of plant production, bio-inputs will be used to control pests and diseases; soil fertility, plant nutrition and abiotic stresses; and management of plant species. In combating pests, thinking about the sustainability of agricultural activity, the application

of microbiological and macrobiological control formulations in the context of Integrated Pest Management (IPM) is a great tool. In the economic aspect, CEOs of large companies, such as Korin Agricultura e Meio Ambiente and Biotrop, have already been optimistic with the growth of the sector in Brazil and with the gains with the implementation of bio-inputs that usually exceed 1 to 3, that is, for each R$ 1.00 invested in biologicals, there is an average return of R$ 3.00.

Through the two aforementioned examples of the application of Biotechnology in the agricultural sector, it can be seen that, in Brazil, there is currently an agricultural sector of economic relevance, but which still needs to advance regarding to socioenvironmental concerns. Thus, it is necessary for the State to implement public policies aimed at sustainable development in the country.