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**SILENT SPRING AND LIVESTOCK ON AMAZON: DIVERGENCE AND
CONVERGENCE**

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In the decade of 1960 occurred concomitantly, in the Brazilian Amazon, and in the United States, different events, but that they would meet, in opposing camps, years later and with great impact on the development of this Brazilian region. It is the relationship between livestock and the environmental issue.

In the Amazon, the opening of the Belém-Brasília highway (BR-010), in 1960, and the Operation Amazon (1966), was actions ordnance by the federal government with the geopolitical goal of promoting the occupation and the development of the region, having as car-head cattle. This process began an advance on the humid tropical forest, seen as the new frontier of agriculture national, causing the expansion of deforestation in the region. Model of occupation that has suffered criticism from the decade of 1980, to the extent that the environmental movement was consolidating globally.

In the United States, in the summer of 1962, the New Yorker magazine, published three editions followed with excerpts from Silent Spring, the book of Rachel Louise Carson (1907-1964), a work that was only released three months later, in September, becoming a best-seller.

A letter sent to Rachel Carson, reporting the death of a large number of birds after spraying with DDT (diclodifeniltricoetano) in the neighborhood of preserved area, it was a fact that greatly contributed to the elaboration of the book. (1) In general, the book explains how the rampant use of pesticides in the U.S., alter the cellular processes of plants, reducing the populations of small animals and putting at risk to

human health. This book sparked the movement by the environment, changing the course of history, between agriculture and the environmental issue, to contribute indirectly to the prohibition of the insecticide DDT in the United States in 1972. (2)

One effect of the use of DDT, (3) as a negative externality, the death of birds, reveal what until then went unnoticed, i.e., the impacts caused by the expansion of productive activity on the environment and nature.

The great impact that the book caused due to connection that the author has established between the chemical control of insects and the atomic bomb. To establish the similarity between both, Carson had used a memory - the knowledge that the population had about the harmful effects of the atomic bomb - using, therefore, a previous scheme has already formed, facilitating the understanding. It is understood, therefore, that *Silent Spring* contained information with great potential to generate communication. (4)

She brought the notion that chemicals could act on the rights of way similar to radiation: "among the pesticides, there are some that are classified as "mutagenic", i.e., as agents capable of modifying genes, i.e., the materials by means of which it transmits the heredity. We felt rightly amazed in the presence of the genetic effects of radiation; how can we, therefore, remain indifferent to the same effects produced by chemical substances that disseminamos widely by environment"? (5)

The impact also counted with the coincidence of the debate between the drug thalidomide and fetal malformation. Questioned on the subject - at the time, a genuine national controversy - Carson made an "obvious connection" which won the pages of the *New York Post*: "*thalidomide and pesticides represent our desire to rush into use something new, without knowing what the consequences will be.*" (6) In this way, an atomic bomb and thalidomide supplied learning schemes that facilitated the seizure of new information that Carson brought to the knowledge of the public at large with their *Silent Spring*.

The attack against the United States Department of Agriculture and the chemical industry of pesticides cost US\$ 250 thousand at the time "public relations" to disqualify her. (7) Perhaps the most famous critic of *Silent Spring* has been Dr. Robert White-Stevens, biochemical and assistant director of the division of agronomic research of American Cyanamid. In a testimonial for *The Silent Spring* of Rachel Carson, special program of CBS Reports displayed in April 1963, he declared: "the main allegations made in the book Miss Rachel Carson's "*Silent Spring*," are gross

distortions of the truth, without any support in scientific evidence or practical experience in the field". (8)

The biographers of the author shows that the treatment of Miss was pejorative, the time she was 52 years old, also attempts were made to discredit her due to the fact Carson does not have a doctorate, but only master. And for she to be marine biologist and no biochemist! The chemical industry in the years 1950 was an area dominated by men, prestigious on after the Second World War, and by a highly specialized science, which valued practical results and that it considered that other knowledges were smaller or even negligible.

However, to bring to the public arena strong scientific evidence that the use of pesticides affect the insect pollinators, hindering, therefore, the economic income from agriculture, Carson adds a value to the landscape "wild", "natural". She avails herself of the notion of "environmental services", an expression that could only be formally minted in 1970 (9) as a strategy to protect the environment.

Although the chemical industry continued with fierce attacks on the work and the author, their efforts have lost a good part of the power with the output of the favorable opinion of the Scientific Advisory Committee of the Presidency of the United States, on 15 May 1963. The report refers to the Silent Spring as being a fairly complete justification to corroborate the thesis of Carson. This report has changed the nature of the debate, nobody could deny that the problem existed. (10)

It is worth noting that the relationship between DDT and cancer in humans has never been proven, the EPA (Environmental Protection Agency) band ranked the pesticide as probably carcinogenic (probable human carcinogen). Even so, book and public outcry led to the banning of DDT in the USA in 1972. Besides the DDT, other 11 toxic substances listed in Silent Spring were banned or suffered restrictions. (11)

In 2006, a return. The World Health Organization gave a favorable opinion on the use of DDT in African countries affected by malaria, claiming that the benefits of its use in closed environments exacerbate the risks to the environment and to human health. Environmentalists, of course, protested.

Silent Spring, still debated half a century after its release, it became an important contribution to those who seek to understand our time, because it brought in addition to vision of the world in terms of scientific discoveries, the communicational power that the author had to withdraw the issue of "biocides" of technical-scientific

sphere to address it in the public arena, highlighting the need for a new conception of civilization that do not treat nature as an enemy of man.

This is a key idea of environmentalism. Movement that began to form officially at the United Nations Conference on the Human Environment in Stockholm in 1972. This conference produced a declaration on the Human Environment, or the Stockholm Declaration, and established principles for international environmental issues, including human rights, management of natural resources, pollution prevention and relationship between environment and development, extending to the need to abolish weapons of mass destruction. The conference also led to the drafting of the United Nations Environment Program, which gave continuity to these efforts.

Despite the undeniable advances, the 113 countries present at the United Nations Conference on the Human Environment (along with more than 400 governmental and no-governmental institutions), in Stockholm, they had not yet arrived at a formula which stipulates the need for environmental preservation and the development of societies that faced poverty. This equation could only be resolved 20 years later.

Thus, the Stockholm Conference went down in history as the inauguration of the environmental agenda and the emergence of international environmental law, raising the world political culture of respect to ecology, and as the first invitation for the drafting of a new civilizing and economic paradigm for developing countries.

So thus, the environmental movement, who graduated from the book of Rachel Carson raised cattle in the Amazon Region as a new segment to be combated, in function of the deforestation of large areas, giving rise to the controversy about development (or growth) economic versus preservation (or conservation) of natural resources, which promoted important rupture inside of modern theories of economic growth and also in the process of development in this region.

This because in the decades - 1960 and 1970 - the livestock, deployed in an area of forest in the Amazon, expanded at an accelerated pace relying itself on fiscal incentives, in rural credit subsidized through of the PROTERRA and in the opening of new roads.

This livestock in extensive system was deployed with empirical technology - forest logging, biomass burning, sowing of grass and introduction of cattle - was unsustainable. Around ten years of use the pasture vertiginously lost productivity, forming what is technically called pasture degraded. The solution was to seek new

areas of forest to restart the cycle of livestock. This pace has accelerated deforestation in the Amazon.

While this scenario showed the Amazon to the world as a frontier area livestock moving about the forest, the environmental movement walked in the opposite direction, i.e., in the direction of environmental preservation, that is, the maintenance of the tropical rain forests.

Another milestone in the UN Conference in Stockholm was the creation of the World Commission on Environment and Development. Although his work was held in the year 1980, which witnessed the debt crisis of the countries of Latin America and the end of the socialist regimes of eastern Europe, the World Commission devoted himself to the preparation of documents that would be the seed of the Conference Rio-92.

One of them was the report Our Common Future, also called the Brundtland Report (in reference to Gro Harlem Brundtland, former Prime Minister of Norway). It was recommended the convening of Eco-92 by the UN, which happened in December 1989. More than that, the World Commission on Environment and Development (which was also part Maurice Strong (1929-2015), who later would be executive secretary of the Rio-92) was responsible for the drafts of documents that would be approved at the conference in 1992 in Rio de Janeiro.

The decade of 1980 on cattle ranching in the Amazon began to live under the pressure of global environmentalist against the felling of forests for formation of new pastures. Also, in a sense to seek another path than that of the empirical use of technology, starts to be held in the region the researches on agrostology (cultivar and/or variety of grass) to understand scientifically their behavior and management in Amazonian soils, in order to generate technologies that seek sustainability of livestock in the humid tropics. Concomitantly new integrated production systems also began to be searched.

In the years 1990 results of these researches begin to generate technologies, including new grass cultivars, formulas for fertilizing and pasture management, integrated production systems (crop-livestock-forest), starting a new debate on sustainability and economic viability of farming in the Amazon. This made using areas with vegetation changed areas to be occupied with the modern livestock and keeping the preservation of forest.

Currently, with the knowledge on pasture in the humid tropics and sustainable agricultural production systems, from the tropical agronomy research is possible to

start a path of convergence between agricultural production and environmental conservation in the Amazon. For both, policies directed to the sector, in order to enable the new technologies, and also the awareness of the rancher, that is no longer possible to make livestock with empirical technology, will ensure that the region find convergence between produce and preserve, in favor of its development.

But the productive sector, through the entities that represent them, must seek, as the author of *Silent Spring*, the ability to communicate, to show to the society that sustainable production systems do not treat nature as an enemy of man. On the contrary, it is a modern conception of development in which the economy and the environment seek convergences in the benefit of Man and Nature.

The Legal Amazon with nine states, population of over 28 million inhabitants and cattle herd of about 63 million heads, 28.76% of the national herd (12), has the productive chain of cattle an economic segment, which practiced on a sustainable basis, it is essential for regional development and for the Brazilian economy. This, if practiced in modern systems of production and environmental conservation practices.

NOTE

1 Rachel Carson received a letter from Olga Owens Eaglecraft, owner of a wildlife sanctuary. She reported the death of a large number of birds after the aerial spraying of a neighboring property. She wondered if Carson didn't know someone in government capable of stopping the flights. (QUARATIELLO, 2004, p. 86).

2 The work is an alert to the dangers of the indiscriminate use of pesticides. In general, the book explains how the rampant use of pesticides in the US changed the cellular processes of plants, reducing the populations of small animals and putting at risk to human health. Although today is obligatory presence in the bibliography of reference of disciplines that study environment, at the time of its launch the work was hard fought and its author, discredited. Linda Lear, biographer of the author, given that, after the publication of the first sentence, "*the warning of Rachel Carson sparked a national debate on the use of chemical pesticides, the responsibility of the science and the limits of technological progress*" (LEAR, 2010, p. 11). The chemical industry reacted immediately, fighting hard to work and entering declared campaign to discredit the author. Spent a little more than half a century of these events, moved the actors, but the debate remains. And, although the work continue to inspire a wide range of activists in defense of nature and is mandatory presence in any history of the environmental movement, *Silent Spring* remains the target of criticism. *Silent Spring* was mobilizing various sectors of society, involving up to President Kennedy, which determined that the Scientific Advisory Committee of the Presidency to examine the issue of pesticides. (MCCORMICK, 1992, p. 70).

3 The DDT was useful to eliminate insects and diseases issued by these during the war: malaria, typhoid fever and yellow fever. The aggravating factor in the use of DDT was the discovery that this substance can take about 30 years to degrade. And the use is not restricted only to the elimination of insects, being also applied by farmers in the control of pests in crops. This use has brought even greater risks, since the toxic substance can infiltrate the soil contaminating the groundwater and springs. For this reason it is that the use of DDT was banned in 70 years, in virtue of their cumulative effect in the organism. The weakening of the shells of eggs of the birds was a proof of the harmful effects of DDT to man. Studies conducted

with the substance suggest that it is carcinogenic and can cause premature births and cause neurological damage, respiratory and cardiovascular diseases.

4 MARCONDES FILHO, 2004, p. 505.

5 CARSON, 1969, p. 47.

6 LEAR, 1997, p. 412.

7 LEAR, 2010, p. 17.

8 QUARATIELLO, 2004, p. 112.

9 The term was released in the report "Study of Critical Environmental Problems (SCEP)", the MIT (Massachusetts Institute of Technology), and defines as "environmental services" the control of pests, pollination by insects, fishing, climate regulation, retention of soil, flood control, soil formation, nutrient cycling of matter and the composition of the atmosphere.

10 MCCORMICK, 1992, p. 70.

11 MCCORMICK, 1992, p. 71.

12 DBO, 2018, apud IBGE and Scot Consulting.

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