

# Impact of COVID-19 on the Use of Agricultural Machinery and Fertilizers

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## ABSTRACT

During the period of Covid-19, some changes have taken place in the lifestyle of farmers in Bangladesh. Notable among these are various machinery and fertilizers used in agriculture. A survey was conducted for data which is used for making a correlation among the characteristics. That is done by IBM SPSS. Through this, it can be understood which characters affect the farmers most.

**Keywords:** Bangladeshi Farmer; Agricultural Machinery; Fertilizers; Farmers Life; Covid-19; Impact of the Pandemic

## Introduction

Agriculture has advanced significantly with the advancement of the modern world [1]. Agriculture is one of the main sources of livelihood for the people of Bangladesh [2]. Despite this, in Bangladesh, this sector is less developed than in other countries in the world. Different types of machinery are used by farmers in agricultural fields in Bangladesh. Power tiller, tractor, rotary tiller, knapsack sprayer, rice transplanter, weeder, combine harvester, reaper, thresher, maize sheller, diesel engine, low lift pump, deep tube well, shallow tube well etc [2,3]. are the main agricultural implements used in this country. Urea, TSP, MoP, Zinc sulfate etc. fertilizers are used most by Bangladeshi farmers in the agricultural field. COVID-19 is a curse that has brought about a drastic change in the standard of living of all ordinary people [4]. As a result of coronavirus, many people became poor and disappeared. When there was a lockdown in the whole of Bangladesh [5], the farmers also did not get the necessary agricultural machinery and fertilizers for their agricultural fields. The main objective

of this study is to find out the main factors which influenced the availability of machinery and fertilizers. Another ordinary goal is to find out how much machinery and fertilizers farmers currently use in agriculture. By collecting data from the survey, a correlation between the availability of types of machinery and fertilizers with certain specified characteristics has been established and a result has been obtained.

## Methodology

The survey took place in Bangladesh's Kushtia district. 345 farm families (70 percent of all farm households) are chosen at random. The survey is conducted using the 'face-to-face' interview method [6]. Some main agricultural machinery such as Power tiller, tractor, rotary tiller, knapsack sprayer, rice transplanter, weeder, combine harvester, reaper, thresher, maize sheller, diesel engine, low lift pump, deep tube well and shallow tube well were selected for this study (Table 1). Urea, TSP, MoP and Zinc sulfate fertilizers

were selected for fertilizer analysis. A questionnaire was prepared with the question about those types of machinery and fertilizers used on average. A perfect interview schedule was prepared for collecting accurate and appropriate, valid information from the farmers from 3 March to 23 March 2021. The information obtained via a questionnaire was analyzed using Microsoft Excel and IBM SPSS Statistics 25 [7]. The Diagram Interpretation method [8] (bar diagram showing comparative differences) and Spearman's rank correlation coefficient was utilized to assess the relationship [6,7] between availability of machineries and fertilizers and selected characteristics.

**Table 1:** Bangladesh's current farm machinery list.

Operations	Farm Machinery
Tillage	Power Tiller
	Tractor
	Rotary Tiller
Spraying	Knapsack Sprayer
Seeding	Rice Transplanter
Weeding	Weeder
Harvesting	Combine Harvester
	Reaper
	Thresher
Threshing	Maize Sheller
	Diesel Engine
	Low Lift Pump
Irrigation	Deep Tube Well
	Shallow Tube Well

## Result and Discussion

Almost all types of machinery availability become decreased due to the effect of COVID-19. Power tiller, tractor, rice transplanter, weeder, combine harvester, reaper, diesel engine, deep tube well and shallow tube well are notable among them (Figure 1). COVID-19

could not have an effect on the used sir because fertilizer is very essential for crop growth and the farmers have tried their best to make fertilizers available even in these difficult times (Figure 2). To establish a relationship between the availability of agricultural machinery and fertilizers and the selected characteristics, the correlation coefficient (Spearman's Rank Order) is utilized. Financial crisis has a strong negative correlation (Table 2) with the availability of machinery and fertilizers. Communication with seller and vehicle movement has a strong positive correlation with the concentrated parameter. So, they can create a role on the availability of agricultural product [9].

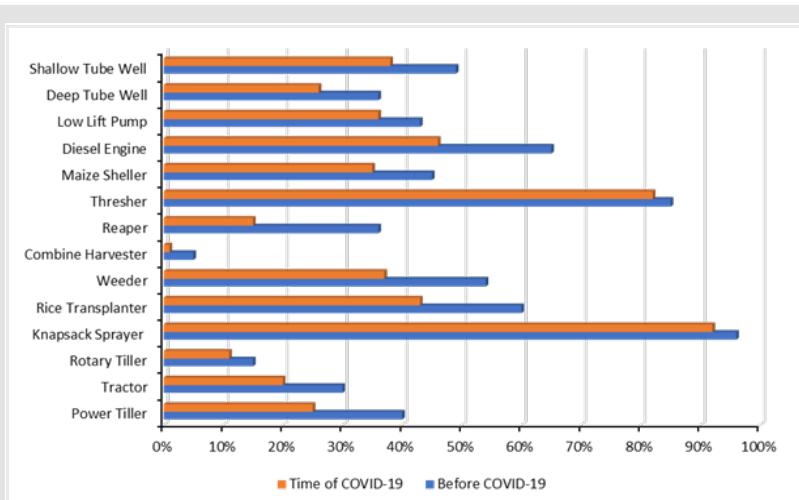
**Table 2:** Correlation between Concentrated parameter and selected characteristics (significant at 0.05 level).

Concentrated Parameter	Characteristics	Coefficient of Correlation
Availability of agricultural machinery and fertilizers	Communication with seller	0.563*
	Communication with extension officer	0.426
	Financial crisis	-0.691*
	Vehicle movement	0.523*
	Farmer's knowledge about COVID-19	0.265

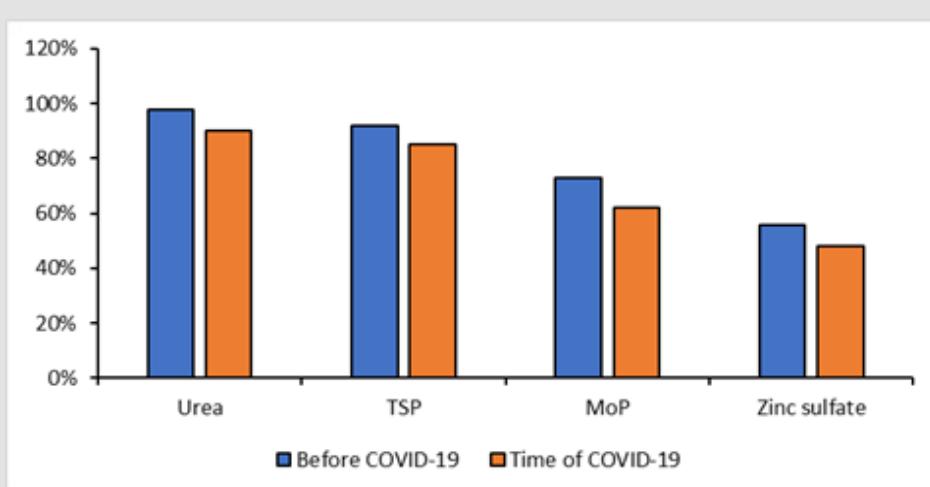
Note: \*Strong significant correlation.

## Conclusion

This study tries to find out the suffering of farmers due to COVID-19. Through this study, it is easy to understand that due to the financial crisis of the farmers, they did not get the opportunity to use the agricultural machinery and fertilizer properly. At the same time, due to the COVID-19 transport system of Bangladesh became almost stopped, which had a profound effect on the availability of machinery and fertilizer. As a result of this study, the general public, including farmers, will be able to take the right steps before any future disaster strikes.



**Figure 1:** Variation of the use of different types of machinery During the COVID-19.



**Figure 2:** Variation of the use of fertilizers During the COVID-19.

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