

# Soil Science Society of Sri Lanka



P.O. Box 10, Peradeniya  
Email: soilscisoclk@gmail.com  
www.SSSSL.org  
Established in 1969

16<sup>th</sup> May 2021

## Concerns of Soil Science Society of Sri Lanka on importing organic fertilizers to Sri Lanka

**President:**

Prof. W.A.U. Vitharana  
uvithara@agri.pdn.ac.lk

**Vice President:**

Prof. Indika Herath  
indikaherath@hotmail.com

**Secretary:**

Dr. W.S. Dandeniya  
warshisd@agri.pdn.ac.lk

**Treasurer:**

Mrs. Eranga Weerawardena  
erangaweerawardena@yahoo.com

**Editor:**

Dr. B.L.W.K. Balasooriya  
wajira.balasooriya@gmail.com

**Auditor:**

Dr. H.B. Nayakkorala  
hbnkorala@gmail.com

**Committee:**

Prof. Saman Dharmakeerthi  
dharmakeerthirs@gmail.com

Prof. Saman Herath  
samanherath4@gmail.com

Mrs.S.Maraikar  
smaraikar@yahoo.com

Dr Manoj Kodikara  
manojkodikara@gmail.com

Dr. Thusitha Amarasekara  
tusita123@gmail.com

Mr. W.D.L.Gunaratne  
gunaedipc@gmail.com

Dr. Avanthi Igalavithana  
adigalavithana@agri.pdn.ac.lk

Mr. Asiri Weerasinghe  
asiriwee@gmail.com

Mr. Neel Perera  
neel@cicagri.com

Mr. Upali Yapa  
usyapa@gmail.com

The Soil Science Society of Sri Lanka (SSSSL) is one of the oldest professional societies in Sri Lanka with a history of 52 years. The membership includes soil scientists representing the University Academia, Department of Agriculture, Department of Export Agriculture, Research Institutes, and the Private Sector. Thus, as one of the key stakeholders of the precious soil resource of Sri Lanka and agriculture at large, we believe that it is our responsibility to express our concerns on the importation of organic fertilizers to the country.

The SSSSL welcomes the initiative taken by the Government of Sri Lanka to introduce a Green Socio-economy using Eco-friendly technologies. In par with this, the plan is to promote organic-only agricultural systems in the country. Accordingly, the Government has decided to ban the importation of agro-chemicals including chemical fertilizers on 27<sup>th</sup> April 2021.

As a scientific community, we recognize the benefits of judicious application of good quality organic fertilizers to soil. Some of these benefits include improving soil fertility, increasing soil biodiversity, mitigating climate change, and enhancing water retention among many others. Thus, the application of organic fertilizers is considered to be an important practice in sustainable soil management. In Sri Lanka, recommendations for nutrient management are made based on the outcome of long-term research. Accordingly, all crop research institutes have included organic fertilizers along with chemical fertilizers in their current fertilizer recommendations as a supplement to meet crop nutrient requirements and/or as soil amendments.

Presently, animal wastes (cattle manure and poultry manure), green manure and compost are the most commonly used organic fertilizers by farmers. Application of these organic fertilizers is popular for vegetable crops, but not for rice and other crops including plantation crops. It is apparent that the use of organic fertilizers is limited at present due to several reasons such as poor quality, bulkiness, labor intensiveness and high cost of transportation. The subsidy scheme extended to chemical fertilizers stands as a major obstacle for the promotion of organic fertilizer usage in Sri Lanka. Further, the production and availability of organic fertilizers within the country are not adequate to meet the present recommendations of the crop research institutes.

Nutrient cycling in an agricultural system is not closed because with each harvest we are removing considerable quantities of nutrients from the soil. Therefore, we need to replenish at least the quantity removed through fertilizer application. Here we present two examples showing the requirement of compost (form of organic fertilizer commonly used in the country), for two crops, if the nutrient requirement is to be fully supplemented with organic fertilizers.

- From a field that produces a yield of 5 t/ha paddy, about 50 kg nitrogen (N) is removed from the soil with every harvest. To replace at least the amount of N removed back to the soil, we need to apply 8.6 tons compost containing 2 % N, 20 % moisture and having 35% efficiency during the initial 3-5 years. At a very nominal price of Rs.12/kg of compost, a farmer has to spend about Rs. 103,000/ha. In comparison if he applies chemical fertilizers the cost works out to only Rs. 26,000/ha (without subsidy).

- For tea, the situation is almost similar. In a field that produces 1.7 tons made tea/ha/year, the N outflow from the soil is nearly 60 kg, and to replenish this using compost, the planter has to apply about 10.2 tons compost per hectare costing nearly Rs. 122,400/ha. In comparison, the cost of chemical fertilizers works out to only Rs. 72,000/ha (without subsidy).

Also, to compensate for the nutrients removed with every harvest, these quantities need to be repeatedly applied to obtain such yields every season. Depending on the biological fertility of the soil the amount to be applied as compost could be slightly lower than the above estimate. However, when making recommendations with organic fertilizers as the sole nutrient source, crop responsiveness is also need to be considered. Compost only nutrient management practices will not be economically sustainable especially for the large-scale producers. Integration of animal manures, N-fixing biofertilizers and/or high N containing other liquid organic fertilizers into nutrient management strategies in organic only agriculture will ease out the need for very large quantities of compost to some extent.

Application of liquid organic fertilizers containing high N content is however challenging in tea, because foliar applications may leave residues which could affect the flavor and the export quality standards of tea. Further, the application of liquid organic fertilizers cannot provide the expected benefits on soil health as its contribution to improve soil nutrient pools and soil organic carbon is minimal.

Based on total extents, for rice and tea alone, the requirement of organic fertilizer having at least 2% N content would be 11.5 million tons per year. When the recommendation is made to go 100% organic, then the availability of materials would be the main constraint. To meet the nutrient demand for crop cultivation and assure food security the country will have to consider importing organic fertilizers.

Here we wish to highlight our major concerns on the importation of organic fertilizers and we kindly request the Government to give due consideration to the following facts before rushing to take a decision to import organic fertilizers.

### **Reasons for our concerns on importing organic fertilizers**

- There is a risk of introducing invasive species, weeds, pathogens (including zoonotic pathogens which are naturally transmitted from animals to humans such as viruses, bacteria, protozoa and helminth parasites) through imported organic fertilizers. Such organisms could cause disease outbreaks in crop, livestock and human society leading to heavy economic losses. Facilities available in the country to test for biological contaminants are not adequate and not up to date.
- Biofertilizers, a group of fertilizers often considered under organic fertilizers, are preparations containing large number of living microbial cells with high ability to colonize soil. Thus, imported biofertilizers may directly introduce alien species threatening the biodiversity and functioning of the agricultural systems largely driven by the microbial activity. Importation of biofertilizers should not be considered at all.
- Organic fertilizers are usually added in large quantities and that means contaminants will also be applied in large quantities posing a high risk of contaminating our soils and water resources. Once the pollutants enter into our Eco-systems and destroys it, it is not easy to recover from the damage.
- Currently, a strict regulatory framework is not in place in the country to ensure biosafety, quality, handling and safe use of the imported organic fertilizers.

- There are no standards in place or facilities available to test for emerging pollutants (micro-plastics, antibiotic residues, organic pollutants, biological contaminants etc.) which are commonly found in organic fertilizers.
- The Government will have to import only certified products where there is traceability to identify the source materials and ascertain quality and such products will be expensive. This will lead to increased cost of production and ultimately high prices of agricultural produce which will have negative effects on both local and export markets.
- Local products available at present cannot compete price-wise with products in international markets. Hence, importation will discourage local production of organic fertilizers.
- Importing bulk quantities of carbon rich organic fertilizers is not favorable in carbon footprint. This will affect our claims in carbon trading and certification of export goods.

**Based on the facts we have set forth, as a Scientific Society, we are not in agreement with importing organic fertilizers.**

Until such time when we reach self-sufficiency in good quality organic fertilizers, we recommend practicing integrated plant nutrient management, a widely adopted practice in many parts of the world and scientifically proven to be economically feasible and environmentally sustainable. Here, we wish to propose actions to be undertaken during the transition to an eco-friendly organic fertilizer-based agriculture.

**The way forward for an eco-friendly organic fertilizer-based agricultural system**

- Develop animal husbandry to obtain raw material.
- Expand the cultivation of green manure crops in marginal lands.
- Develop and introduce regulations to ensure quality production and proper usage of organic fertilizers.
- Provide incentives to promote commercial scale production of organic fertilizers (compost, bio fertilizers, liquid organic fertilizers, etc.) and develop new technologies.
- Strict regulations and mechanisms need to be established for source separation of municipal bio-waste to produce good quality compost at municipal and *Praadeshiya Saba* level.
- Use biological resources within the country to produce good quality bio-fertilizers and liquid organic fertilizers.
- Promote mechanized compost production.
- Identify value chains and means of supporting circular economy to improve resource use efficiency within the country for the betterment of agricultural production.
- Promote on-farm production of organic fertilizers.
- Practice proper land-use planning to improve resource use efficiency.
- Continue research to identify organic fertilizer requirements for different crops and optimize recommendations, production potentials of organic fertilizers and impacts to the national food production.
- Assess the impacts on soil carbon storage and soil fertility improvements under gradual transition to organic fertilizer usage so that we can claim for carbon credits.
- Promote research to generate long term data base on green Socio-economic Agriculture.
- Make decisions based on well informed and time-tested scientific facts rather than polarizing towards ideas of few scientists.

The SSSSL welcomes the policy initiative of the government of Sri Lanka to promote the usage of organic fertilizers in the agricultural sector of Sri Lanka. We have no doubts on the benefits of using organic fertilizers and the expected improvements to the soil and environment. However, we request you to give due consideration to the concerns we have set forth in this document.



Prof. W.A.U. Vitharana  
President/SSSSL



Dr. W.S. Dandeniya  
Secretary/SSSSL



Dr. B.L.W.K. Balasooriya  
Editor/SSSSL

16<sup>th</sup> May 2021

**N.B. This document is a report forwarded to the His Excellency the President of Sri Lanka on 16/05/2021 with the letter ref. SSSSL/HE/2021/01 by the Soil Science Society of Sri Lanka.**