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## THE TRAJECTORY OF BRAZIL'S AGROCHEMICAL REGULATORY REGIME: A CRITICAL ANALYSIS

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**Abstract:** Pesticides are synthetic chemicals widely employed in agricultural production. Given their potential hazards to both the environment and human health, their use is strictly regulated. Brazil, a global agricultural powerhouse, has become a major pesticide consumer, with consumption rates escalating in recent years. This qualitative study, employing bibliographic and documentary analysis, examines the evolution of Brazilian pesticide regulations within their socio-political and economic context. Our findings reveal a complex interplay of factors, demonstrating how political and economic imperatives have often overshadowed public health and environmental concerns. While progress has been made, the regulatory framework is currently experiencing significant setbacks due to political interference.

**Keywords:** Pesticide regulation, Brazil, agriculture, public health, environmental impact, policy analysis.

## INTRODUCCION

Pesticides are synthetic compounds categorized by their target organism, such as insecticides for insects, herbicides for weeds, and fungicides for fungi. Insecticides, herbicides, and fungicides constitute the most common pesticide types. Federal Law No. 7.802 (BRAZIL, 1989) provides a broad definition of pesticides and related substances as products or elements derived from physical, chemical, or biological processes employed in agriculture, forestry, and various environments to manipulate flora and fauna composition for pest management. This classification also encompasses defoliants, desiccants, growth regulators, and inhibitors.

The widespread adoption of pesticides, exemplified by the introduction of DDT in 1945, significantly enhanced agricultural productivity, protected crops and forests, and controlled disease vectors. However,

indiscriminate pesticide use has led to severe challenges, including insect resistance, resurgence, pesticide residues in food, environmental contamination, and the decimation of beneficial insects like bees and pollinators (RATHORE, H.S.; NOLLET, L.M., 2012).

Global health authorities, such as the European Food Safety Authority (EFSA), the United States Food and Drug Administration (FDA), the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) assess the health risks associated with pesticide exposure. To safeguard public health, regulatory bodies like the EPA, FAO, WHO, and Agência Nacional de Vigilância Sanitária (ANVISA) establish maximum residue limits for numerous compounds. As a leading food producer and exporter, Brazil's pesticide regulations must evolve to balance the demands of agriculture and public health effectively.

## MATERIAL AND METHODS

This research employed a systematic literature review encompassing legislative databases and platforms, complemented by peer-reviewed articles from journals and conference proceedings. The objective was to construct a comprehensive historical overview of pesticide legislation in Brazil. The review focused on primary legal documents, including laws, decrees, and bills, spanning from the enactment of Law No. 7.802/89 to the recent implementation of Law No. 14.785/23, commonly referred to as the New Agrochemicals Law.

## RESULTS AND DISCUSSION

The regulatory framework for pesticides in Brazil is primarily outlined in Law No. 7.802/1989, further detailed in Decree No. 4.074/2002. According to Article 2, Section I of Law No. 7.802/1989, pesticides and related substances are defined as products or elements derived from physical, chemical, or biological processes. These substances are employed in agriculture, forestry, and various environments to control pests, including insects, weeds, and fungi. Additionally, they encompass agents used to modify plant growth, such as defoliants, desiccants, and growth regulators.

To obtain registration in Brazil, pesticides undergo a rigorous evaluation process involving three key federal agencies: the Ministério da Agricultura, (MAPA), Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) and ANVISA. MAPA assesses agronomic efficacy, ANVISA evaluates human health impacts and IBAMA evaluates environmental risks. This tripartite regulatory system is independent of political influence and adheres to international best practices.

Comprehensive monographs detailing all active ingredients approved for pesticide use in Brazil have been established by ANVISA's Agrotoxics Monograph Panel (2023). These monographs are the outcome of rigorous toxicological evaluations and re-evaluations of compounds intended for agricultural, domestic, industrial, aquatic, and wood preservation applications. Crucially, they encompass authorized crop lists and corresponding maximum residue limits for each active ingredient.

In alignment with these robust regulatory standards, ANVISA published a toxicological reclassification of previously registered pesticides. This reclassification was necessitated by the adoption of the Globally Harmonized

System of Classification and Labeling of Chemicals (GHS) as the new regulatory framework for the sector (BRASIL, 2019).

Brazil explicitly prohibits the registration of pesticides under specific conditions. These include: absence of neutralization procedures, lack of available antidotes or treatments domestically, demonstrated teratogenic, carcinogenic, or mutagenic properties, potential for endocrine disruption and reproductive harm, risks to human health exceeding those identified in animal studies, and detrimental environmental impacts.

Despite these efforts, Project No. 6.299/2002, initiated in 2002, sought to accelerate the registration, production, and application processes for pesticides. However, this legislative measure inadvertently contributed to increased pesticide usage in agriculture, thereby intensifying agro-environmental degradation. As a result, Project No. 6.299/2002 encountered significant opposition due to its adverse effects on environmental conservation. By relaxing stringent regulations, the bill encouraged the indiscriminate application of pesticides (Mattos Neto & Da Costa, 2020).

A comparative analysis of Law No. 7.802/89 and Project No. 6.299/2002, the so-called "Poison Law," underscores a significant regression in agro-environmental protections. While Law No. 7.802/89 established a robust regulatory framework prioritizing the well-being of living organisms and the environment through stringent pesticide restrictions, Project No. 6.299/2002 proposed several detrimental changes. These included: a euphemistic renaming of agrochemicals to pesticides to foster public acceptance, centralization of pesticide registration under MAPA, accelerated registration procedures, federalization of pesticide regulation, establishment of acceptable risk thresholds, ban on the commercialization of artisanal

pest control remedies, and the allowance of preventative agronomic prescriptions, enabling the issuance of prescriptions prior to pest infestations (Mattos Neto & Da Costa, 2020).

Following over two decades of deliberation, Law 14.785, the New Pesticides Law, was officially enacted on December 27, 2023. This landmark legislation introduces significant modifications to the regulatory framework governing the approval, utilization, and commercialization of agrochemical products. The law comprehensively addresses the lifecycle of these substances, encompassing research, development, production, packaging, labeling, transportation, storage, distribution, application, registration, classification, control, and inspection. Notably, the legislation extends its purview to encompass pesticides, environmental control agents, and related technical inputs. Sectors heavily reliant on these products, including agriculture, forestry, and animal husbandry, will be profoundly impacted (Nova Lei dos Agrotóxicos: O Que Esperar?, 2024)

While pesticides enhance productivity in agriculture, forestry, and livestock, their associated health risks are substantial. Exposure to these chemicals can result in a spectrum of health issues, with disease severity contingent upon the specific pesticide, exposure duration, and absorbed dosage. Alarmingly, the World Health Organization (WHO) estimates that approximately 20,000 fatalities occur annually due to pesticide poisoning (INSTITUTO NACIONAL DE CÂNCER, INCA, Agrotóxico, 2022).

The New Pesticides Law has implemented several critical amendments, including expedited registration timelines, stringent usage restrictions, and enhanced penalties. Previously, pesticide registration evaluation periods ranged from six months to three years, determined by product category. The

new legislation has significantly curtailed these timelines to a maximum of two years, with a mandatory 24-month period for products containing novel active ingredients. A provisional special registration (RET) can be granted for investigational products requiring expedited evaluation within one month. However, RET eligibility is contingent upon registration in at least three of the Organisation for Economic Co-operation and Development (OECD) member countries for analogous crop or environmental applications.

Furthermore, the law has reinforced restrictions on pesticide registration, expanding upon previous prohibitions. Beyond the absence of neutralization methods, antidotes, or safe treatments, the new legislation prohibits the registration of pesticides with teratogenic, carcinogenic, or mutagenic properties, those that disrupt hormone balance or reproductive function, those posing greater human risks than indicated by animal studies, and those with detrimental environmental impacts (Nova Lei dos Agrotóxicos: O Que Esperar?, 2024)

On December 28, 2023, the Brazilian government exercised its veto power over 14 provisions within the New Pesticides Law (Law 14.785/23). These vetoes were primarily motivated by concerns for public health, environmental protection, and the preservation of the tripartite regulatory framework involving health, environment, and agriculture.

Key provisions overturned by the government include: the mandatory completion of risk assessments prior to pesticide approval; the maintenance of a multi-agency regulatory framework; the prevention of exclusive pesticide registration authority for the Ministry of Agriculture; the requirement of toxicological studies for new active ingredients; and the guarantee of public access to pesticide information. While

these vetoes were met with approval from environmental and public health advocates, they faced opposition from the agribusiness sector. The government justified its actions as a necessary balance between agricultural productivity and public safety.

Additionally, the government vetoed provisions that would have allowed for the expedited registration of products containing ingredients under continuous evaluation (Estadão, 2024).

However, a partial override of presidential vetoes to the New Pesticides Law (Law No. 14.785 of December 27, 2023) occurred in the National Congress on May 9, 2024. Among the primary effects is the continued centralization of pesticide registration and oversight within MAPA, thereby expediting the process while maintaining the technical competencies of the ANVISA and IBAMA (Estadão, 2024).

## CONCLUSION

Given the critical importance of pesticide regulation in Brazil, this review synthesizes existing knowledge on pesticide use and recent legislative developments. The introduction of new legislation has unfortunately resulted in a regression of regulatory measures, with the apparent goal of deregulating pesticide use nationwide. This study offers a socio-scientific analysis of pesticide use in Brazil through the lens of legislative history. It is imperative to highlight that the pesticide regulatory landscape, despite periods of advancement, is currently undergoing a severe historical setback following a complex interplay of successes and failures. This underscores the overwhelming influence of political factors in shaping the emerging environmental discourse.

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