

Agriculture: An Environmental Villain?

Short Communication

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Agriculture has often been unjustly labeled as the primary villain for the environment. Various narratives claim that it causes the destruction of water sources, contaminates and erodes soils, promotes a decrease in biodiversity, and consequently generates ecological imbalance, among countless other problems attributed to agriculture. In other words, is there still a future for agriculture? Or would it be wiser to abandon this practice and return to the “good” old ways of being hunter-gatherers, living off what nature grants us?

I have my doubts whether this would be a viable solution for a population accustomed to immediacy and having everything readily available. This “fast food” generation would never be able to live without the benefits of agriculture and what it provides. Large urban centers, metropolises, and their populations are highly dependent on rural producers. As we say in Brazil, if the farmer doesn't plant, the city doesn't eat. Or do you think another method of food production has already been invented that doesn't involve the cultivation of plants and animals? So I ask: what would become of the city without the countryside? What would become of the urban population if the rural population decided to stop working? What would happen to large urban centers if agriculture ceased to exist?

I see an urgent need to value agriculture and those who practice it, rather than criminalizing it. If agriculture pollutes, the consumer is also responsible when wasting food, knowing that many, at this very moment, do not even have anything to eat. The situation becomes even more concerning when we analyze the prospects for global population growth. Today, there are already over 8 billion people, and by 2050 it is estimated that, to properly feed a given population without malnutrition or deficiency, the amount of plant products destined for human and animal consumption will need to double worldwide. It will need to almost triple in developing countries, more than quintuple in Africa, and even increase tenfold in many countries on this continent [1].

To understand how agriculture reached its current levels, we must first outline the main reasons for its development. Agriculture emerged when humans began to domesticate plants and animals, transforming wild species into cultivated ones through selection. This is likely one of the most important events in human history. Through domestication, plants were modified to better suit human needs, and these changes

are referred to as the “domestication syndrome.” Notable changes include the loss of seed dormancy, increased fruit and seed size, inefficient dispersal mechanisms, determinate growth habits, more compact architecture, and reduced toxic substances, among others [2]. Therefore, a taboo that needs to be broken is the constant questioning of whether a particular fruit has been genetically improved. If the fruit comes from a domesticated plant, it has certainly lost genetic characteristics of its wild ancestors and acquired others of human interest, meaning it has been genetically improved. This should be understood as a positive development, not the opposite.

With agriculture, humans gained a relatively stable stock of animal and plant products, enabling them to engage in other activities, which resulted in significant benefits for society [3]. Without the development of agriculture, the global population would certainly be significantly smaller. Much of the technology that promotes comfort and well-being, which we see and use today, would never have been developed, as we would have been too occupied with the labor of extractivism through hunting and gathering to meet our basic needs, leaving no time for other activities.

As a consequence of agriculture, society was able to engage in other activities, and humans no longer needed to live a nomadic lifestyle. They could settle in regions with agricultural potential and develop, which facilitated population growth and increased the demand for food. This increased demand for food was not only due to population growth but also because the rural population has been decreasing. Urban areas in Brazil, for example, have been experiencing “overcrowding,” driven by various factors such as better living conditions, healthcare, education, transportation, technology, etc. This migration has significantly reduced rural populations and, consequently, the availability of labor in the countryside, meaning fewer farmers are working to feed more people in the cities.

Therefore, it is easy for urban dwellers to condemn agriculture, as they do not feel connected to it. For them, it is enough to go to a supermarket and find everything they need on the shelves, often complaining about the prices, without knowing what the farmer actually receives for producing all that food.

If agriculture is so harmful, would it be better for it to cease to exist? Can we imagine the world and societies without agriculture? If humans



were to abandon all cultivated ecosystems on the planet, they would quickly revert to a state of nature similar to that which existed 10,000 years ago. Cultivated plants and domesticated animals would be overshadowed by vegetation and wildlife infinitely more powerful than today. As a result, nine-tenths of the human population would perish, as in this “Garden of Eden,” simple predation (hunting, fishing, and gathering) would certainly not be able to sustain more than half a million people [1]. If such an “ecological disaster” were to occur, industry-which is not yet capable of synthesizing food for humanity on a large scale and will not do so anytime soon- would be a poor resource. Therefore, whether to feed twenty million or five million people, there is no other option but to continue cultivating the planet, multiplying plants and domesticated animals, and wildlife.

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