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## **The Present Status of the Agriculture Sector Towards Sustainable Development in Sri Lanka: A Review of Existing Policies and Suggestions for Improvements**

**Abstract.** Agriculture plays a significant role in the national economy, helping to ensure food security and achieve sustainable development in Sri Lanka. This paper presents a review of the present situation of the agriculture sector and suggestions for the improvements needed to achieve sustainable development in Sri Lanka. As per the findings of the study, Sri Lanka had conventional agriculture practices a few decades ago, and agricultural policymakers were introduced to organic agriculture for commercial farming systems a few years ago. In particular, the application of organic agriculture practices has gradually reduced in commercial farming systems recently. This is because certain issues are still prominent in the agriculture sector: yield losses, lower ability to share the latest information and experiences of organic agriculture, lower responsiveness of hybrid seeds in organic farming, unavailability of properly directed organic agricultural regulations and national standards, post-harvest losses during long distance transportation, limited research and development, higher prices of organic products, higher input costs, higher susceptibility to pests and diseases, and a shortage of organic inputs, etc. As a result, the majority of agricultural authorities have introduced GAP farming practices for farmers. GAP is important to address the issues of food safety, trade, and sustainability. In addition to that, it also helps to reduce the unregulated use of agrochemicals, and avoid adverse climate change impacts or any negative externality that threatens the overall agriculture production, people's health, and the environment, thereby challenging the sustainability of the sector. Thus, pick-up orders at stations, usage of proper storage facilities to avoid post-harvest losses during long-distance transportation, formulating and implementing regulations for the development of the export market of GAP products, organising extension programs and training to disseminate the latest information to enhance farmers' adoption to GAP farming, encouraging field experts to gain international training opportunities, introducing proper control mechanisms to protect the local market, conducting research and development activities, and enhancing links between GAP farmers and other supply chain components to maintain a strong certification system for their products may lead to achieving sustainable agriculture development in Sri Lanka.

**Keywords:** existing policies, GAP farming, organic agriculture, sustainable development, Sri Lanka

**JEL Classification:** Q01, Q18

### **Introduction**

Sri Lanka is predominantly an agricultural-based country, and the growth of the agricultural sector has been stagnant since the evolution of civilization (International Trade Administration [ITA], 2021). However, the country has fertile topsoil within the tropical areas, which has the potential to cultivate a variety of crops. When conventional farming practices are more popular within the farming community, the volume of the fertile topsoil gradually decreases due to the loss of the microbial population in the soil

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(Perera and Dayananda, 2021). Additionally, resilience in food production is an essential requirement for the increasing population in Sri Lanka (Thibbotuwawa, 2020). Therefore, food security needs to be ensured to avoid issues associated with malnutrition and other health problems (World Bank, 2020). Sustainable agriculture performs an important national role with three basic aspects: the environment, the economy, and the social well-being of inhabitants (Smith, 2019). Additionally, sustainable agriculture is expected to fulfil different goals, perhaps even conflicting ones, and to do so for a long time, following the changing societal demands and environmental conditions (Jastrzębska et al., 2022). Sri Lanka has 6,561,000 hectares of land and around 2.8 – 2.9 million hectares of agricultural land (World Bank, 2019). Accordingly, Figure 1 shows the evolution of the total agricultural land in Sri Lanka.

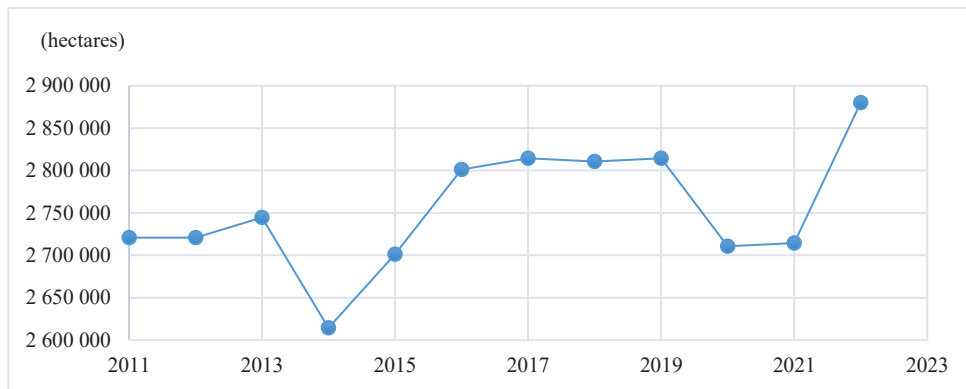


Fig. 1. Evolution of total agricultural land (hectares)

Source: FiBL, 2023.

As per Figure 1, total agricultural land is considered to be the combination of organic farms and conventional farms. In 2011, the total agricultural land was 2.7 million ha. However, it has gradually fluctuated until 2022 (World Bank, 2022).

Nowadays, the agriculture sector contributes about 8.75 percent to the national GDP of Sri Lanka (Neill., 2021; Central Bank Report, 2022). It is the most important source of employment for the majority of the Sri Lankan workforce, especially for people in rural areas. The agriculture sector plays a significant role in the implementation of strategies which are aimed towards the sustainable development of the country (Sri Lanka National Agriculture Policy, 2019).

Considering most developing countries, Sri Lanka is rich in biodiversity and has suitable climatic conditions for organic farming (Sri Lanka Export Development Board [SLEDB], 2020). Recently, the term “organic” has become more popular among most nations of the globe. Therefore, agricultural policymakers pay greater attention to achieving sustainable development by implementing the policies associated with organic agriculture (Luczka et al., 2021).

The evolution of organic farming practices is proved by historical evidence from more than 2,500 years ago. Farmers performed their agricultural practices with indigenous knowledge (Das et al., 2020). Hence, organic farming is not a novel concept,

and it is very important for the development of sustainable agriculture in the country. Sri Lankan agricultural policymakers and researchers aim to promote organic agriculture for the protection of land for future generations, producing high-quality food and using traditional agricultural methods (SLEDB, 2017).

Table 1. Farmland under organic production in Sri Lanka (hectares)

2006	2008	2010	2014	2015	2016	2017	2018	2019	2020	2021
15,379	19,190	31,585	62,560	96,318	96,318	165,553	165,553	165,553	73,393	66,623

Source: FiBL, 2023.

According to the statistics in Table 1, organic farming areas have been increasing until 2017. After 2017, it remains stagnant until 2019. However, it gradually increased to 165,553 ha in 2019 (FiBL, 2023). Thus, this figure illustrates that the amount of organic farmland is considerably lower than the share of total agricultural land in Sri Lanka.

In 2020, agricultural policymakers realised this situation, and they supported extension activities related to organic farming in Sri Lanka (Dandeniya., 2020; Sri Lanka National Agriculture Policy, 2019). In addition to that, organic fertiliser-producing activities, introducing subsidies to the organic fertiliser producers, and research and development activities related to organic farming are the key actions taken to minimise the use of conventional farming practices in Sri Lanka (Dandeniya, 2020; Edirisinghe et al., 2019). As a result, around two million farmers have adopted organic farming due to the sudden policy changes of the policymakers, e.g. the removal of chemical fertiliser subsidies and import limitations of chemical fertilisers. However, most of the organic fertiliser producers are unable to fulfil the domestic fertiliser production requirements for farming (Guzman, 2022). Additionally, domestically produced organic fertiliser has been suspected to lack the NPK (nitrogen, phosphorous and potassium) fertiliser recommendations that are required for cultivated crops. Thus, the total production of export-oriented crops and rice decreased, and this created a critical situation for Sri Lanka's national economy as well as the food security of other nations (Wijesinghe, 2021). In a commercial basis of farming, organic fertiliser is not enough to fulfil the nutritional requirements of cultivated crops due to more time consumption in the decomposing process. Thus, farmers recently returned to using chemical fertiliser applications for their crops (Dandeniya and Caucci, 2020). Then, policymakers decided to disseminate knowledge related to GAP (Good Agricultural Practices) to minimise the hazards associated with the application of chemical fertiliser (Bamunuarachchi et al., 2019).

Therefore, this paper aims to present a way of achieving sustainable development through the appropriate agricultural practices by discussing the global status and the scenario in Sri Lanka regarding GAP, the challenges encountered with sustainable development through agriculture, and the identification of existing gaps in the sector and suggestions for overcoming them.

## **Methodology**

The concept of sustainable development in the agriculture sector is not novel for Sri Lanka, although its practicable utilisation in the country is limited. Moreover, most developed countries, as well as developing countries, are utilising this concept to achieve sustainability within the agricultural sector. Recently, most countries, including Sri Lanka, have identified the present status of the agriculture sector as an essential strategy for achieving sustainable development. The study aimed to identify the present status of the agriculture sector in Sri Lanka and the challenges encountered in sustainably managing the agriculture sector in order to draft out strategies for overcoming them and identify the existing gaps and issues for sustainably managing the sector. Sri Lanka is administratively distributed into nine provinces with twenty-five districts. Among them, five districts were purposively selected for the study according to the higher number of farmers, namely, Anuradhapura, Badulla, Monaragala, Ratnapura and Colombo. 1000 farmers were randomly selected as the sample of this study. Data collection was done by using a literature review, a pre-tested self-administrated questionnaire survey, and a focus group discussion from July to October 2022. SWOT analysis was conducted based on the findings of the focus group discussion and questionnaire survey. A literature review was conducted by referring to several research reports, relevant books, journal articles, and news articles to understand the present status of the country's agriculture sector. Moreover, a field survey and focus group discussion were used to further elaborate on the present status of the agriculture sector and issues occurring in this sector in Sri Lanka, and to identify the challenges encountered with the sustainable management of the agriculture sector and the important strategies for overcoming them. Moreover, these findings support the development of a framework for sustainably managing the agriculture sector in Sri Lanka.

## Results and discussion

### Socio-demographic profile of respondents

The socio-demographic factors of the farmers are presented in Table 2.

Table 2. Socio-demographic profile of respondents (n = 1000)

Factor	Category	Frequency	Percentage (%)
Age (Years)	< 30 years	350	35.0
	40-59	600	60.0
	> 60 years	50	5.0
Gender	Male	754	75.4
	Female	246	24.6
Marital status	Single	11	1.1
	Married	989	98.9
	Other	0	0.0
Educational level	No primary education	6	0.6
	Primary education	28	2.8
	Junior secondary education (O/L)	824	82.4
	Senior secondary education (A/L)	142	14.2
Monthly income (LKR)	Less than 20,000	274	27.4
	20,001 – 40,000	629	62.9
	40,001 – 60,000	97	9.7
Number of family members	less than 4	273	27.3
	4 - 5	698	69.8
	more than 5	29	2.9
Cultivated land size (Acres)	0.0-0.5	296	29.6
	0.5-1.0	627	62.7
	1.0-1.5	74	7.4
	1.5-2.0	3	0.3
Farming experience (Years)	0-5	176	17.6
	5-10	458	45.8
	10-15	282	28.2
	15-20	84	8.4

Source: Field survey, July - October 2022.

As per the results of Table 2, the mean age range of the respondents was 40-49 years, indicating that they were in the middle age category. A share of 35.0% of the respondents was reported as below 30 years and 60.0% of respondents were in the middle age range (30-59 years). In addition, 5.0% of respondents were more than 60 years old. While 75.4% were male farmers and 24.6% were female farmers. According to the results of the study, 1.1% of respondents were single in their marital status, while the majority of the respondents (98.9%) were married.

The majority of the farmers have only 3 or 4 children. Regarding the respondents' level of education, 96.6% of farmers had gained secondary education, and 0.6% of the respondents had no formal education.

Considering the family size of the respondents, 27.3% had only 4 family members, 69.8% had 5 members, and 2.9% had 6 members in their family. Furthermore, 91% of the respondents were earning between 20001-40000 LKR as the monthly average income, while 22.4% of them were receiving between 0-20000 LKR.

Table 3. SWOT analysis of the agriculture in Sri Lanka

<b>Strengths</b>	<b>Weaknesses</b>
Availability of an adequate level of technological know-how within the supply chain members of the food market.	The public sector has poor knowledge and experience regarding organic products and also GAP-based production: (Export Development Board - EDB and the National Organic Control Unit - NOCU).
Considerable private sector involvement in the farming sector.	Unavailability of properly directed policies for GAP farming.
Well-managed food supply chains to penetrate into the export market.	Some standards and legislation are irrelevant to the local conditions.
Most of the producers are certified with quality standards: Sri cert, HACCP, and ISO 22000 for organic products, as well as GAP-certified products.	Some national standards are not directed at developing local markets.
Optimal climatic conditions for farming.	Sri Lanka still does not exchange the latest information relevant to GAP farming with other countries.
The importance of farming was emphasised by policymakers.	Transportation issues occur within the food supply chains and value chains
Considerable share of GAP-certified farmland.	Lack of bottom-level support for the development of GAP farming.
Lower level of competition for the international certification requirements	Limited research and development in GAP farming
Most of the rural inhabitants, around 2 million of the Sri Lankan population, are performing farming activities (Guzman, 2022).	Rapid transformation to GAP farming
	Hybrid seeds with lower responsiveness used in organic farming.
<b>Opportunities</b>	<b>Threats</b>
Increasing demand for GAP products.	The national standards are not directed to develop both the local and export markets.
Public policymakers implement timely updated policies for the development of GAP farming.	Agricultural extension programs are still directed towards conventional agriculture.
Protect biodiversity and improve the health of soil.	Lower adoption of farmers of GAP farming.
Availability of field experts	Higher prices of organic products as well as GAP products

Source: Field survey, July - October 2022.

## **SWOT analysis of agriculture in Sri Lanka**

A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) was conducted to recognise the key problems of agriculture in Sri Lanka. The findings are presented in Table 3.

Recently, farmers have gradually adapted to GAP-based agriculture in Sri Lanka because of the sudden policy implications to minimise imports of agrochemicals and chemical fertilisers and the removal of chemical fertiliser subsidies for farmers. Also, policymakers have emphasised the importance of institutional intervention to promote organic agriculture through policies and periodic plans. Moreover, Sri Lanka is still not adequately directed to such endeavours. Hence, most commercial farmers have transitioned to GAP in order to reduce the negative externalities of chemical farming. Thus, up-to-date GAP policies, rules and regulations regarding the farming practices, production and trading of GAP products need to be formulated. National standards of GAP production need to be formulated by directing both local and export markets to overcome the current issues arising in agricultural markets, such as processing, reducing threats to new entrants into the agricultural producing industry, and the promotion of certified GAP products.

The public and private institutional collaboration is important to uplift the GAP sector while underling the various factors such as rules and regulations, legislations, well-directed action plans and risk management in formulating GAP policies. When implementing government policy roles and interventions, fund allocation acts as the key determinant in Sri Lanka as it does in other developing countries.

Quality standards for GAP-based agriculture and packaging, as well as market regulation mechanisms for the monitoring of fake products, are favourable factors for the optimum regulation of GAP value chain systems in Sri Lanka. Mostly, these aspects should be regulated through government intervention. Thus, they support and promote the development of GAP through various regulations, policies, and programmes such as subsidies for large-scale organic fertiliser producers, market strategies for GAP products and research and development activities of pest repellents & NPK recommendations of organic fertilisers.

The shortages and surpluses in the supply and demand of GAP products can be overcome through the proper links between the supply chain and the value chain components of GAP markets. Legislations, regulations, and GAP policies need to address this situation by implementing a GAP development policy, and national GAP standards and certification programs to minimise price discrimination of organic and inorganic products, as well as adequate institutional interventions to promote GAP farming.

Research and development activities need to be promoted with public and private institutional collaboration to gain the optimum benefits for the development of GAP. Brainstorming how to overcome these circumstances through innovative methods will enhance the information dissemination of GAP farming to each and every component of the sector.

However, higher prices of GAP products act as a constraint to the majority of consumers willing to purchase agricultural products. Hence, GAP products should be available in the market at affordable prices, or inorganic products need to be available to cater to consumer demand. Organic cultivations require higher amounts of organic fertiliser when compared to conventional cultivations, especially at the initial stage of



transformation into organic farming after many years of conducting conventional practices. In addition to that, necessary inputs are needed to produce organic fertiliser with recommended NPK levels. Thus, the NPK levels of the organic fertilisers and the recommended application amounts generate concerns for crop yield in commercially based cultivations. Thus, GAP farming is considered an important remedy for it.

## **The agriculture sector and sustainable development in Sri Lanka**

The Sustainable Development Goals (SDGs) aim to formulate and implement strategies to improve education, gender equality, and economic growth, minimise climate change, and achieve the optimum utilisation of natural resources for the future (UN, 2020). Substantial evidence has proved that the management practices of conventional agriculture are not sustainable for the future (Oberc and Schnell, 2020; Shennan et al., 2017). Hence, most of the developing countries have hindered their attempt to reach the SDGs (Oberc and Schnell, 2020). In Sri Lanka, agricultural practices are performed both conventionally and organically. However, sustainable agriculture is a distinct set of practices. It is a system of food production that uses the productivity of natural resources. It encompasses the efforts that develop more efficient production systems while providing a direction that makes remarkable savings for farmers (Nedumaran, and Manida., 2019). Thus, organic agriculture plays a significant role in achieving the sustainable development of the country, and it helps achieve better results under timely and important policy mechanisms (Malkanathi, 2019; Kariyawasam, 2010).

Organic agriculture is broadly combined regarding sustainability aspects - both environmentally and socially - compared to conventional agriculture (Luczka et al., 2021; Meemken and Qaim., 2018). Organic fertiliser enhances the soil quality and minimises pollution from chemical fertilisers or excess agrochemical run-offs (Chen et al., 2018). Farmers perform organic farming practices to fertilise the soil and maintain optimum crop growth (Yuvaraj et al., 2020). Based on previous studies and the latest findings, most researchers still pay greater attention to the crop productivity of organic farming and conventional farming, which varies on the crop type and their management practices. The yield variations concern annual crops rather than other crops. Hence, organic fertiliser slowly releases its nutrients to the environment, and the crops have higher exposure to pests and diseases as well. However, there is considerable crop productivity for biannual and perennial plants in organic farming compared to conventional farming (Timsina, 2018; Shennan et al., 2017). Even though theoretical findings demonstrate the lower yield variations between organic and conventional farming, there were considerable yield losses when the crop cultivations were performed in a commercial manner in Sri Lanka. For example, paddy farming showed around a 30 percent yield loss in the 2021/22 *maha* season in Sri Lanka. In addition to that, tea cultivations reported about an 18 percent yield loss due to the higher fertiliser sensitivity of tea plants than the other crops (Guzman, 2022). Moreover, organic cultivations are usually susceptible to pests and diseases due to the absence of suitable pest repellents for commercial cultivation in Sri Lanka (Wijesinghe, 2021). Thus, this situation creates concerns for performing organic farming practices in a commercial manner.

Crop productivity is generally influenced by the profitability of organic farming. Organic agriculture is associated with a lower level of farming inputs than conventional

systems (Smith et al., 2019). Therefore, organic products have higher market prices due to a shortage of labour, intensive crop management practices for controlling pests and diseases, and the environmental recovery costs from converting to organic practises from conventional ones, harvesting, processing, packaging, storage, and transportation. The environmental recovery costs are associated with the clean-up process of polluted water bodies and remediation for agrochemical contamination (Singh, 2021). However, organic farming practices are performed within the home garden, and commercial-scale farming requires more labour for intensive crop care (Dandeniya and Caucci, 2020).

When compared to conventional farming, organic farming offers additional benefits to society and the environment, such as:

- agrochemical residuals are removed from soil,
- reduce run-off of excess agrochemicals to the water bodies,
- organic foods have adequate concentrations of vital elements,
- enhanced bio-diversity,
- reduce usage of non-renewable energy resources,
- organic foods increase resilience in foods regarding floods, droughts, and pest attacks/diseases (Smith et al., 2019).

An environmentally sustainable agricultural system consists of a stable resource base, minimal overexploitation of renewable resources, and regulatory usage of non-renewable resources. Thus, the protection of biodiversity, atmospheric stability, and other ecosystem resources that are not classified as economic resources create an environmentally sustainable agricultural system (FAO, 2017). Both health and environmental benefits should encourage the government to support the organic sector. Despite issues related to commercial organic farming, Sri Lanka should move to GAP farming.

GAP is one of the most important contributors to the preventative practices proposed earlier, and it ensures that on-farm practices result in products reaching the farm gate using the GAP system proposed by the Food and Agriculture Organisation (Malkanathi et al., 2021). Consumer interest in safe food while protecting the environment and ensuring worker well-being has been growing in recent times. The four 'pillars' of GAP are economic viability, environmental sustainability, social acceptability, and food safety and quality (Bamunuarachchi et al., 2019). Hence, GAP is important to address the issues of food safety, trade, and sustainability. In addition to that, it also helps to reduce the unregulated use of agrochemicals, avoid adverse climate change impacts or any negative externality that threatens overall agriculture production, and improve people's health and the environment, which improves the sustainability of the sector (Kharel et al., 2022). In Sri Lanka, SLSI, 2016 was initiated to make standardised quality products for fresh fruits and vegetables. Moreover, the Department of Agriculture implemented a GAP certification scheme for rice, spices and other crops to penetrate the GLOBAL GAP market (Malkanathi et al., 2021).

GLOBAL GAP is a private voluntary service body of certification standards and procedures for good agricultural practices. It focuses on elevating the consumers' confidence in food safety by developing GAP to be adopted by agri-food producers. Although GLOBAL GAP is aimed at food safety and traceability, it also comprises of health, safety and welfare of workers and environmental conservation. GLOBAL GAP certification covers the sowing of the seeds to the planting areas and until the product leaves the farm after its maturation (Malkanathi et al., 2021).

ASEAN GAP certification is also one of the most important GAP certification systems for trading fresh fruits and vegetables in the ASEAN region. ASEAN GAP was established by the ASEAN secretariat in 2016, and it led to the creation and harmonisation of national GAP programs in the ASEAN region. However, ASEAN GAP is a voluntary standard that regulates the procedures of planting crops or seeds, crop caring practices, harvesting, and post-harvesting operations. However, it does not regulate fresh products and also sprouts (Saulan, 2023).

According to Singh (2022), there are key elements included in GAP:

- Risk assessment
- Preventing problems before they occur
- Food safety commitment at all levels
- Mandatory educational training for operational employees
- Chain-wide communication
- Integrated pest management
- Field and equipment sanitation
- Third-party audits for verification
- Oversight and enforcement

Therefore, the Sri Lankan government has been promoting various training and extension programs for GAP to improve farmers' awareness of the existing GAP market and to enhance farmer adoption towards GAP (Malkanathi et al., 2021).

### **Existing gaps in the agriculture sector of Sri Lanka**

Farmers' adoption of GAP is still not satisfactory. Even though the public sector encourages extension programs for the farmers, it is not enough for farmers to practice GAP. This is because conventional farming practices are deeply retained in their minds. Recently, organic farming moved away from commercial farming systems due to certain issues: yield losses, lower ability to share the latest information and experiences of organic agriculture, lower responsiveness of hybrid seeds in organic farming, unavailability of properly directed organic agricultural regulations and national standards, post-harvest losses during long distance transportation and limited research and development, higher prices of organic products, etc.

Thus, farmers moved away from organic agriculture, and they returned to conventional farming. However, the social and environmental hazards of conventional farming persuade them to adopt GAP. As a matter of fact, recent research and innovations related to GAP consist of less public sector involvement and a lower level of dissemination of the latest information for the farmers and producers of the agricultural sector due to certain issues at a basic level. There is lower funding for the training programs at the regional level, extension officers, as well as farmers, and the unavailability of adequate transportation facilities for field observations. It is also difficult to distribute agricultural products to the market at the correct time. Moreover, the sudden transfer of farming methods into GAP limits the time duration for research and innovations.

Hybrid seeds have lower responsiveness to organic agricultural practices. Hence, the implementation of indigenous seed production mechanisms is suitable to fulfil the local

seed requirement of the agriculture sector in Sri Lanka. Thus, GAP has the ability to overcome the issues in organic farming.

In addition to that, GAP farming systems cannot acquire the proper mechanisms to control pests and diseases of the cultivations on a commercial basis. Even though field experts conduct several experiments, pest repellents and disease control mechanisms still occur at the experimental level for commercial cultivations in Sri Lanka.

Institutional intervention required for the maintenance of GAP product quality within the local market is the same as in the export market. Thus, consumer protection is ensured by maintaining a threat to the entrance of fake products to the local market. The pick-up orders at stations can be promoted to minimise the issues arising from labour shortages in GAP farms and to reduce post-harvest losses during long-distance transportation. The “Export GAP Products Regulations” need to be formulated to protect product quality and market status.

Generally, organic products have a higher price due to higher labour requirements, intensive care, and management practices. Also, the quantity of organic fertiliser is higher than chemical fertiliser to facilitate adequate NPK levels for the crops, etc. Thus, lower-income consumers find it difficult to purchase organically produced products in the market. However, GAP products have the ability to remedy certain issues of organic farming.

The institutional authorities have no adequate background related to GAP farming, and they have poor knowledge and experience in the field. A well-functioning platform for GAP stakeholders does not exist in Sri Lanka. Proper links between the supply chain and the value chain need to be ensured to control the GAP certification process in Sri Lanka. The national standard of GAP agriculture should be directed to promote the local market to reduce issues associated with the certification of organic products. Sri Lanka should be a member of the ALOGA in order to ensure the exchange of knowledge and experience in the development of the organic agriculture sector.

### **Suggestions for the issues of farming in Sri Lanka**

- Labour shortage issues and transportation issues are minimised by pick-up orders at stations.
- Usage of proper storage facilities to avoid post-harvest losses during long-distance transportation
- Formulate and implement important regulations for the development of the export market of organic products and GAP products.
- Organise extension programs and training to disseminate the latest information for enhancing farmers' adoption of GAP farming in Sri Lanka.
- Encourage international training opportunities for GAP experts.
- Introduce proper control mechanisms to protect the local market.
- Conduct research and development activities regarding the burning issues of the agriculture sector in Sri Lanka.
- Well-balanced regulations need to be introduced to develop both local and export markets.
- Enhance links between farmers and other supply chain components to maintain a strong certification system for GAP products.

- Policies and strategies need to be updated for the development of the agriculture sector.
- Formulate indigenous seed production mechanisms for the cultivations instead of hybrid seeds.
- Conduct a feasibility study for the agriculture sector before promoting GAP farming into the agriculture sector in Sri Lanka to minimise the issues arising for the food security of nations.

## Conclusion

Sri Lanka has a very good potential for agriculture due to favourable climatic conditions for a wide variety of crop cultivations. However, there is only gradual improvement for organic farms as organic agriculture has a lower level of crop productivity and profitability than conventional farming systems. However, organic farming offers additional benefits to society and the environment. Organic farming is an environmentally sustainable agricultural system consisting of a stable resource base, minimal overexploitation of renewable resources, and regulatory usage of non-renewable resources.

Organic agriculture plays a significant role in achieving the sustainable development of the country, and it helps achieve better results under important policy mechanisms. In addition to that, extension and training programs related to organic farming led to increasing farmers' adoption of organic farming. In Sri Lanka, certain issues are still prominent in organic farming, such as a low ability to share the latest information and experiences of agriculture, the unavailability of properly directed organic agricultural regulations and national standards, post-harvest losses during long distance transportation, limited research and development, difficulty of transporting agricultural products, and a lack of storage facilities of agri-products, etc. Thus, policymakers have been promoting policy updates regarding GAP farming.

GAP is not a novel concept, and it became more widespread in 2016. It has the capability to address problems associated with organic farming, such as the issues of food safety, trade, and sustainability. In addition to that, it also helps to reduce the unregulated use of agrochemicals, avoiding adverse climate change impacts and any negative externality that threatens overall agriculture production, people's health, and the environment, thereby challenging the sustainability of the sector.

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