Impact of Banning Agro-Chemical on Low-Country Tea Production

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Abstract - The smallholding tea industry plays a significant role in the Sri Lankan economy for over a century as the main source of foreign exchange and employment provider. Due to the sudden implementation of banning Agro chemicals importation, the tea industry in Sri Lanka was greatly affected. This study assesses the effect of Low country tea smallholders' production before and after the chemical policy implementation examining the production level of fresh leaves supplier, factory production, factory distribution/farmers' purchasing of chemical and organic fertilizer(compost). Paired samples T-test and descriptive data analysis are used to analyze the production and supply data. Mean monthly fresh leaves supply quantities from April 2020 to March 2021 (46041.3Kg) and from April 2021 to March 2022 (39383.75Kg) showed a significantly different ($P<0.05$) before and after the banning policy. Moreover, the mean monthly factory tea production quantities from April 2020 to March 2021 was 49196.8Kg and from April 2021 to March 2022 was 41888.5Kg and showed a significant difference ($P<0.05$) from the production before the banning policy. Accordingly, it can be concluded that the banning policy has significantly affected the low country tea sector impacting factory production and processed tea production due to the reduction of tea Smallholder production and processed tea production due to the reduction of fresh tea leaves supply and fertilizer distribution. Gradual implementation of the banning policy with effective feasibility analysis would avoid the negative impact banning policy on the tea farmers.

Keywords: Banning policy, Chemical fertilizer, Compost quantity, production, Tea Smallholders

I. Introduction

Sri Lanka is well known as an island made for tea. In 2021, the tea industry's contribution to GDP was 0.7% and contribution over US$1.3 billion to the economy of the country [1]. Tea planting by smallholders is the source of employment for thousands whilst it is also the main form of livelihood for tens of thousands of families [2]. Sri Lanka is the world's fourth-largest producer of tea and the Ceylon tea industry maintains the highest quality in the global tea marked ISO 3720 is the minimum standard applies for the products [3]. The government passed a policy banning the import of chemical fertilizers, disrupting tea production in the country which is a major source of foreign exchange [4].

II. Methodology

The survey was conducted to analyze how the impact of banning the importation of chemical fertilizers on small tea industry production by studying the information 12 months before and after the implementation of the policy

The survey was conducted in the Neluwa area, Galle district, a southern province in Sri Lanka. Data was collected from 300 plantations/ farmers (randomly selected) from one factory, Madagama tea factory, Tea Smallholder Factories PLC, Neluwa.

A. Production of tea plantation before and after the agrochemical banning policy

Study on how the policy of banning the import of chemical fertilizers affects the production of tea plantations. 300 randomly selected farmers' fresh tea leaves supplied quantities were analyzed. The policy implementation and impact on production were studied by studying the monthly fresh leaf supply to the tea. factory within 12 months (from April 2020 to March 2021 and from April 2021 to March 2022).

B. Production of tea factories before and after the agrochemical banning policy

The impact of the policy of banning policy on the production of the factory was analyzed in this study for the period of 12 months, from April 2020 to March 2021 and from April 2021 to March 2022.

III. Results and Discussion

Impact of Prohibition/Banning Agro-Chemical on monthly fresh tea leaves supply

The mean monthly leaves supply quantities from April 2020 to March 2021 (46041.3 Kg) were higher than the mean monthly leaves supply quantities (39383.75 Kg) from April 2021 to March 2022 and there was a statically significant difference ($P<0.05$) of the mean monthly leave supply in these two time periods. From April 2020 to March 2021 monthly supply of tea leaves quantities gradually increased up to December 2020 and then fluctuated. From April 2021 to March 2022 monthly supply of tea leaves quantities gradually decreased up to December 202l and then fluctuated. The Higher differences in monthly fresh tea leaves supply of two periods were observed from October to December each year. Prior to

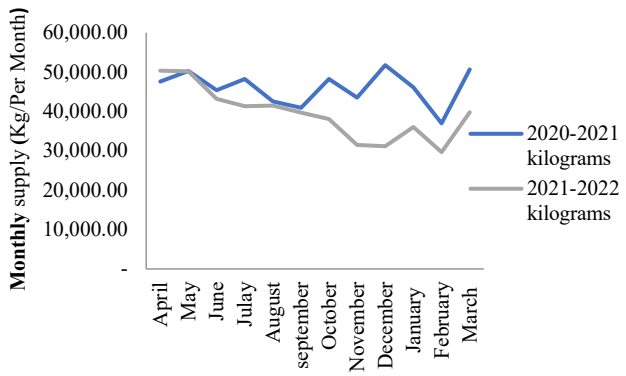

Figure 1. Impact of banning Agro-chemical onmonthly fresh tea leaves supply in two periods(Mean±SEM,n=12)

the implementation of the banning policy, the supply of fresh tea leaves to the factories was at an optimum level in the years 2020 and 2021. According to the previous analysis [5]. the absence of chemical fertilizer would drastically reduce the productivity of the Vegetative Propagated Tea with a 35 percent productivity drop.

Table 1. Kilograms per month production of processed tea (before chemical banning: from April 2020 to March 2021 and after chemical banning: from April 2021 to March 2022)

Month	kg/month (2020-2021)	kg/month (2021-2022)
April	48207	51302
May	49247	50378
June	47302	45445
July	48246	44151
August	46566	43045
September	42012	43019
October	53262	41782
November	49465	33292
December	58295	35717
January	51242	40668
February	40834	32251
March	55684	41613

Furthermore, the mean monthly factory tea production quantities (49196.8Kg) from April 2020 to March 2021 were higher than the mean monthly leaves supply quantities (41888.5Kg) from April 2021 to March 2022. Tea production difference between the two time periods showed a statically significant difference. From April 2020 to March 2021 monthly factory tea production quantities gradually increased up to December 2020 and then fluctuated. From April 2021 to March 2022 monthly tea production of the tea factory quantities gradually decreased up to December 202l. The Higher differences in monthly tea production of the tea factory in two periods were observed from October to December in each year. Analyzing the data on monthly green leaf supply and monthly tea production, it appears that there is a relationship between the two variables.

IV.Conclusions

This study showed that the Agro chemical importation banning policy has a significant impact on Smallholders' tea production and processed tea production due to the fresh leaves supply reduction. Therefore, the banning policy has a considerable impact on the low-country tea industry in Sri Lanka.

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