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POLICY BRIEF

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Import Ban on Chemical Fertilizers and Other Agrochemicals: Short-term Impacts on Vegetables

Sri Lanka imposed a ban on chemical fertilizer and other agrochemical imports in May 2021 and declared a complete shift to organic agriculture. Soon after the farmers completed the cropping season under the changed policy, the Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) conducted a survey of vegetable farmers (from August to September 2022) to determine the short-term impact of the policy change on vegetable production and the farmers themselves.

As a result of lower chemical fertilizer application, a substantial yield gap before and after the policy change was reported for all vegetables considered despite the use of organic substances. This resulted in a strong contraction of agricultural output, considerable welfare losses and negative implications for food security. The farmers broadly believed that a combination of organic and chemical fertilizers is more appropriate given the existing vegetable cultivation systems. The negative impact of the conversion to organic agriculture was much higher due to the unavailability of quality organic inputs on time, as well as the lack of knowledge and time to make the transition.

21 percent
reduction in vegetable land extent under cultivation

57 percent
reduction in average yield per acre

95 percent
of farmers believed main reason for yield loss was related to fertilizer policy

66 percent
of farmers believed a combination of organic and chemical fertilizer is most suitable for vegetable cultivation

Background

The government of Sri Lanka has implemented various fertilizer subsidy policies over the last six decades with a view to ensuring the nation's food security while making agricultural systems more productive and economically sustainable. On 6th May 2021, the government enacted the Import and Export (control) Regulations No. 7 of 2021 which banned the importation of chemical fertilizers and other agrochemicals into the country. Subsequently, the Extra Ordinary Gazette No. 2256/23 dated November 30, 2021, was issued by the Finance Minister allowing the ban on chemical fertilizers to be lifted with effect from November 30, 2021.

HARTI, with the financial assistance of World Food Programme (WFP) conducted a nationally representative survey among vegetable-growing farmers to find out the short-term impact of the policy decision on the vegetable sector. The survey covered main vegetable-producing districts namely Anuradhapura, Badulla, Nuwara Eliya, Kandy, Kurunegala, Hambantota, Moneragala, Polonnaruwa and Puttalam. Data was collected from August to September 2022 from randomly selected 788 farmers cultivating major vegetables (beans, cabbage, tomato, luffa, okra, and brinjal) based on the production extent and statistics. The 2020/21 Maha season data before the policy change was considered as the baseline and it was compared to data from the 2021/22 Maha season.

The survey yielded five major findings that are of importance to decision-makers;

- ❖ The sudden change in fertilizer policy has created a reduction in land under vegetable cultivation.
- ❖ Irrespective of the type of vegetable and location, a reduction of more than 50 percent in the average yield was observed.
- ❖ More than 80 percent of the farmers have applied at least one type of chemical fertilizer even if in lesser quantities than recommended.

- ❖ The majority of vegetable farmers believed the availability of quality fertilizers at a reasonable price in the open market is more important than a subsidy.
- ❖ Unavailability of quality organic fertilizers at the required time, lack of information and knowledge to transition to organic farming, unregulated quality and prices of fertilizers adversely affected farmers.

Overall, the survey findings suggest that policymakers should promote a shift from the high chemical input-dependent conventional method of cultivation through policies that support more environment friendly sustainable agriculture, reduce the burden of subsidies while considering views of the farmers. However, it should be a gradual process.

Average vegetable harvest declined by more than 50 percent

Survey findings revealed that up-country and low-country vegetable production output significantly declined in the 2021/22 Maha season when compared to the normal 2020/21 Maha season. Estimated average yield loss in the 2021/22 Maha season as a proportion of the normal season average yield shows a production loss varying from 0 to 100 percent. On average, farmers experienced more than 57 percent average yield loss per acre. They experienced this yield reduction despite using some chemical fertilizers in combination with organic fertilizers.

Chemical fertilizer and pesticide use after the policy change

At the time of conducting the survey, the ban had created a shortage of chemical fertilizers in the market, depriving farmers of the required quantity of fertilizers. As result, 18 percent of the surveyed vegetable farmers did not apply any chemical fertilizer to their plants after the policy change. Farmers resorted to applying smaller quantities of chemical fertilizers purchased at an exorbitant price in order to safeguard their harvest.

Under normal circumstances, the percentage of farmers who do not apply pesticides is negligible. However, with the ban on fertilizer imports, that number rose to 19 percent. When agro-chemicals are readily available at lower prices on the market, more than 69 percent of the respondents indicated that they spray three or more rounds of pesticides on the crops. In contrast, soon after the agro-chemical restrictions were imposed, the same farmers said that they applied less rounds of pesticides.

Farmer experience on organic fertilizer availability, use and quality

Before the government declared an organic movement, 64 percent of the vegetable farmers applied organic fertilizers to their crops with the understanding that it improves the soil and helps moisture retention. Eleven percent of the farmers said that they have been producing organic fertilizer even before the policy change while 27 percent started it after the policy change. However, the majority (61 percent) of vegetable farmers could not make the organic fertilizer by themselves and resorted to purchasing it from the market. Furthermore, farmers noted that it was difficult to find required large quantities of organic fertilizer, high labor requirements and that applying organic fertilizer alone is not economically sustainable for commercial vegetable cultivation.

Farmer perception on plant nutrient management and fertilizer subsidies

The majority (66 percent) of respondents believed that the most effective and sustainable plant nutrient management method is a combination of both organic and inorganic fertilizers. In contrast, 33 percent believe that applying only chemical fertilizer is the most suitable way while less than 1 percent believe that the required nutrients can be provided by organic fertilizers alone.

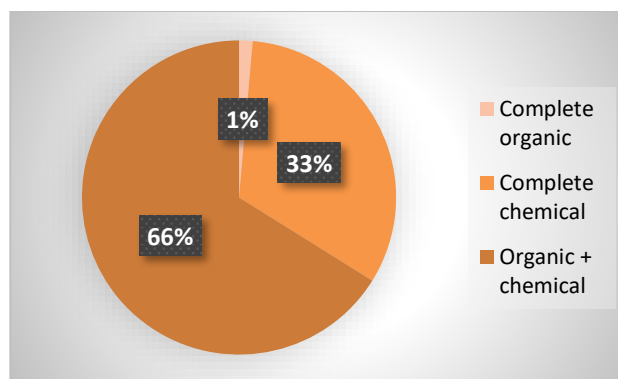


Figure 1: Farmer Preference Based on Type of Fertilizer

Given the current scenario of high cost and low availability of chemical fertilizers, farmers were asked whether they expect the government to provide chemical fertilizer by means of a subsidy in the future. More than two-thirds (67 percent) of the surveyed farmers indicated that they do not need subsidized fertilizer but prefer to buy quality fertilizer at a reasonable price on the open market.

Food security of vegetable growing households

The survey studied the impact of the policy change on sampled households' food security. The results provide evidence that 37 percent of households were food secure while 43 percent were marginally food secure whereas 19 percent were moderately food insecure. About 1 percent were in the category of severely food insecure. These figures imply that majority of the vegetable growing farmer households surveyed were not at a life-threatening stage of food insecurity.



Figure 2: Food Security Status of Vegetable Farmers

Conclusions

A substantial yield gap before and after the policy change was reported for all vegetables considered despite the use of organic fertilizers and some chemical fertilizers. This resulted in a strong contraction of agricultural output, substantial losses in welfare and negative implications for food security. Over-reliance on imported chemical fertilizers and subsidized prices are not sustainable from economic and environmental points of view. Therefore, while it is necessary to change the conventional method of cultivation, it should be a long term stepwise process. To reach this objective, further modifications (e.g., with regard to alternative nutrient management systems, pest and disease control) in cropping systems are necessary to narrow the current yield gaps and to develop truly holistic sustainable farming systems.

In short-term government intervention is needed to stabilize and regulate the price and quality of the fertilizers available in the market.

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