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# Sustainable Development Goals and an interface with organic agriculture

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Abstract— The United Nations Organization, through the 2030 Agenda, established as a global pact to end poverty in all its dimensions the Sustainable Development Goals (SDGs), also contemplate actions aimed at protecting the environment and mitigating climate change. The principle of organic agriculture is to establish production systems based on a set of procedures that relate plant, soil and climatic conditions, without the use of polluting inputs, such as synthetic agrochemicals. This study aims to identify the perception of organic agriculture practitioners in the São Francisco Valley region regarding the relationship of their practices with the SDGs. Bibliographic analysis, technical visit and interviews with producers were carried out. It was found that, although in their daily activities they adopt practices related to the goals established in the SDGS, most were unaware of such goals. There was acknowledgement of the importance and need to carry out more actions in favor of the SDGs. From this perspective, it is suggested that more actions are taken to sensitize society, in order to understand the SDGs, as well as their purposes, and thus achieve a better quality of life for all.

### I. INTRODUCTION

The Sustainable Development Goals (SDGs) are a global call by the United Nations (UN) to end poverty, protect the environment and the climate, and ensure that people everywhere can enjoy peace and prosperity [1]. There are 17 sustainable goals, which generate 169 goals that are generally integrated and indivisible; and mix, in a balanced way, the three dimensions of sustainable development: economic, social and environmental.

The 2030 Agenda for Sustainable Development was adopted, as of 2015, by 193 countries that are part of the UN. Among the goals, 2.3 stands out, which provides for "doubling the agricultural productivity and income of

small food producers, particularly women, indigenous peoples, family farmers, shepherds and fishermen, through secure and equal access to land" [2].

In Brazil, some public policies were instituted in order to contribute to the achievement of this objective. Among them, the Food Acquisition Program (PAA), for example, in its update through Law N° 11947/2009 [3] which provides for school meals, Law No. 12512/2011 [4] which institutes the Environmental Conservation Support Program and the Rural Productive Activities Promotion Program, Law n° 10831/2003 [5], Law n° 11326/2006 [6] and Decree n° 7794/2012 [7], referring to organic agriculture and agroecology.

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Organic agriculture enables the production of food free from synthetic pesticides, favoring the balance of ecosystems and contributing to a healthy diet. An organic production system is understood to be any which adopts the optimization of natural and socioeconomic resources, as provided for in Law N° 10831/2003[5] e Decree N°6323/2007 [13]. These systems aims at economic and ecological sustainability, maximizing social benefits, exerting cultural and biological methods in agricultural production, as well as in environmental protection.

Thus, organic agriculture can be presented as an instrument to enable farmers for the transition from conventional agriculture, as it has instruments and guiding laws that favor sustainable development, thus becoming a tool to achieve the SDGs proposed by the un.

This study aims to identify actions carried out by organic producers in the São Francisco Valley, which are part of the Association of Organic Producers from the São Francisco Valley (APROVASF), related to the SDGs.

### II. MATERIALS AND METHODS

Bibliographic research, of an exploratory and qualitative nature, of articles published in national and international journals, provided by Scielo, Academic Google and Science direct databases, was carried out in the period between 2015-2021, without disregarding the classic authors, using the terms: organic agriculture, sustainability, sustainable development goals, 2030 agenda. As an inclusion criterion, the articles should bring information regarding the SDGs and organic agriculture, whose analysis of laws, decrees, treaties and specialized articles on the subject could show the relationship of legal provisions with the SDGs, and as an exclusion criterion articles that did not bring discussion about the relationship of organic agriculture with the SDGs. Then, a quantitative approach was used, with the application of a questionnaire in order to identify the perceptions of certified organic producers, who are part of APROVASF, of the practices already carried out and the SDGs.

The research was presented through an online meeting, due to the COVID-19 pandemic, *held* with the presence of representatives of the members. Then, an online questionnaire was made available to organic producers, containing an explanatory video about the 2030 agenda, with identification of the producer, 17 questions, one on each SDGs with brief guidance, to identify whether each interviewed performed actions that somehow promoted in their activities, directly or indirectly, the SDGs mentioned in the question, with the possibility of the following answers: performs; does not perform; and it does not apply. And finally an open question for comments on the

2030 agenda. Based on the above, members were invited to respond on each other's vision. Of the 24 associated producers, there were 17 responses in the questionnaire made available, some producers were unable to respond to the online form.

### III. ORGANIC PRODUCERS OF SÃO FRANCISCO VALLEY

In the region of the valley of the sub-middle São Francisco, APROVASF has great diversity in its composition, from settler producers of agrarian reform, some owners of agricultural plots and other professionals in the agrarian sciences at their most diverse levels of graduation. The welcoming spirit of the members to the gender issue is also remarkable, as it highlights the term "producers" in the name of the association, as well as keeping a woman re-elected as president of the association. Perhaps this diversity and sympathy were essential for the group to unite and endure the most difficult times it faced since its beginning, in the search for a space that would represent it, where it could offer healthy food, produced with great respect for the land, for water, for the food itself, for itself and for the consumer of organic fruits and vegetables.

Officially formed in 2014, APROVASF has 24 members, 12 men and 12 women, including farmers and agricultural science professionals. The respective production areas are in settlements, irrigated perimeters, on the island, that is, in the rural area and also in urban areas, in the municipalities of Juazeiro and Casa Nova, in Bahia, Petrolina and Lagoa Grande, in Pernambuco, where they cultivate fruits, vegetables, grains and roots. It is noteworthy that the management of the entrepeneurship of these farmers can be by family or business.

There are different modalities of certification of the organic production of the members, namely: Participatory Certification System (SPC), with collective responsibility of the members of the system, in which the group of producers makes the visit and checks compliance with the requirements for organic management. And Audit Certification System, in which the majority of associates are present, who hire a certifier to carry out the audit, in accordance with Law n° 10831/2003 [5].

## IV. RELATIONSHIP BETWEEN ORGANIC AGRICULTURE AND SUSTAINABLE DEVELOPMENT GOALS

The production, processing, labeling and marketing of organic products, which include primary or processed products, of plant or animal origin, is regulated in several

countries. In the United States, it is verified through the USDA-NOP (National Organic Program), section 205 (7 CFR 205) [8]; in Canada, by the Canadian regulation COR (Canadian Organic Rules), which allows, at the end of the process, the use of the Official Canadian Organic Product Seal, in addition to being possible to carry out the certification process based on the American regulation (NOP) for Canada, requesting the complement for validation of equivalence to Canadian regulation (Canada x USA Equivalence Agreement); in the European Union (EC) standards are governed by Reg. 834 of 2007 [9] and its implementing regulation - Reg. 889 of 2008 [10]; In Japan, by JAS (Japan Agricultural Standards); in China they are governed by the National Regulation of the Republic of China GB/T 19630 [11] for organic products; in South Korea they are governed by the South Korean FIPA/EFAPA Regulation for organic products; in Brazil, by Law 10831/2003 [5]; and in countries that do not have their own regulations, they usually accept to certify products according to the organic regulations of the International Federation on Organic Agriculture (IFOAM) [12] or other countries.

In Brazil, there is also a complex legal framework on organic agriculture which seeks to establish a sustainable model of agricultural production, namely: Law n°10831/2003 - Organic Production Law [5]; Law n°11326/2006 - National Policy on Family Agriculture [6]; Decree N°6323/2007 [13] - Regulates Law N°10831/2003 and Decree No. 7794/2012 - National Policy on Agroecology and Organic Production [7].

According to [14], one can point out in these laws the existence of an agroecological law, which institutes political and legal guidelines, principles, instruments and duties to the Public Power to implement a sustainable agroecological development model, however, it is restricted to small, medium-sized farmers and traditional people, given that the political and economic focus is still agrobusiness, relegating agroecological agriculture to the background.

In 2013, the Alliance for Food Sovereignty in Africa (AFSA) analyzed 50 case studies in twenty-two African countries, demonstrating that the use of agroecology enabled collaboration with the following SDGs: poverty eradication; zero hunger and sustainable agriculture; health and wellness; quality education; gender equality; clean water and sanitation; decent employment and economic growth; responsible consumption and production; action against global climate change and improvements in terrestrial life, directly contributing with ten of the seventeen SDGs [15].

In a research carried out [16], it is concluded that public procurement programs have great potential to contribute to the achievement of the UN 2030 Agenda, in particular the SDGs 02, by increasing the income of family farmers, and through supply healthier food for the population and promoting sustainable rural development.

The coordination of the implementation of the 2030 Agenda in Brazil takes place within the scope of the National Commission for the SDGs, created by Decree 8892/2016 [17]. Through this Commission, government representatives, local authorities, civil society, the private sector and other interested actors should work together and foster new partnerships for the implementation of the SDGs in Brazil.

#### V. RESULTS AND DISCUSSION

Members, in general, responded that they carry out various actions of the 2030 Agenda in their practices, as shown in Table 1, with very little divergence between the items. From the previous discussion, it is possible to see that the practice of organic agriculture meets some of the actions aimed at by the SDGs, but in the view of the interviewees, the perception was not the same.

Table.1: Answers about SDGs performed by members

SDGs	perform	not perform	Not applicable
1. No poverty	13	3	1
2. Zero hunger	16	1	0
3. Good health and well-being	14	3	0
4. Quality Education	10	7	0
5. Gender equality	14	3	0
6. Clean water and sanitation	10	7	0
7. affordable and Clean energy	10	7	0
8. Decent work and economic growth	11	5	1
9. Industry, innovation and infrastructure	12	5	0
10. Reduced inequalities	12	5	0
11. Sustainable cities and communities	12	5	0
12. Responsible	14	3	0

consumption and production			
13. Climate action	14	3	0
14. Life bellow water	11	5	1
15. Life on land	13	4	0
16. Peace, justice and strong institutions	13	4	0
17. Partnerships for the goals	14	3	0

Table 1 shows the seventeen SDGs that had responses with the highest agreement from members, with the SDGs listed 1, 2, 3, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16 e 17.

In the first SDG, a socioeconomic agenda was defined to eradicate poverty in all its forms. Generally speaking, Law 10831/2003 [5], Law 11326/2006 [6] and Decree 7794/2012 [7], have the presence of provisions that promote this first SDG. Farmers were asked if they were taking action to reduce the proportion of people living in poverty. There was agreement of twelve research participants.

The second SDG, which deals with zero hunger in sustainable agriculture, has among its objectives to end hunger, ensuring access to healthy and nutritious food for all, through sustainable production agriculture that promotes ecosystem resilience and makes it possible to increase income of small farmers, mainly beneficiaries of family farming [1]. It is stated that [14] Brazilian legislation seeks to promote this second SDG by encouraging the offer of healthy products free of intentional contaminants and with conscientious use of natural resources, in accordance with Law No. 11.346/2006 - National System of Food Safety and Nutritional [18], to ensure the human right to adequate food and food sovereignty and Law n° 10.836/2004 -Bolsa Família Program [19]. Producers were asked if they carry out sustainable agriculture, improved nutrition and actions to reduce hunger, where there was agreement among thirteen members.

In Brazil, some public policies were instituted in order to contribute to the achievement of objective 2.3. The Food Acquisition Program (PAA), for example, in its update through Law 12512/2011 [4] has among its main purposes, the incentive to family farming, promoting its economic and social inclusion, promoting production with sustainability, access to food, in the necessary quantity, quality and regularity, strengthening local and regional circuits and marketing networks, et cetera.

The third SDG is about promoting health and well-being, with goals aimed at reducing infant and maternal mortality rates, diseases caused by hazardous chemicals, in addition to reducing the contamination and pollution of natural resources. Producers responded if they promoted health and well-being. Many understood that the use of organic inputs, and the production of quality food, promote health and well-being. However, three people had a different understanding.

In the fourth SDG, the Agenda aims to achieve quality education, inclusive and equitable for all, from primary to technical and professional. Producers were asked if they carry out actions for learning opportunities (Quality Education). Although ten agreed, seven said they do not do it, there is a need for training in the association, which still does not happen with the desired frequency. According to [14], education and professional training is an instrument for implementing the National Policy on Agroecology and Organic Production, provided for in art. 4, IX of Decree 7794/2012 [7] and also the Environmental Education Law, governed by Law 9795/1999 [20].

The fifth SDG deals with the issue of gender equality with a view to the goals of promoting women. It highlights the goals of recognizing domestic work and defending women's equal opportunities for access to economic and natural resources, as well as access to property and control over land. Producers were asked if they carry out actions related to gender equality to provide more opportunities for women in the future. Although the president of the association is a woman and 50% of the members are too, there were three responses from producers stating that they do not carry out actions.

The National Policy on Agroecology and Organic Production establishes as a guideline the contribution to the reduction of gender inequalities, through actions and programs that promote women's economic autonomy [7], which corroborates the fifth SDG.

The sixth SDG is about ensuring the availability and sustainable management of water and sanitation for all, its goals are aimed at improving water quality, reducing pollution, and eliminating the dumping of hazardous chemicals and materials, as well as protecting and restoring ecosystems related to water. Producers were asked if they were promoting the availability and sustainable management of water and sanitation, and, although ten producers agreed to carry out actions, seven said they do not do it, even though organic agriculture defends the use of inputs that do not contaminate water, the elimination of agrochemicals and the conscientious management of natural resources. It is noteworthy here the growing concern around the practice of conventional

agriculture with pesticides and chemical fertilizers used in an abusive and intensive way, which, together with other tools adopted in this production system, increase the damage to the environment, especially to water and soil resources.

One of the purposes of Law 10831/2003 [5] is to promote a healthy use of soil, water and air, and to reduce to a minimum all forms of contamination of these elements that may result from agricultural practices, which complements the relationship of organic agriculture with the sixth SDG.

The seventh objective seeks to ensure reliable, sustainable, modern and affordable access to energy for everyone. Producers were asked if they were carrying out actions so that the energy supplied was clean and cheap, so that there would be no harm to the environment. Of the associates, ten responded that they do it and seven said they do not do it, it was observed that there was no agreement of an absolute majority.

Regarding the eighth SDG, producers were asked if they carry out actions to promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work, although only eleven answers were agreed, Law 10831/2003 [5], the Family Farming Law [6], Decree 7794/2012 [7] on agroecological and organic production promote this SDG, while emphasizing the healthy use of natural resources, observes labor rights, and environmental, social and economic as well as equity in the application of policies.

Regarding the ninth SDG, the question asked was whether producers carried out actions to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, obtaining agreement from twelve survey participants.

In the tenth objective, which seeks to reduce inequality within and between countries, it has as goals: to empower and promote the social, economic and political inclusion of all, regardless of gender, disability, ethnicity, economic condition and the guarantee of equal opportunities and reduction of inequalities of results [1]. The questioning was aimed at carrying out actions to reduce inequality, and promoting opportunities for the most excluded people, obtaining agreement from twelve survey participants. However, the public policies presented above emphasize principles of decentralization, socioeconomic sustainability and equity in the application of family farming policies to its beneficiaries, as well as the promotion of fair and sustainable systems of production, distribution and consumption of food, prioritizing family farming.

The eleventh SDG proposes to make cities and human settlements inclusive, safe, resilient and sustainable. In the questionnaire there was a query aimed at carrying out actions that contemplated this objective, with agreement from twelve research participants. The goals aim to ensure access to basic services and safe, adequate housing at affordable prices, as well as the promotion of inclusive and sustainable urbanization. Law 10831/2003 [5], Law 1326/2006 [6] and Decree 7794/2012 [7], presented points promoting this SDG, based on renewable resources and locally organized agricultural systems; encouraging the consumption of organic products, regionalization of production and trade in these products.

The twelfth SDG seeks to carry out actions to promote sustainable production and consumption patterns. There were fourteen producers who agreed that they carry out actions with this purpose. Agriculture and organic production promote sustainable development, the population's quality of life, the supply and consumption of healthy foods, promotion of the conscientious use of natural resources, the recycling of organic waste, reducing to a minimum the use of non-renewables, among other points mentioned in the current legislation.

As for the thirteenth objective, fourteen producers responded that they carry out actions that allow reducing the wear and tear on the planet in order to minimize climate impacts. Organic agriculture promotes sustainability, the conscious use of natural resources, conservation of natural ecosystems and restoration of modified ecosystems, through agricultural production systems and forestry extraction based on renewable resources, with the adoption of cultural, biological methods and practices and mechanics, which reduce polluting waste and the dependence on external inputs for production.

In relation to the fourteenth objective, only eleven producers agreed that they carry out actions to conserve and sustainably use the oceans, rivers and water resources for sustainable development. It is noteworthy here that when organic agriculture is practiced, the entire agroecosystem is evaluated and the aim is to promote conservation benefits that extend to animals, plants, energy resources, soils and water resources.

In the fifteenth on actions to protect, recover and promote the sustainable use of terrestrial ecosystems, forests, combat desertification, halt and reverse land degradation, only thirteen producers agreed, despite being strongly related to the purpose of an organic production system that seeks to preserve the biological diversity of natural ecosystems and the recomposition or increase of the biological diversity of the modified ecosystems in

which the production system is inserted, according to Law 10831/2003 [5].

With regard to the sixteenth SDG, the central focus is to carry out actions to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions, with only thirteen producers agreeing.

And finally, in the seventeenth SDG, fourteen producers agreed that they are taking actions to strengthen the means of implementation and revitalize the global partnership for sustainable development.

Thus, according to [14] the National Policy on Organic Agriculture and the National Policy on Agroecology and Organic Production [7] seek to promote the SDGs, emphasizing points such as the preservation and restoration of biodiversity in ecosystems, the increase in biological activity and fertility of the soil and the promotion of the healthy use of natural resources, reducing its forms of contamination and the promotion of fair and sustainable production systems, with valorization of agrobiodiversity, corroborating with the results shown here.

In the questionnaire, members were also proposed to present effective actions to strengthen the association, being suggested by them: more support from government officials to promote organic products, engagement of members to enable production planning, dissemination focused on products and training, for members to have greater clarity of the benefits of organic agriculture for health and the environment, as well as being aware of global demands, becoming professional and marketing your business.

### VI. CONCLUSION

Although many events in defense of the 2030 agenda have been held, few producers know about it. However, they carry out actions focused on the existing goals, evidenced by the implementation of practices aiming the protection of the environment.

Within this perspective, it is suggested that more extension actions are carried out to raise awareness in people, in order to facilitate the understanding of the objectives and their goals, so that there is sustainable development in the region and a better quality of life for all

Of the seventeen SDGs presented, it was possible to show that they all have some relationship with the laws and decrees related to agriculture and organic production existing in Brazil, as well as agreement of a good part of the producers regarding the carrying out of actions in favor of these objectives. However, as explained above, the SDGs that have greater evidence and adherence to Brazilian legislation on organic agriculture are: 1, 2, 3, 6, 8, 10, 11, 12, 13, 15.

It is expected to show that organic agriculture can be recognized as a tool for meeting the SDGs, and through sustainable practices, encourage a greater number of producers to apply traditional and academic knowledge to achieve sustainable development goals.

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