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Reliance on Organic Farming Resulted in Food Crises in Sri Lanka: A Review

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ABSTRACT

The organic agriculture approaches for the betterment of food security at a global position. It is a disputed subject for discussion. Although, there are several types of research on the different factors in different aspects of organic farming. Most of the given data come from the deep suffering crisis in Sri Lanka. How organic farming implemented in Sri Lanka and how it performed till now in the context of farmers having small holdings remains poorly understood. Additionally, we found that somehow organic agriculture is responsible for the crisis in Sri Lanka. The major challenges for the rapid collapse of Sri Lanka were limited capacity, lack of suitable inputs and market access. Organic farming gives the impression of being one of the center stages of the crises. Some commentators have blamed Sri Lanka's decision to go organic as the root cause of this crisis. Additionally, the event was used to smear the regenerative agriculture movement.

Key words: Adoption, Disputed, Organic farming, Regenerative, Smear.

Organic farming is agricultural farming which emphasis the use of organically derived pesticides and fertilizers. Farming focuses on the use of cheaper and locally available raw materials (Green manure, cow dung *etc*.) to get profitable returns.

In recent times, there is a huge demand for organic products all over the world. This is simply because of the reason that organic products are eco-friendly and have high nutritional value along with good taste and health benefits. A large population of the world is shifting towards consuming organic products and a large number of farmers are practicing organic farming for the last few years. Many countries like the U.S.A, India and China have been practicing and promoting organic farming on a large scale.

Somewhere, it also helps in enhancing the economic growth of the country. But in a country like Sri Lanka, which is struggling with economic crises, the sudden transition toward organic agriculture leads to crises. As per recent articles, organic farming is believed to be the center stage of the economic emergency.

Elected president Gotabaya Rajapaksa, from the presidential election held in 2019 in Sri Lanka dreamed of a vision of transforming into completely organic farming. It was believed to be an ascending transformation toward organic agriculture but it turned into sudden grief when in April 2021, he declared that country would impose a complete ban on the import of chemical fertilizers and pesticides from next month.

The ban provoked immediate protests from farmers complaining of a lack of preparation for a transition to organic farming in the short term. The general public was also outraged by food inflation caused by shortages of inorganic fertilizers and resulting in low yields. Increasing protests and worries over food prices have forced the government to lift the ban seven months after its introduction. However, it has already suffered significant damage. Nearly a third of Sri Lanka's agricultural land has been left unused due to the ban and rice production has decreased by 20%. The country achieved rice self-sufficiency but had to import $450 million worth of rice as rice prices rose by 50%. Sri Lanka's main export, the tea industry, also suffered an economic loss of $425 million, further exacerbating the country's currency situation.

Sri Lanka's rice, tea and rubber production rely on chemicals in the 90-94% range. For reference, the country can produce only 2-3 million tons of biofertilizers when the demand for the same is 3 times or more. The choice to switch to organic farming came as a sudden shock to even the technical institutions, as they did not know how to teach organic farming to farmers. Sri Lanka is not only the South Asian country to have done this. Bhutan is also on the list that promised to go organic in 2008, but as of 2021 only 10% of crop yields and 1% of land can be classified as organic. In 2008, Bhutan also introduced a policy of going 100% organic by 2020 but it's still struggling to shift completely (Verma, 2022).

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Status of organic agriculture in Sri Lanka

Organic farming is currently practised in 178 countries around the world (Willer *et al*., 2012). Organic food consumption has increased significantly in many countries (Organic Food Global Market Report, 2021). The majority of Sri Lanka's population depends on agriculture and contributes significantly to the national economy. The agricultural sector contributes about 8.36% of the country's GDP (Central Bank Report, 2020). It is a major source of employment for rural residents. Sri Lanka is a country rich in biodiversity and favourable climatic conditions for organic food production (Sri Lanka Export Development Board, 2017). Some parts of the country have been practising traditional organic agriculture activities for many years. Because of these traditional agricultural activities, normal organic farming is not a novel concept in Sri Lanka. It relied on natural resources and inorganic chemical-free activities. However current organic agriculture is different from traditional organic farming in many aspects (Sri Lanka Export Development Board, 2017). So the current development of organic agriculture in Sri Lanka must be done in a way that protects the land for future generations, produces high-quality food and also uses sustainable farming methods. Furthermore, the profitability of organic production is similar to comparable conventional farms, with differences between products and countries (Sri Lanka Export Development Board, 2017; Weerawardana, 2014). Thus, organic farming has shown to be financially beneficial compared to conventional farming (Cidón *et al*., 2021). In addition to these changes, organic exports bring direct financial benefits (Vidanapathirana and Wijesooriya, 2014). The Presidential government prohibited the use of inorganic fertilizers. According to experts, the ban has shown up a reduction in yields. This resulted in a hike in food prices and lead to disbelief related to organic sustainability.

Elements responsible for Sri Lanka's food crises

Government policy to go complete Organic

President Gotabaya Rajapakse made it clear during his election campaign in 2019 under the theme "Vistas of Prosperity and Splendor " that in order to make a community which is healthy and productive, we need to make a habit of taking food that is free of harmful chemical contaminations. To ensure the people's right to such safe food, the entire Sri Lankan agriculture will be encouraged to employ organic fertilizers within 10 years, according to the election policy platform. President Rajapakse cited health concerns when he restricted the importation of agrochemicals in April 2021. The restriction on its importation was imposed last May 6th by an extraordinary Gazette Notification, following Cabinet approval for the proposal under the topic of "Creating a Green Socio-economy with Sustainable Solutions for Climate Change." The statement acknowledged that the use of chemicals improved crop yields but also damaged lakes, canals and groundwater. For more than two decades, mysterious kidney disease has spread among the farmers in rice-growing areas, puzzling both hydrologists and medical experts. The usage of pesticides in farming is considered to be the cause.

Costly fertilizer imports and subsidy

According to Central Bank figures, Sri Lanka imported $259 million in foreign fertilisers (including state and private sector) in 2020, accounting for 1.6 per cent of overall imports by value. According to sources, the 2021 import cost could approach $300-400 million based on current international rates. By limiting and/or banning costly foreign exchange draining fertiliser and agrochemical imports, the Sri Lankan government seeks to realise large import cost savings. Agriculture Faculty at the University of Peradeniya has warned that a sudden switch to organic fertiliser could result in crop decreases, resulting in massive food shortages within months. We spoke on the basis of science. Nothing will go well unless we make evidence-based decisions," he adds, disputing official allegations that they are being influenced. "Food security is national security," he emphasises, adding that "we must have sustainable policies to secure food security because relying on food imports from outside is pointless."

Stepping away from "Green revolution" technology

With many special interests at work, the government is learning the hard way that keeping farmers out of the use of chemicals in farming is not easy. It will require more careful planning and closer collaboration with farmers. In Sri Lanka, the agricultural production system is divided into two distinct and well-defined components. The first is the plantation section, which was established during the colonial period and consists of large units that produce perennial crops such as coffee, tea, rubber and coconut for export. The other sector is the smallholder sector, which includes small farms that produce the majority of the country's rice, vegetables, legumes, tubers, spices and fruits. While fertilisers and pesticides have long been utilized in the cultivation of plantation crops in Sri Lanka, most smallholder operations were maintained with no or little input from agrochemicals until several decades ago. During the so-called "green revolution" of the 1960s and 1970s, the country saw widespread use of artificial fertiliser, as well as high-yielding" seeds.

No or few training programs

Organic farming plays a major role in the sustainable development of a nation. We can expect healthier outcomes under proper policy implementation. In spite of the fact that after providing various training programs Sri Lankan government failed to provide sufficient levels of training to farmers. This was due to many problems and challenges. Meanwhile, farmers are increasing their use of pesticides over time (Kariyawasam, 2010). Currently, it is difficult to find the literature related to research on policies and programs in the field of organic agriculture in Sri Lanka. As a result, the overall purpose of this study is to examine the current state of organic farming and to suggest appropriate

policies for the development of organic agriculture in Sri Lanka. According to the survey conducted at Verite Research, only 35% of the farmers were having a decent knowledge of organic farming. Out of 10 farmers, 6 were lacking guidance on organic cultivation and also they have no access to experts (Ranwala, 2021).

What compelled the government to take this decision?

Sri Lanka's currency crisis

Its private banks have run out of foreign exchange to finance imports, which is critical for a country of 21 million people that depends upon international imports for food, fuel and other essential commodities. As a result, in March of last year, the government banned the importation of vehicles and other products, consisting of edible oils and turmeric, an essential spice in local cookery, to save foreign cash. Importers say they are still unable to obtain cash to pay for the food and medications they are permitted to purchase. The Central Bank of Sri Lanka raised interest rates two weeks ago to support the local currency. According to data from the Department of Census and Statistics, this increase over the last 12 months directly contributed to growing inflation in Sri Lanka, which went from 5.7 per cent in July to 6 per cent in August.

Fall of tourism industry

Sri Lanka, a net importer of food and other goods, is experiencing an increase in COVID-19 cases and deaths, which is affecting tourism, one of the country's key sources of foreign income. The tourism industry, which accounts for more than 10% of the country's GDP and generates foreign cash, has been severely impacted by the covid-19 pandemic. As a result, foreign reserves fell from more than $7.5 billion in 2019 to roughly $2.8 billion in July of this year. As the supply of foreign exchange has declined, the amount of money that Sri Lankans have had to pay to obtain the foreign exchange required to import commodities has increased. So far this year, the Sri Lankan rupee has been devalued by almost 8%. It should be highlighted that the country relies significantly on imports to cover even its most basic food needs. As a result, food prices have risen in parallel with the rupee's depreciation.

High inflation and rising debt

The Central Bank of Sri Lanka's printing of Rs. 800 billion during the previous 18 months to overcome the economic crisis has enhanced liquidity in the economy. However, the flow of money, as well as the resulting increase in demand without a corresponding increase in supply, has resulted in a dramatic boost in inflation. As a result, the currency has depreciated, making imports more expensive, adding to the debt and having a negative effect on the forex reserves.

How government actions worsen the crisis?

Despite the problem, Rajapaksa's administration has refused to quit its campaign for organic farming, stating that it will compensate for any short-term issues. The government provides organic fertilizers as an alternative to chemical fertilizers. The central bank of Sri Lanka has prohibited dealers from exchanging more than 200 Sri Lankan rupees for one dollar. Forward currency contracts have also been restricted for traders. Experts believe that the Sri Lankan government's actions may exacerbate the crisis. Imports have been also affected by these foreign exchange controls because overseas traders are often cautious to get into a transaction with a fluctuating currency. When demand exceeds supply, the application of a price ceiling on food will result in extreme shortages. Because the army seizes commodities from traders, there is little incentive for them to bring new supplies to market, exacerbating further shortages. According to the survey conducted at Verite Research, there is a comparison between the crop reduction expected and crop reduction experienced.

Through Vanguard Survey, a specialised poll company in Sri Lanka, Verité Research conducted this phone survey in July 2021 across 1,042 farmers. Farmers who grew crops for sale made up the sample in the survey, which was equally distributed throughout the nine provinces. Additionally, the poll only included farmers who have been farming for more than three years and cultivate more than half an acre. Farmers who grew rice, fruits, vegetables, coconuts, tea, minor export crops (spices) and cereal were the subjects of the survey.

Principal highlights

- More than 90% of farmers surveyed claimed they presently use synthetic fertilizers and nearly all (85%) anticipate substantial harvest decreases (on average, a 47% decline in yield).
- Nearly 80% of those who favour the government's plan to transition Sri Lanka to organic agriculture also believe that it would take more than a year to achieve this. Nearly two-thirds of the farmers who participated in the study indicated they support the government's vision for this (Fig 1).

Government response to the crises

The Sri Lankan government has blamed speculators for the hike in food prices, accusing them of stockpiling key commodities and declaring an economic emergency under the Public Security Ordinance (Dobhal, 2022). The army's job is to seize food supplies from traders and resell them to customers at a fair price. This ensures that foreign reserves are solely utilised for purchasing purposes. The Sri Lankan government has refused to step back from its strong push for 100% organic farming, stating that the short-term costs will be offset by long-term advantages. It has also offered to provide organic fertilisers as an option to farmers. Furthermore, Sri Lanka's central bank restricted traders from exchanging more than 200 Sri Lankan rupees for an American dollar or engaging in a forwarding currency transaction earlier this year.

Formation of national agriculture policy

On December 18, 2021, for the very first time, the expert committee was formulated at the Gannoruwa Horticultural Crops Research Institute to develop a National Agriculture Policy.

Mahindananda Aluthgamage, who is the Minister of Agriculture in Sri Lanka administered it. The 13-member committee was made up of specialists from a variety of sectors, including agriculture. Dr Ajantha de Silva, an additional secretary in the Ministry of Agriculture, presided over the committee. Mahindananda Aluthgamage, the minister of agriculture, asked the committee to create a national agriculture policy that serves the interests of the country within three months, ignoring political divisions or any other factors. In a limited three-month window, he asked the Expert Committee to develop this national strategy. The Minister emphasised the importance of the National Agriculture Policy for the growth of a productive economy and an independent economy based on the non-toxic foods outlined in the Vision of Prosperity as opposed to an import-dependent economy. Minister Aluthgamage asked the expert group to provide the government with the assistance it needs, pointing out that President Gotabhaya Rajapaksa is similarly intent on developing a national agriculture strategy that doesn't vary with administrations. It was highlighted that a sizable percentage of the farmer's income is spent on seeds, insecticides and fertilisers and it was proposed that the new programme should also include local production of those requirements. It was also mentioned that such actions should be made in the country's best interests to prevent a sizable sum of money from leaving and to benefit farmers' hands.

Key findings

- Farmers who grow paddy have the largest reliance on chemical fertilisers (94%) followed by those who grow tea and rubber (89%).
- The confidence in the information needed for the shift is low. Only 20% of the farmers claimed to have sufficient understanding of appropriate organic fertilisers and how to use them effectively in their crops.
- Farmers' top three demands to the government are:
  (1) Guidance and instructions on using organic fertiliser.
  (2) more time so that the transition can be gradual.
  (3) A consistent supply of organic substitutes (Fig 2 and 3).

Sri Lankan organic farming vs Indian organic farming

The goal of Sri Lankan organic transition should be admired, but the road map is unclear. First, the government's main failure is a lack of proper planning for organic farming. Organic farming, according to many experts and farmers, should be encouraged. However, it should be done gradually rather than all at once. As a result, the government requires the intellectual support of experts as well as the practical knowledge of farmers. In this case, the relationship between the government, farmers and experts is critical.

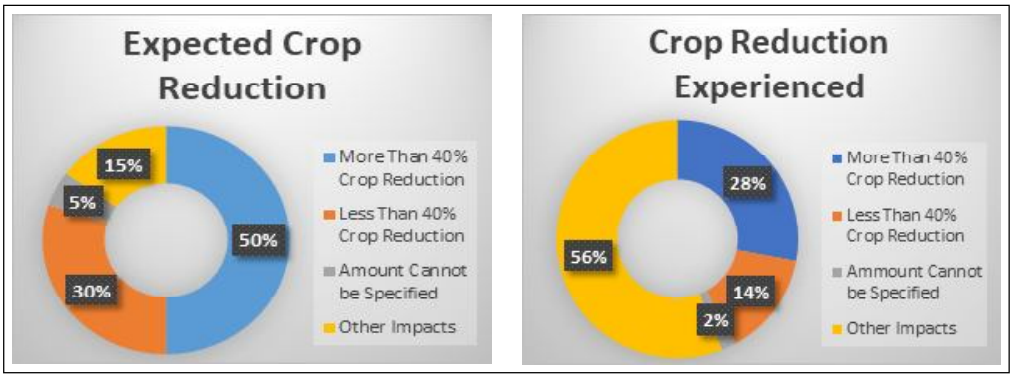

Fig 1: Data of expected crop reduction and crop reduction experienced during the crisis in Sri Lanka (Ranwala, 2021).

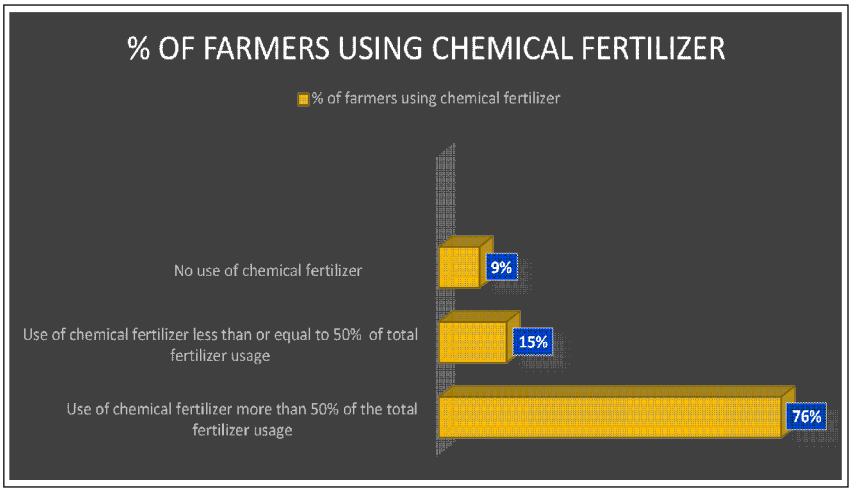

Fig 2: The percentage of farmers using inorganic fertilizers in Sri Lanka (Ranwala, 2021).

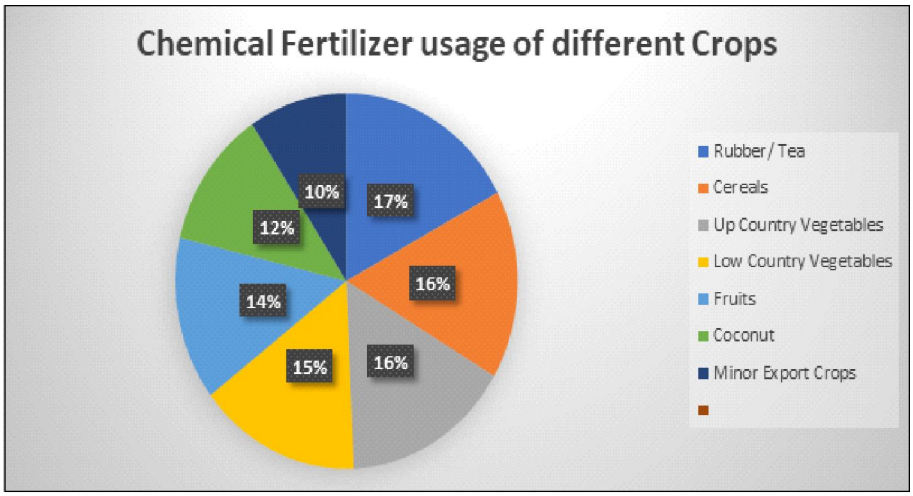

Fig 3: Usage of chemical fertilizer in Sri Lanka (Ranwala, 2021).

Table 1: The difference between Indian organic farming and Sri Lankan organic farming.

Category	Sri Lanka	India
Organic action plans	No action plan	Active action plan
Training programs	Medium active	Highly active
Awareness among domestic consumers	Lack of awareness	Good awareness
Government involvement	Low	High
Linkage between market and farmers	Poor linkage	Good linkage
Supply chain between organic products and processing industries	Not well organized	Well organized
Domestic market	Least focused	Active and highly focused
Collaboration between government and private sector with organic agriculture	To be improvised	Good collaboration

Ranwala, (2021).

In country like India, there are a large number of government schemes for organic farming like Parampragat Krishi Vikas Yojana (PKVY), Rashtriya Krishi Vikas Yojana (RKVY), MOVCDNER (Mission Organic Value Chain Development for North East Region), National Program for Organic Production (NPOP) *etc*. So, it can be clearly seen there is huge involvement of government. Here is a comparison between Sri Lankan organic farming and Indian organic farming (Table 1).

Future of organic farming in Sri Lanka

Organic agriculture is unlikely to play a substantial part in addressing the food production needs of Sri Lanka's development plans. This is due to the ever-increasing desire for more food and there are concerns that purely farming methods will not be able to supply this demand. However, the idea of exporting high-quality foods cultivated in sanitary circumstances without the use of agrichemicals, particularly pesticides, at premium pricing has gained traction. Some manufacturing units have already been created with great success and there appears to be room for expansion to fulfil export demand. These units could also be built as part of the state's self-employment initiatives to address unemployment. To meet the demand for organically cultivated products, export production villages might be simply built. Thus, rather than as a general agricultural programme, the future of organic farming in Sri Lanka looks prospective as an export or specialised commodities industry. Agriculture's future relies on increasing productivity and resource efficiency to produce more with less. Sri Lanka has already achieved this crucial point in both subsistence farming, which produces food crops and commercial agriculture, which produces exportable products. Any economic activity does not have an infinite supply of resources. A nation that overlooks this critical criterion would suffer in the long term, with diminishing production and incomes of everyone involved. This should be avoided at all costs. It is critical to create an environment conducive to organic farming through suitable laws, plans and supportive services in order to improve the supply of safe foods for national and worldwide markets. In order to effectively implement the "Organic Farming Policy," the government of Sri Lanka should establish an effective institutional system with short-term and long-term activities to recognise and develop the country's organic sector, which would result in the overall development of Sri Lanka's agriculture sector. To meet this goal in the near future, the Sri Lanka Export Development Board (SLEDB) has made recommendations to the Department of Agriculture.

Creation of a National Organic Agriculture Policy in order to advance organic agriculture in Sri Lanka's agriculture sector as part of SLEDB's specialised development projects. They must establish organic laws for the organic agriculture sector in the near future. The Sri Lankan organic sector establish a nationwide data repository to identify farmers interested in the organic farming industry. A platform for identifying farmers engaged in the sector, existing and future processing processes and so on. They should also create an institutional data repository for organic research in partnership with the Department of Agriculture, the Department of Export Agriculture, universities and research organisations. Furthermore, they should assist growers in obtaining certification for their organic products and hold workshops to spread information on new technology for manufacturing organic items that are already in high demand on the market.

However, with a significant concentration on research in the early phases, followed by a well-developed extension programme, government awareness can be directed toward organic agriculture. This has the potential to be a productive and successful operation for Sri Lanka, particularly as a specialised export-oriented enterprise that will create a much-needed foreign exchange for the country.

SUMMARY AND CONCLUSION

Sri Lanka's agricultural sector is the country's principal source of income. This sector is reliant on monsoonal rains, which are the key predictor of agricultural performance. Thus, the country is classified into three major agroclimatic zones depending on yearly rainfall, namely the wet, intermediate and dry zones. Sri Lanka's agricultural enterprises have traditionally been separated into two major components: perennial plantation crop production and peasant smallholder food production. Furthermore, traditional perennial spice crop units can be found as smallholdings in the moist zone of the mid-country. The peasant sector is divided into lowland rice-producing units and highland food, vegetable and cash crop production units. This industry is well-established and it used to produce the majority of the world's food requirements using primitive technologies. Because of our growing population and rapid industrial growth, demand for agricultural goods has far outstripped supply in recent years. Thus, intensive agricultural production units were built by the application of modern technology, particularly the application of fertilisers and other agricultural chemicals. This trend is shared by all systems due to increased demand for agricultural products rather than enhanced quality. Due to the high demand for greater production of agricultural goods, the condition of organic farming in Sri Lanka can be viewed as marginal. In the past, organic fertilisers and related goods were crucial to rural agriculture; however, this is not the case now. Additionally, some smallholder allotments could not utilise agrichemicals because they lack the money to buy the necessary inputs. In recent years, there has been an increase in demand for organically farmed agricultural goods in the developed world. This has resulted in the development of chosen units by interested people and non-profit organisations. These units manufacture items for export to specific markets. Several major Western customers have offered incentives for the construction of organic farming operations. To meet the need for export-oriented products, the scope of organic farming in Sri Lanka might easily be expanded. This could assist to alleviate the country's unemployment difficulties while also generating much-needed foreign exchange. Organic agricultural systems that are productive, economic and sustainable require research. When the scarcity of key essential goods ends, the government of Sri Lanka should take action to ensure the country's economic recovery. Instead of any other country, India must assist Sri Lanka in realising its potential to reap the benefits of a stable neighbourhood. The Sri Lankan authorities must guarantee that the current situation is not utilised to increase smuggling and trafficking or to incite emotion in the country.

Conflict of interest

All authors declared that there is no conflict of interest.

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