



The Economic and Social Dimension of Innovative Approaches in Sustainable Agricultural Policies and the Role of Municipalities

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ABSTRACT

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In recent years, intensive legal regulations aimed at the production of urban areas in Türkiye, the phenomenon of migration, the spread of higher education, abnormal cost increases in agricultural activities have accelerated urbanization. Parallel to the increase in the urban population, the food supply remains insufficient. The inability to increase the production of food products brings with it problems such as malnutrition, inflation, foreign trade deficit, food security. The natural areas harbored by rural and urban areas are shrinking and being destroyed by the pressure of rapid urbanization. In addition to the abandonment of rural areas, the food crisis that has arisen as a result of the intervention of the urbanization process in agricultural areas has increased the responsibility of the central government and municipalities. In order to meet the food needs of the population and implement sustainable agricultural policies, municipalities are taking different and innovative approaches. Municipalities are making direct and indirect attempts to provide people with cheap and reliable food. In this study, the activities carried out by the municipalities in Türkiye to support sustainable agriculture and their economic and social effects were examined.

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Introduction

People on earth have obtained the nutrients necessary for their lives from plants and animals in natural environments. With the transition from hunting and gathering to a settled order, agricultural culture developed and as a result, a significant increase in the world population was achieved. With the development of agricultural culture, the concept of agricultural production has come to the fore and the diversity in agricultural products has revealed the concept of agricultural biodiversity (Cox and Atkins, 1979: 727). It is a known fact that countries rich in biodiversity have a significant power over the world. The basis of living resources, which has an indispensable place in meeting the basic needs of people, especially food, is based on biological diversity. Humanity itself is an important part of biodiversity. However, unfortunately, the most important asset that threatens biodiversity is again humans. Problems such as industrialization, excessive production and consumption,

rapid increase in the urban population, decrease in agricultural lands by opening up for zoning, non-operation of lands, famine, migration, air and water pollution harm food security. The concept of sustainability has become a debated topic in economy, management, tourism, environment, agriculture and many more. Countries, non-governmental organizations and supranational organizations have intensive studies on sustainable agriculture. As the closest government institution to people, municipalities are also developing alternatives to support the sustainable agriculture of their cities. Plans and practices of municipalities such as increasing agricultural lands, providing seed support, purchasing products, providing input aid such as raw materials and fuel have developed. In this study, the importance of sustainable agriculture, its economic and social effects, examples of sustainable agriculture policies of municipalities in Türkiye and the world are explained.

The Problem of Agriculture and Sustainability

The concept of sustainable development was first introduced in 1987 in the Brundtland Report prepared by the World Commission on Environment and Development; It has been expressed as development that meets the needs of the present without compromising the ability of future generations to meet their needs (Anonymous, 1987: 6). According to another definition, sustainable development; The concept of sustainability, which is used in economic fields such as production, consumption, trade and growth, and in cultural, political, social and environmental fields, in short, is the transfer of current resources to future generations without loss (Eryılmaz & Kılıç, 2018: 625). Sustainable agriculture is defined as follows: In order to provide sufficient and quality agricultural production, to use resources effectively, to realize environmentally friendly agricultural production and to reduce all kinds of environmental pollution, long-term protection of natural resources, securing the efficiency of natural resources, economic, social and environmental aspects. it is a balanced agriculture system (Karaca, 2013: 2; Francis & Youngberg, 1990: 1-2).

The Food and Agriculture Organization of the United Nations draws attention to the need to increase the current food production by 50% until 2050 in order to meet the food needs of the increasing population. Because as the income of individuals increases, food consumption also increases (Yıldırım, 2021). With the intense urbanization and migration process, the borders of cities are expanding rapidly. Rapid urbanization causes the consumption of natural areas and the destruction of the production areas that feed themselves. The depletion of production areas creates the problem of food supply and safety. Today, within the understanding of sustainable development; Protection and development of soil and agriculture from natural resources, ensuring food security for healthy and sustainable societies are among the important issues of the world agenda. It is of great importance to ensure the balance between natural resources and urban uses for sustainable development.

The importance and role of agriculture in economic and social life is as old as human history. Agriculture or agriculture (Özertan, 2014: 210-211), which has a strategic importance, is defined as the production of plant and animal products, increasing their quality and efficiency, keeping these products under appropriate conditions, processing, evaluating and marketing them. In addition to the contribution of agriculture to the national economies of food, population, labor, capital and raw materials, it provides foreign exchange contribution through exports. Needs such as security, health, education, culture and entertainment come to the fore only after the nutrition issue is settled. For this reason, states want to keep food stocks that they may need ready in extraordinary situations such as famine, natural disaster and war (Acar, 2003: 103). A country's self-sufficiency in agriculture and its food security can be expressed with the concept of "agricultural supply security". Agricultural supply security is the provision of a fair and adequate standard of living to agricultural producers, as well as the guarantee of sufficient product supply to consumers at affordable prices (DPT, 2000: 53). In this case, the state has to intervene in agriculture (Gaytancıoğlu, 2009: 12-14).

The fact that agricultural production is seasonal and dependent on natural and climatic conditions causes instability in agricultural product prices. In order to reduce the instability in agricultural product prices and improve low agricultural incomes, the government should implement supportive activities and policies. As a matter of fact, agricultural support policies in the USA and the Common Agricultural Policy in Europe started with the effects of the Second World War to ensure supply security (Balkir, 2010: 308). In this context, methods such as multilateral agreements, international arbitration, and product quota determination criteria have been developed in the international system (Talas, 2009: 107-108).

The most important of the multilateral agreements is the World Trade Organization (WTO) Agriculture Agreement. The Agriculture Agreement (1994), which aims to create an agricultural trade system operating under free market conditions and to create more effective and well-functioning GATT rules by providing progressive reductions in support and protections for the agricultural sector, has made it possible for the parties to reduce their commitments on market entry, domestic supports and export subsidies. (Özkaya et al., 2001: 47-48). The commitment to market entry concerns the conversion of all non-tariff barriers to tariffs on agricultural trade. Internal support commitments include the reduction of internal support for agricultural products. Commitments on export subsidies include reductions in all export subsidies to increase exports of agricultural products (Şahinöz, 2006). According to the 2021 Report of the Intergovernmental Panel on Climate Change, agricultural production is getting harder day by day. In agriculture, activities that are based on excessive use of chemicals, destroy natural resources and harm the environment cause global warming. At the same time, agriculture is one of the sectors most affected by global warming.

The demand for renewable energy sources has increased due to reasons such as the negative environmental problems caused by fossil fuels, the fact that the resources will run out soon, and price fluctuations (Sözdemir, 2020: 445). Especially in developed countries, renewable energy sources such as hydraulic, wind, geothermal, solar, biomass, wave, hydrogen etc. It is used in many different places, especially electricity generation from energy sources (Yılmaz, 2012: 33). There has been a recent occurrence in research activities related to ecology. Ecologists and agronomists have begun to join forces on agricultural systems and food security (Gliessman, 1990:3). The importance of information technologies has increased in the organization of economic activities and in the field of mass communication (Bernstein, 2010: 100). Accordingly, the production, purchasing, sales strategies and technologies of multinational companies operating in the field of agriculture and industry have changed and their activities in the world have increased.

Innovative Approaches and Their Effects in Sustainable Agriculture

Aschmann (2000) MacRae et al. (1990) presented the process of transforming from traditional agriculture to sustainable agriculture in their reports with a three-stage approach. This approach is to reduce the consumption of

fossil resources, to abandon the materials and management practices that cause negative environmental effects, and to switch to more environmentally friendly practices (Özgüven et al., 2019). Despite rising global income and wealth, there is still no progress on hunger, food insecurity and malnutrition. Swift and purposeful actions are needed to ensure the sustainability of food and agriculture systems in the long run (FAO, 2018: ix). Industrial agriculture can cause regional and global damages through wrong practices. Intensive use of water resources can cause depletion, and gas emissions from agricultural establishments can harm both the region and the ecosystem. In this case, sustainability agriculture should be accepted as an indispensable principle.

The main benefits of sustainable agriculture can be listed as follows (Anonymous, 2017; Anonymous, 2022):

- Sustainable agriculture can provide maximum efficiency from small areas.
- A farm where sustainability is implemented will also create a living space for the surrounding plants and animals and will positively affect the ecosystem.
- Making the soil fertile can ensure that it is used for years.
- Sustainable agriculture ensures that regional and global food needs are met.
- Providing employment is among the benefits of sustainable agriculture.
- Contributing to the ecosystem while producing and making a profit can be possible with sustainable agriculture.
- Sustainable agriculture reduces the use of pesticides and pesticides, minimizing harmful inclusions.

Liberal agricultural policies, which were transformed into rules by the IMF, WTO and EU in the globalization process, played an important role in many developing countries, including Türkiye, losing their ability to be self-sufficient in the agricultural sector and becoming foreign-dependent (Talas, 2009: 114).

The economic effects of sustainable agriculture are very important (Tomar, 2021). Since less chemical inputs are used in sustainable agricultural activities, input costs are greatly reduced. In addition, as a result of more efficient use of water resources, the water fee paid for agricultural irrigation decreases. As a result of the combination of plant and animal production, a more profitable production can be realized. Since the production of the same product every year causes an increase in diseases and pests and a decrease in yield, different products are grown with the prevention of monoculture agriculture in order to ensure sustainability. In this way, with the reduction of diseases and pests, the use of pesticides will also decrease and costs will decrease. In addition, additional income can be obtained by growing trees in agricultural enterprises called agroforestry.

Geographical indication registration is used to ensure continuity in the production of many products around the world. Geographical indication registration, which has an important place in sustainable agricultural production, allows products to increase in added value and find buyers at higher prices. Another economic benefit of sustainable

agriculture is that it allows for a more rational distribution of government incentives. Diversity in agricultural production ensures a more profitable production. In sustainable agricultural systems where biological control and integrated pest management practices are used instead of chemical control, it is aimed to keep diseases and pests below the economic damage threshold. In this way, profitability in agricultural production increases.

Both export prices and domestic sales prices of agricultural products produced under the umbrella of sustainable agriculture are higher than normal agricultural products. This allows producers to increase their income and profits. Savings are achieved as a result of less use of synthetic chemicals and energy, whose prices are constantly increasing, in sustainable agricultural activities. In addition to creating vitality in the economy, the quality of life of those working in the agricultural sector increases thanks to sustainable agriculture.

Sustainable agriculture has positive social impacts. As a result of not using harmful chemicals, the health of the farmer and the public is protected (Aslan & Demir, 2016: 163). The increase in the yield of agricultural products will stop and even reverse the migration from the village to the city. The living standards of farmers with increasing income will increase. By bringing social security to agricultural workers, workers' rights will be protected and social peace will be ensured. Thanks to sustainable farming techniques, farmers will be integrated with the world and their knowledge and views will increase. The attractiveness of uncultivated and idle lands will increase and new employment areas will be opened.

Regulations on Sustainable Agriculture in Türkiye

Good agricultural practices, as a concept specific to Türkiye, are defined in Regulation on Good Agricultural Practices 4/i. The processes that need to be applied to make the agricultural production system socially viable, economically profitable and efficient, protecting human health, giving importance to animal health and welfare and the environment are called good agricultural practices (Regulation on Good Agricultural Practices, 2010). Good agricultural practices, unlike organic farming practices, can use chemical fertilizers and pesticides. However, it is aimed to minimize the environmental damage caused by agricultural activities by reducing these uses within a certain program.

With the Law No. 6360 dated 2012, the number of metropolitan municipalities has increased and some important changes have occurred in the borders and duties of metropolitan municipalities. In the provinces where metropolitan municipalities were established, special provincial administrations were abolished, town municipalities and villages were transformed into neighborhoods. With the abolition of the special provincial administrations, a significant part of the duties, powers, rights and responsibilities of the special provincial administrations were transferred to the metropolitan municipalities. Some of them are shared among other public institutions and organizations.

Although the special provincial administration is constitutionally a local government unit, the fact that the governor is the head of the special provincial

administration and represents the legal personality of the special provincial administration has always made it more connected with the central government. In this respect, the abolition of special provincial administrations in the places where metropolitan municipalities were established was explained within the framework of the aim of bringing local governments to the fore. However, in metropolitan cities where special provincial administrations were abolished, "Investment Monitoring and Coordination Center" (YIKOB) was established and some central duties such as supervising public institutions and organizations in the province were transferred to these institutions (Regulation on Duties, Authorities and Responsibilities of the Investment Monitoring and

Coordination Presidency and Working Procedures and Principles, 2014, art. 5).

Law No. 6360 has been the subject of many studies and in these studies, the effects of the Law on special provincial administrations, town municipalities and villages and metropolitan municipalities have been emphasized. However, the regulation in the last paragraph of Article 7 of the Law, which imposes some duties on the metropolitan municipalities in agricultural matters, has often been either not addressed at all or only superficially glossed over. However, in local/rural development, the agricultural role and activities of local governments and their support to cooperatives and unions established for this are important.

The last sentence of Article 7 of Law No. 6360, published in the Official Gazette dated 6 December 2012 and numbered 28489, is as follows: "Metropolitan and district municipalities may engage in all kinds of activities and services to support agriculture and animal husbandry" (Official Newspaper, 2012).

Before expressing the place of the agricultural sector in the economy in Türkiye, it is useful to look at the situation of the agricultural population. While 56.1% of the population lived in rural areas and engaged in agriculture in the early 1980s, this rate was 22.7% in 2012, 8.7% in 2013 and 7.5% in 2017. One of the important indicators determining the place of agriculture in the country's economy is the share of the sector in national income. While the share of agriculture in national income was around 40% in the first years of the Republic, it decreased to 25% in the 1980s (Şengül and Sarıbal, 2013: 135). In the 2000s, this rate dropped below 10%. In the last 15 years, it is seen that the share of agriculture in GDP in Türkiye, which was 10.1% in 2000, decreased to 6.2% in 2016 and 6.1% in 2017 (TUIK, 2018). In the last few years, it has fallen below 5%. One of the indicators that reveal the place of the agricultural sector in the economy is the share of agricultural employment in total employment.

While agricultural employment constituted a significant portion (90%) of total employment in the first years of the Republic, this rate decreased to 50% in the 1980s and to 36% in the 2000s. It is possible to see that this decline continues as of 2000-2017. While the share of agriculture in national income was 6.2% in 2016, its share in total employment was 19.5%. In 2017, this rate decreased to 19.4%. Accordingly, one out of every five workers are still employed in the agricultural sector.

Sustainable Agriculture Practices of Municipalities

Today, as a result of socio-economic and spatial policies, agricultural lands cannot compete with the increase in value created in urban lands during the development process. Due to the income generated by the zoning plans, the remaining agricultural areas in the urban areas cannot be protected. Creating green areas, hobby gardens, etc. for the protection of urban agricultural areas. Alternatives are being developed to transform them into areas where recreational activities can be done. However, sustainable urban development policies; It reveals that self-feeding cities should be supported, that agriculture should be done again in cities, and it is also argued that agricultural production in urban areas should be supported with concepts such as edible landscape (Yenigül, 2016: 295). According to the legal regulations in Türkiye, the settlements within the boundaries of the municipality are considered as urban areas. According to the law numbered 6360, agricultural production areas such as agricultural areas, forests and heathlands, meadows and pastures within the cities remain within the jurisdiction of the municipalities within the urban management structure. This situation shows that measures to protect agricultural areas in metropolitan cities should be taken more effectively and the relevant actors should be local governments.

The practices of some municipalities for sustainable agriculture will be explained below.

İstanbul

In 2021, Istanbul Metropolitan Municipality published the Istanbul Food Strategy Document. The main goal of the document is not to provide occasional food aid to citizens who cannot access food, but to offer the people of Istanbul without privileges, food produced with fair, healthy, cheap, local, nature-friendly and stable food and agriculture systems (İBB, 2021: 11. Sustainable agricultural policies carried out by the Department of Agricultural Services within the Istanbul Metropolitan Municipality are as follows (İBB, 2022):

- To carry out all kinds of activities and services in order to develop and support agriculture,
- Developing, making, or having projects related to supporting productivity-enhancing methods in order to increase agricultural production,
- To monitor the national and international developments in the agricultural product markets, to make researches and to have them done.
- To carry out activities to improve urban agriculture and hobby gardening, to establish, to have, to operate, to have hobby gardens that the people of the city can benefit from,
- Organizing and having them arranged trainings on agricultural production,
- Evaluating the requests for agricultural support in areas where agricultural activities are carried out or will be carried out, and realizing the appropriate supports,
- To make afforestation in the necessary areas.

- To control and inspect the fishery products sales points in accordance with the provisions of the relevant legislation.
- To carry out educational activities for the stakeholders of the sector and other segments of the society in order to protect fisheries and the continuation of sustainable fisheries, for the sake of social awareness for its purpose.
- To conduct research and to develop plans and projects for the protection of fisheries and the provision of sustainable fisheries.
- Participating in national and international activities related to the field of study, being a stakeholder.
- Cooperating with Non-Governmental Organizations, Universities, Ministries and other institutions on issues related to their fields of activity, developing projects, implementing and having them implemented.

Ankara

Ankara Metropolitan Municipality distributed a total of 24 million seedlings in 3 years in order to support vegetable production. To support chickpea production, a total of 4 million 500 kilograms of seed support was provided in 3 years. 501,000 oily lavender seedlings were distributed in order to utilize Ankara's rich ecosystem and to encourage small producers to produce value-added products. 446 thousand kilograms of intervention was purchased. 14 million 500 thousand kilograms of wheat seeds and 3 million kilograms of barley seeds were given to the farmer in 2 years. 200 thousand kilograms of lentil seed support was provided to the producers in the 3 districts that felt the drought the most. A total of 34 million 656 thousand liras of diesel aid was provided to 17 thousand 716 farmers with tractors (Başkent Bülteni, 2022: 7-8).

Mersin

Mersin Metropolitan Municipality works on agriculture and animal husbandry and supports producers. The works carried out within the scope of new generation sustainable agriculture and rural development are as follows (Belediye, 2021: 6):

- Solar-powered fruit-vegetable drying facility,
- Organic agriculture dissemination project,
- Seedling and sapling distribution,
- Tools and equipment support,
- Stone crusher support,
- Branch shredder support,
- Irrigation pipe support,
- Milk tank support,
- Microbial fertilizer support,
- Rough feed support.

Barcelona

Barcelona is the capital of the Catalan Autonomous Region in Spain and the second largest city in Spain. Barcelona, which is an important global economy, trade, tourism, education and cultural center, is a port city whose urban culture and nature are shaped by the Mediterranean (McDonogh, 2011: 57). With a population of approximately 5.5 million, Barcelona is one of the most

densely populated areas in Europe. (Hansen, 2015: 3). Barcelona, which has a rich biodiversity, is one of the successful examples of conserving urban biodiversity. In this direction, the city administration first determines the existing biological diversity. The management, in cooperation with local consortia and expert organizations, periodically checks biodiversity. Biodiversity is taken as a basis in the urban planning process. Empty areas in the city are transformed into green areas under the leadership of the local government. All citizens can benefit from the common gardens. Within the scope of urban green governance, the management cooperates with different stakeholders. Collaboration is made with universities, nature organizations and nature museums on technical issues. In terms of citizen participation, a project called the Come to the Parks Movement is being carried out in the city. Biodiversity education for children, which starts at an early age, continues in schools (Yılmaz et al., 2017: 66-69).

In line with the Local Agenda 21 commitments and action plan, the main objectives of the city for biodiversity and green infrastructure are listed as follows (ajuntament.barcelona.cat, 2017);

- To protect and develop the natural heritage of the city,
- To prevent habitat and species loss in the city,
- To maximize green areas through green corridors,
- To increase the environmental and social benefits provided by biological diversity,
- To make the city resilient to challenges such as climate change.

Urban residents living less than 500 meters from forested areas are responsible for fulfilling their protection duties. The municipality is responsible for the implementation and coordination of the obligations specified in the regulation (Ajuntament de Barcelona, 2017: 20-21). The city administration increases cooperation at local and regional level and prepares action plans (Yılmaz et al., 2017: 67). Planning the spaces that make up the green infrastructure of the city-natural open spaces, river basin, forest, parks, gardens, vegetable gardens, tree-covered streets, green roofs, green walls-taking into account biodiversity is the main priority of the municipality (Ajuntament de Barcelona, 2009a: 140). - 145; Ajuntament de Barcelona, 2009b: 6-7). The Plant of Vacant Urban Plots (Pla BUIITS) project transforms the unused empty spaces of the municipality into common green spaces with the public. With the project, these areas are transformed into community gardens. More than 500 people benefit from 14 different regions where priority is provided for the use of disadvantaged groups (Ajuntament de Barcelona, 2020).

Havana

For many years in Cuba, scientific institutions and institutes have conducted research to make them less dependent on imported goods at all production stages, including agricultural production. On 27 December 1987, Raul Castro, as Minister of Defense, instructed the use of a technology in urban agriculture during a visit to the Armed Forces Horticultural Initiative. An agricultural engineer woman named Anita has succeeded in making production

without using petrochemicals in agriculture. Castro popularized this agricultural production method in Cuba. Thus, four years before the collapse of the Soviet Union, organoponicos began to be established in all cities, especially in Havana (Koont, 2015: 233). Organoponicos are thirty-meter-by-one-meter-sized structures with rectangular-shaped walls containing high planting areas consisting of a mixture of soil and organic materials such as manure. The Cuban Government, through the National Urban Agricultural Group, has launched an initiative aimed at creating new land that can be cultivated in order to find local solutions to the food problem of the capital Havana and other cities. While all these initiatives are generally carried out by the state, collectives or cooperatives; local governments allocate land for private use (Koont, 2004).

This initiative, which was started in Cuba, provides access to local and healthy food at affordable prices, and creates employment for women and the elderly (Keskin, 2019: 157). It can be said that the only still valid example of an urban agriculture experience where almost all of the food production is done at the local level and with an ecological farming method for local consumption is seen in Havana. A total of 52 agricultural stores in 15 municipalities of Havana provide technical service and training on good practice methods to urban farmers. In addition, seeds, soil improvement materials, natural fertilizers and veterinary services are offered to urban farmers. In addition, there are 3 thousand working areas in the country where agricultural engineers and producers are trained and encouraged about ecological farming practices for children and young people. In Havana, students are invited to participate in local agricultural activities, social relations are developed and production techniques are taught (FAO, 2014).

London

London has a population of over 9 million. It has 35,000 acres (40% of the city) green area within 3,000 parks. It is also a global city in renewable energy, energy efficiency and sustainable public transport. The Urban Agriculture Strategy, which has been completed since 2017, is being continued. The London Food Strategy includes promoting London's status as a 'Vegetable City' and supporting the 'Vegetable Power' campaign. Funding the development of good food retail schemes by London boroughs and business improvement districts (BIDs) to improve access to healthy and affordable food is within this scheme.

The London Environmental Strategy includes taking actions to improve the city's environment and the effort to create a better city. This progress report contains chapters on the key London Environment Strategy policy areas: 1- Climate change mitigation and energy 2-Air quality 3-Green infrastructure 4- Waste 5- Adapting to climate change (Municipality of London, 2021: 2).

Toronto

The city approved the Golden Horseshoe Agriculture and Agri-Food Strategy. In 2013, the Toronto Agriculture Program (TAP) was formed by the Toronto City Council, with the aim to plan and coordinate the City's activities in relation to the GrowTO initiative. The program committed

to developing three community gardens annually, improving education around. SUA, supporting school gardens, promoting the City's Eco-Roof Incentive Program, and engaging in partnerships with other city departments (City of Toronto, 2013). The TAP released a 2013-2014 workplan upon formation with detailed steps for developing SUA, and some progress has certainly been made with respect to establishing new growing spaces and creating educational resources for urban citizens to start growing. Land access through zoning bylaws have not been met (Gong, 2020: 10).

Conclusion

With the developments in globalization and localization policies, local governments, which started to take an active role in city administrations, food supply of cities is among the working subjects of administrations and discussions about safety also started. Recently, it is seen that issues such as nutrition of cities, access to food, food supply, food production and waste disposal have an important place among the working areas of municipalities. In order to ensure the increasing food demand and food security, all strategies and policies related to agriculture and food should be prepared by taking into account the principles of sustainable agriculture. Along with the principles of sustainable agriculture, natural resources will be used effectively, the economic and social living standards of producers will improve, and there will be positive developments in many areas such as animal welfare and local production.

Sustainable agricultural policies of municipalities are among their duties. Applications such as support, protection, education, incentives and subsidies through municipalities do not only ensure the food security of the city. Sustainable agricultural practices reduce product losses, provide economic benefits to the producer, contribute to the sustainable environment, and cause farmers to integrate with the world. Municipalities that implement sustainable agriculture provide interaction and communication with each other through the integration and protocols realized. Thus, municipalities are informed about new developments and can learn new alternative policies.

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