SHADES OF GREEN VII

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Sustainable Agriculture in Brazil

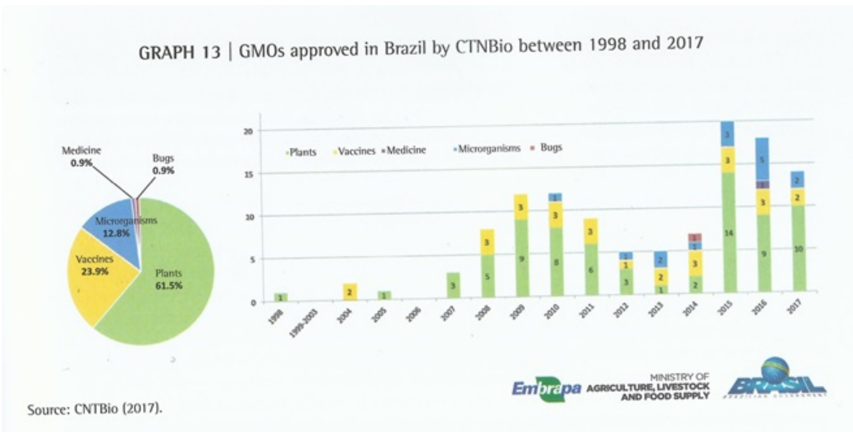
CHAPTER 6 – TROPICAL INTENSIFICATION

THE GENETICALLY MODIFIED CROPS EXPANSION

Brazil cultivated 49.1 million hectares with transgenic or genetically modified varieties (GMOs) in the 2016/2017 harvest, the largest increase in planted area in the world. Brazilian agriculture lags behind only the United States (70.9 million ha) in the world ranking of agricultural biotechnology adoption.

Next are Argentina (24.5 million ha), India (11.6 million ha), Canada (11.0 million ha) and China (3.7 million ha). Around the world, 28 countries planted 179.7 million hectares of genetically modified (GM) varieties, according to a report by the International Service for Acquisition of Applications in Agrobiotechnology (lSAAA)[1].

The first transgenics were developed in the USA over 40 years ago, mainly to increase crop productivity. In Brazil, about 5 to 10 new varieties of GMOs are developed every year, aimed at better adaptation of crops to environmental conditions (low fertility, drought, pest attacks) and at the better nutritional and allow for a reduction in the use of herbicides and pesticides[2].



The Biosafety Law, approved in Brazil in 2005, established standards regarding the research, production, distribution and commercialization of GMOs, and has proven to be highly effective[3]. By 2015, the National Technical Biosafety Commission (CTNBio) had approved a record number of new products applicable to agriculture. There were 14 varieties of transgenic plants, the characteristics of which would help soy, corn and cotton growers handle crop-related challenges and obtain better yields through reduced losses. Recent approvals include the world's first transgenic eucalyptus. In 2017, 13 GMOs were approved by CTNBio, including soybeans, cotton, sugarcane, corn, microorganisms and vaccines. There were 67 transgenic plants approved in Brazil by CTNBio from 1998 to 2017[4], along with 117 licenses involving plants, microorganisms, vaccines, medicines and insects (Graph 13).

It is estimated that the reduction in the use of pesticides promoted by biotech crops (fewer passes for spraying, less use of fuel and phytosanitary products) results in a reduction of 6.3 billion kg of carbon dioxide (CO_2) emissions per year, the equivalent of taking 2.8 million cars out of circulation for that amount of time.

The study by Céleres, "Os benefícios socioambientais da biotecnologia agrícola no Brasil: 1996/97 a 2013/14" [The socio-environmental benefits of agricultural biotechnology in Brazil: 1996/97 to 2013/14] found that, since GM crops require less pesticide use, the result is fewer pollutants from tractors and diesel-powered machines. During the study's timeframe, fuel savings in Brazil amounted to 351.4 million liters, leading to a reduction of 931,800 tons of CO_2 in the atmosphere, the same volume that would be sequestered by 6.9 million trees[5].

Moreover, the use of GMOs saved on water consumption, due to reduced spraying. It is estimated that 42.2 billion liters of water were saved in those 18 years, enough volume to meet the needs of 3.1 million people for a decade. At the rate that the area planted with transgenics has been growing, the forecast is to save more than triple that: 137.9 billion liters of water over the next 10 years.

Due to more-nutritious foods, the advent of transgenics has resulted in benefits to people's health.

Embrapa, for example, developed a soybean containing 90% oleic acid, which is essential in the synthesis of hormones. Traditional soy contains only 25% oleic acid. Embrapa also created a variety of transgenic lettuce that is 15 times richer in folic acid than the conventional variety. Folic acid promotes fetal development, plays an important role in brain functions, and strengthens the immune system. The new lettuce still needs to be approved by CTNBio, but is expected to reach Brazil's fields and tables in 2021.

Biotech crops bring new challenges to production systems. Recommended practices, such as the maintenance of refuge areas, must be respected by agriculturists because such practices are determinants for agricultural biotechnology success. They prevent the breakdown of resistance of GMO technology. Pesticide applications must also be adequate, avoiding both underdosing and overdosing. Thus, with the reduction in the use of active ingredients, the intensified production system increases its sustainability and promotes a balanced environment.

The number of Brazilian agriculturists planting transgenics is increasing each and every day because the technology has been rigorously tested. lts effectiveness has already been proven in more than 20 years of large-scale use in different production chains and soil and climate situations. This technology does not represent a "miracle" for solving problems, as has been claimed at times; neither is it a threat to human health and the environment, nor a bad deal for producers and consumers, as initially thought[6]. But it does call for smarter and more demanding production management. Furthermore, the oft-criticized transfer of genes from one species to another – as was the case at first – has been replaced by less controversial techniques, such as the "editing" of genes of the same species or the activation of latent genes with desirable characteristics (intragenia).

The widespread adoption of biotechnology in the field reflects both the trust that Brazilian producers place in it and the ability to incorporate it into the most diverse production systems.

From the book: Shades of Green – Sustainable Agriculture in Brazil (2018)

Positions and concepts emitted in signed articles are the sole responsibility of their authors.

[1] JAMES, Clive. 20th Anniversary of the Global Commercialization of Biotech Crops (1996 to 2015) and Biotech Crop Highlights in 2015. International Service for the Acquisition of Agri-biotech Applications – Isaaa. Available at: <http://cib.org.br/wp-zontent/uploads/2016/04/201 6_04_13_RelatorioISAAA_Eng.pdf>. Access in Jul. 2017.

[2] REDE AGROSERVICES. Sete benefícios dos transgênicos. 09/12/2015. Available at: <https:llwww.redeagroservices.com.br/Noticias/2015/12/Sete-beneficios-dos-transgenicos.aspx>. Access in Jul. 2017.

[3] BRASIL. *Lei N° 11.105, de 24 de março de 2005*. Regulamenta os incisos II, IV e V do § 1° do art. 225 da Constituição Federal (...). Available at: <http://www.planalto.gov.br/ccivil_03/_at02004-2006/2005/lei/l11105.htm>. Access in Jul. 2017.

[4] CIB. Aprovação de culturas GM no Brasil. Conselho de informações sobre Biotecnologia. Available at: <http://cib.org.br/aprovacao-de-culturas-gm-no-brasil/>. Access in Jul. 2017.

[5] CÉLERES AMBIENTAL, *op. cit., 2015*.

[6] GREENPEACE. Ruim para o produtor e para o consumidor. Available at: <http://www.greenpeace.org/brasil/pt/O-que-fazemos/Transgenicos/>. Access in Jul. 2017.

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