RESEARCH ARTICLE

Paddy farmers' attitude on cash grant as the fertilizer subsidy: A case in Badulla district of Sri Lanka

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Submitted: August 10, 2018; Revised: October 12, 2018; Accepted: November 26, 2018
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ABSTRACT

In Sri Lanka, fertilizer subsidy programme was simultaneously implemented with the introduction of high yielding paddy varieties. Since then, a number of changes were undertaken with regards to the fertilizer subsidy policy. A significant change happened during 2016 with the introduction of cash grand (fertilizer allowance) programme as an alternative for the fertilizer subsidy. Objectives of the study were to analyse the socio-economic characteristics of farmers and their attitude towards the alternative cash grant for the fertilizer subsidy, to evaluate the effect of cash grant on fertilizer usage and paddy yield and also to identify the strengths, weaknesses, opportunities and threats of cash grant programme. A field survey was conducted to collect data from 120 farmers in Badulla from August to October 2017. Statistical tools including one sample t-test, Wilcoxon signed rank test and paired t-tests were used to analyse the collected data, along with descriptive statistics. As per the results, majority of the farmers were male and their general education level was up to ordinary level. They had a positive attitude towards providing a cash grant. However, they had showed a negative attitude on the amount of the cash grant programme and the time of receiving it. Furthermore, there was a reduction in fertilizer usage and paddy yield because of the cash grant programme. Reduction of wastage and corruptions of politicians, support of farmer organization and Convenience of providing an alternative cash grant for farmers were identified as strengths of fertilizer allowance while farmers' negative attitude was a weakness about this alternative solution. Apart from that, possibility of transforming into organic agriculture, using quality fertilizer, low production cost and environmental protection were recognised as opportunities of the cash grant. In contrast, higher market price of fertilizer, time of receiving and tenant farmer conflicts were recognised as threats of cash grant programme. Therefore, it is required to make the cash grant program efficient and effective in future. Furthermore, arranging training and education programmes for farmers in order to adapt organic agriculture is timely important.

Keywords: *Badulla district, cash grant, fertilizer subsidy, organic farming, paddy farmers*

INTRODUCTION

Paddy (*Oryza sativa*) is one of the most important crops in Sri Lanka and it plays a vital role as the staple food of Sri Lankans. It also plays a major role as a part of rural agriculture and economic setting. Growth rate of paddy cultivation was reported as 23.3% in 2015 (Department of Census and Statistics, 2015). It provides livelihood opportunities for more than 1.8 million farmers and 30% of total Sri Lankan labor force directly or indirectly (Weerahewa *et al.,* 2010). In Sri

Lanka annual production of rough rice is 2.7 million tons and it fulfills the 95% of domestic rice requirement. Per capita consumption of rice is fluctuating around 100 kg year^{-1} (Weerahewa *et al.,* 2010). The total land devoted for paddy is estimated to be about 708,000 hectares at present (Department of Census and Statistics 2015).

The Paddy sector bears a great importance in the economy because it is a major livelihood activity in rural communities. Since independence, the successful of Sri Lankan government specially evaluated while focusing on paddy sector. The governments have been investing in many aspects of paddy sector in long term basis for the improvement of the paddy sector. Some of them are; government established policies and programmes such as irrigation projects, land settlement schemes, concessionary credit schemes, extension services, setting of guaranteed input and output prices and seed provision at concessionary rates. Among all these government programmes, the policy of fertilizer subsidy is one of the most expensive, political sensitive and long lasting programmes in the country (Weerahewa *et al.,* 2010).

Respective governments in other counties also have invested considerable amounts of input subsidies for agriculture sector. The major objective of these input subsidies is for the food security through higher and uninterrupted agricultural productions (Benson and Minot, 2009). Rodrigo and Abeysekera (2015) reported that even though, the fertilizer subsidy schemes are major financial burden to the government budget, they are the main agricultural intervention in developing countries.

In Sri Lanka, the fertilizer subsidy programme was implemented since 1962 (Wijetunga and Saito, 2017). This was adopted in Sri Lanka as a result of a Green Revolution. The major purpose was to promote High Yielding Varieties (HYV). HYVs are more responsive to inorganic fertilizer and provide high production. After the introduction of fertilizer subsidy programme, many changes were done to it time to time according to fertilizer price, fertilizer type, eligible crops and subsidy method (fixed or variable) (Herath *et al.*, 2013). However, the paddy sector became a major recipient of programmes because rice is the staple food of Sri Lankans.

Since 1962, the fertilizer subsidy has become a considerable proportion of government expenditure. The three main nutrients (nitrogen, potassium and phosphorus) were provided through Urea, MOP (Muriate of Potash, and TSP (Triple Super Phosphate), respectively (Weerahewa *et al.,* 2010). Rodrigo and Abeysekera (2015) revealed that there were two types of fertilizer subsidy programmes from 1962 to now as full subsidy and urea-only subsidy. Under full subsidy type, the government provided subsidised fertilizer for the main three nutrients. Under urea-only subsidy system, government subsidised the fertilizer, which provides nitrogen requirement. During the period from 1962 to 1989, the full fertilizer subsidy programme was implemented and the subsidy rate was

changed in early 1980s due to high price of fertilizers in the world market. During the period from 1990-1994, there was no fertilizer subsidy programme in Sri Lanka due to high fertilizer and oil prices in the international market. In 1995, the full fertilizer subsidy programme was reintroduced and implemented until 1996. During the period 1997 – 2004, urea-only subsidy programme was implemented. The full fertilizer subsidy programme was restarted to implement since 2006 with the fixed price of Rs. 350 per 50 kg bag of without concerning the fertilizer type. From the 2016 budget proposal, the fertilizer subsidy was converted to a voucher system also known as cash grant or fertilizer allowance.

From previous fertilizer subsidy programmes, the subsidised fertilizer was physically provided with the involvement of government institutions. Therefore, farmers have to request only the required amount of fertilizer according to land extent. The current programme is completely different from previous programme types. Government provides a cash grant for farmer according to the land extent cultivated by the farmer and farmer can buy the fertilizer for himself. This implement has a potential as a bid change from chemical agriculture to sustainable organic agriculture (Weerasinghe, 2015). Other than that, it encourages farmers to incorporate good quality fertilizer for their cultivations.

Farmers complained that this alternative cash grant is not sufficient to buy required amounts of fertilize and there is a fertilizer shortage as a result of stockpiling by traders (Wijetunga and Saito, 2017). Price level for a 50 kg bag for urea was set at Rs. 350 in 1994, and Rs. 600 in 1996, Rs. 350 in 1997 – 2002, Rs. 800 in 2003, Rs. 600 in 2004 and Rs. 550 in 2005 (Weerahewa *et al.*, 2010). Recently, the market price of a 50 kg bag of the urea TSP and MOP has risen to Rs. 2,641, 2,829 and 3,014, respectively. This means that farmers now have to pay more than 6.5 times higher price for fertilizer compared to the previous price of Rs. 350.

Even though, the fertilizer subsidy programme in the year 2016 is novel and different from previous programmes, there are limited numbers of studies conducted regarding the adoption of this programme. As the subsidy programmes have different natures compared one from another, it is important to identifying the farmers' attitude towards the cash grant instead of fertilizer subsidy, fertilizer usage and the effect of subsidy on paddy yield to measure the success of the programme and to eliminate the barriers for adoption. Thus, this study is carried out to find out the farmers' attitude towards the alternative cash grant programme instead of fertilizer subsidy programme paying attention on one of the critical issues exist in the country at present.

Literature

Fertilizer subsidy programmes in foreign countries

In other countries, fertilizer subsidy programmes are implemented in different ways. Some of them provide fertilizer inputs, voucher/coupon system, cash

payment, and reduction of market price or subsidy for transport (Wijetunga and Saito, 2017). Hedley and Steven (1989) revealed that the fertilizer subsidy programme of Indonesia started in 1971 to promote cultivation of high yielding varieties (HYV). That was one component, which is associated with the HYV package of input and it gained considerable part of the Indonesian budget. The effect of high level of fertilizer and HYV on elasticity of major food crops and Indonesian economy ensured the re-assessment of fertilizer subsidy. They also revealed that the operation of subsidy in Indonesia followed by the demand and supply elasticity of fertilizer and commodities.

In 2010, Rachman and Sudaryanto have conducted a research on "Impact and future perspectives of fertilizer policy in Indonesia" and showed that the utilisation of fertilizer and production in Indonesia were not only for development of agriculture sector. Urea, ZA, SP-36, compound fertilizer of NPK and organic fertilizer were provided as the subsidised fertilizer in Indonesia. The study was also focused on developing the chemical industry and other related services. The implementation of the fertilizer subsidy programme was based on the regulations of the Indonesian Ministry of Agriculture and Ministry of trade. Mainly the Ministry of Agriculture regulates the fertilizer allocation and setting price while Ministry of Trade is responsible in regulating the subsidised fertilizer procurement and distribution.

Elenita and Dano (1995) revealed that the Malaysian government mainly intervened to provide cost subsidies for agricultural inputs including fertilizer, seeds and pesticides to ensure the improvement of national rice production. The fertilizer subsidy policy of Malaysia is one of price policy implemented by the Malaysian government. Initially, the subsidy was provided as 10 – 50% percent of the input value per acre. After 1974, all farmers were benefited from the fertilizer subsidy policy. The Malaysian government expanded their support for paddy farmers through subsidies in form of fertilizer and cash with rising of fertilizer price at world market. This was to ensure the income level of the paddy producers.

Nani and Sitaula (2012) mentioned that the provision of credit and fertilizer subsidies resulted the high use of fertilizer in agricultural activities in Asian region. The Nepal government regularly changes the policy of fertilizer to make sure continuous fertilizer distribution throughout the Nepal and to speed up the food production rate.

Fertilizer subsidy programs in Sri Lanka

The fertilizer subsidy programme of Sri Lanka was initiated in 1962 as the effect of Green Revolution (Weerahewa *et al.,* 2010). The major objective was to promote the national HYV and the crop productivity. Table 1 shows the summary of evolution of fertilizer subsidy programme in Sri Lanka

Table 1: Summary of evolution of fertilizer subsidy programme.

Time period	Description of subsidy programme
1962	Initiation of fertilizer subsidy program in Sri Lanka.
1983	The programme of variable subsidy was introduced. In here maintained fixed fertilizer price even the world market fertilizer price increased.
1988	Subsidy was removed for rock phosphate and sulphate of ammonia. Subsidy was limited for MOP,TSP and urea
1990	The subsidy was completely removed for all fertilizer types from every sectors in agriculture
1994	Fertilizer subsidy programme was re-introduced for MOP, TSP, urea and sulphate of ammonia.
1997	Fertilizer subsidy was removed for all types of fertilizes except urea.
2005	"Kethata Aruna" fertilizer subsidy programme was implemented for paddy farmers. From this program MOP, TSP and urea provided at price of Rs. 350 per 50 kg.

Source: Herath *et al.*, 2013

In 2017, Wijethunga and Saito described the changes of fertilizer policy with major five phases. Phase 1 is implemented during the period from 1962 to 1989. In this phase the subsidy was provided for urea, MOP and TSP. The different fertilizers were subsidised at different rates and primarily targeted the paddy sector. Initially, the subsidy was amounted as 40 – 50% from the total fertilizer cost. In 1979, the rate was increased up to 85% for urea fertilizer and 75% for other fertilizer types. Again, the rate was reduced down to 65% for MOP and urea and 40% for TSP as a result of world market fertilizer price in 1981. From 1983 the fertilizer price was maintained at fixed level regardless the world market price until 1987.

Phase 2 stated in 1990 and continued until 1994. There was no any fertilizer subsidy programme during this period. This was mainly because of the fertilizer price rising in the international market with oil price and exchange rate depreciation. This increased fertilizer price in local market and gradually reduced the fertilizer usage. Fertilizer subsidy re-introduction for urea, TSP and MOP was happened in Phase 3 in 1995 and this programme continued to 1996 with several minor changes. The phase 4 was started in 1997, and it was limited the subsidy only for urea. This programme was implemented until 2005. In 2005, the government was decided to reintroduce fertilizer subsidy scheme for Urea, MOP and TSP by fixing their selling price of Rs. 350 per 50 kg bag. However, this subsidy programme was limited only for paddy farmers (Ekanayake, 2009). This was the phase 5 of the fertilizer subsidy policy.

METHODOLOGY

Sampling method and materials

Badulla district was selected as the research area of the study. Badulla district is one of the major agricultural districts in Sri Lanka and farming population of Budulla district is about 136,000. With regard to paddy cultivation, small-scale paddy cultivation is prominent in the district (Badulla District Secretariat, 2017). The paddy farmers cultivate paddy for different purposes including for the subsistence, commercial and both subsistence and commercial. At present, alternative cash grant programme was introduced instead of fertilizer subsidy mainly for farmers who are cultivating less than two hectares of land. In Badulla district, average paddy cultivating land per farmer is not exceeding this expected land extent. Therefore, the Badulla district was selected as the study area. Multi stage simple random sampling technique was used to select the sample. Badulla district consists of fifteen Divisional Secretariat (DS) divisions. Out of them, three DS divisions namely Kandaketiya, Meegahakiula and Hali-ela were selected randomly. Number of farmers receiving cash grant for paddy in these three DS divisions were 9,260, 10,454 and 8,328, respectively. In the second stage, six Grama Sevaka (GS) divisions were selected randomly from these three DS divisions as two GS divisions per each. The sampling frame of the study was 60,564 paddy farmers who are receiving cash grant in the district (Badulla District Secretariat, 2017). Finally, 120 cash grant receiving paddy farmers were selected as the research sample as 20 farmers from each GS division using simple random sampling technique. A field survey was conducted from August to October 2017 using a researcher administrated questionnaire (*Supplementary Information*), which included open ended and close ended questions relevant to the study. Farmers' attitude was measured using five point Likert scale type questions. Ten attitudinal statements; five strengths, five weaknesses, five opportunities and five threats related to the cash grant programme were identified and tested by using hypotheses.

Data analysis

Data analysis was undertaken as follows. First objective (finding socio-economic characteristics) was analysed using percentage and frequencies. The second objective (farmers' attitude on cash grant programme) was analysed through mean analysis with one sample t-test. Paired t-test statistical method was used to analyse the third objective of finding effect of cash grant programme on fertilizer usage and paddy yield. The strengths, weaknesses, opportunities and threats regard to fertilizer allowance were analysed through descriptive statistics and also using the Wilcoxon signed rank test. The graphs, charts and tables were used to visualise the findings of the study.

One sample T test

- H_0 – The means of each statements equal to tree (3)
- H_1 –The means of each statements not equal to three (3)

Matched paired T test

- H_0 – The means of fertilizer usage/paddy yield in before equal to means of fertilizer usage /paddy production after the cash grant programme
- H_1 – The means of fertilizer usage/paddy yield in before not equal to means of fertilizer usage /paddy production after cash grant programme

RESULTS AND DISCUSSION

Socio-economic characteristics of cash grant receiving farmers

Age, gender, civil status, education, occupation, house hold size and monthly income of the farmers were studied as socio-economic characteristics. The results are presented in Table 2.

Out of the 120 farmers, 34% belonged to 40 – 49 years age category. Twenty-four percent of farmers belonged to 50 – 59 years age category, 16.7% of selected farmers' age was higher than 60 years, 13.3% of farmers were between 30 – 39 years age level and 3.3% of the respondents' age was lower than 30 years.

According to the results, majority (67%) of alternative cash grant receiving farmers were male and 33% were female. Results revealed that 47% of the selected sample was educated up to Ordinary Level (O/L) and 25% were educated up to Advanced Level (A/L). However, 22% of the selected farmers had primary education and 5% of the farmers had higher educational qualifications. Only 1% of the farmers had not received formal education.

There were different occupation types and among them 44% of farmers' occupation was farming and 34% were self-employed. Only 13% of farmers were government employees and 8% of farmers were employed in semi-government institutions. They cultivated paddy in part time basis. 1% of farmers worked as labours under other farmers or villagers and done heavy works.

According to the results majority (44%) had four members in their families. Others were range between 2 to 5 members. However, only 3% of farmers had six members in their families. Further this study revealed that majority (45%) of the farmer's monthly income was Rs. 30000 – 39000 and 23.3% of farmers earned Rs. 40000 – 49000 monthly. Among the total 10.8% of farmers had more than Rs. 50000 monthly incomes. However, 20.8% of farmers had earned Rs. 20000 – 29000 income per month.

Farmers' attitude towards alternative cash grant subsidy instead of fertilizer subsidy

The farmers' attitude towards alternative cash grant programme instead of fertilizer subsidy was measured through ten attitudinal statements. Five point Likert scale was used to get data related to the given statements. The attitudinal statements included five positive attitudinal statements and five negative attitudinal statements. Mean values of each statement is presented in Table 2.

Table 2: Socio-economic characteristics of cash grant receiving farmers (n = 120).

Characteristics	Category	Frequency	Percentage (%)
Age	<30	04	03.3
	30-39	16	13.3
	40-49	45	37.5
	50-59	35	29.2
	>59	20	16.7
Gender	Male	81	67.5
	Female	39	32.5
Civil status	Married	112	93.3
	Unmarried	08	06.7
Education	No formal education	01	00.8
	Primary	26	21.7
	O/L	57	47.5
	A/L	30	25.0
	Higher education	06	05.0
Occupation	Farming	53	44.2
	Skilled Labour	01	00.8
	Self employed	41	34.2
	Semi government	09	07.5
	Government	16	13.3
Household size	2 members	12	10.0
	3 members	22	18.3
	4 members	53	44.2
	5 members	30	25.0
	6 members	03	02.5
Monthly income	Rs. 20000 – 29000	25	20.8
	Rs. 30000 – 39000	54	45.0
	Rs. 40000 – 49000	28	23.3
	>Rs. 49000	13	10.8

Source: Field survey, 2017

Table 2: Mean value of each attitudinal statements (n = 120).

Attitude	Attitudinal statement	Mean value
Positive	Opportunity for buying quality fertilizer	2.39
	Convenient for farmers than fertilizer subsidy programme	1.71
	Low corruptions by politicians	1.91
	Opportunity to move towards organic agriculture	2.28
	Cash grant program is successful	1.93
Negative	Allowance is inadequate to buy fertilizer	1.43
	Allowance spend for other purpose	3.48
	Difficult procedure of receiving allowance	4.00
	Time consuming to receive allowance	1.82
	Cash grant program is failed	3.50

Source: Field survey (2017)
1 – strongly agree, 2 – agree 3, – neutral, 4 – disagree, 5 – strongly disagree

The least value (1) indicates the strongly agree while the highest value (5) indicates the strongly disagree. According to results of Table 2, mean value of five positive attitudinal statements were lower than the median value (3). Since the strongly agree is rated as 1, the mean values of these first five statements were close to strongly agree and agree scales. Therefore, it can be stated as farmers were agreed with these five positive statements. In the same way mean values of two negative statements were closely related to agree and strongly agree scales. Further, it can be stated as farmers were agreed with five positives and two negative attitudinal statements. The significance of each statement from one sample t-test shows in Table 3.

Hypothesis

- H_0 – The means of each statements equal to three (3)
- H_1 –The means of each statements not equal to three (3)

According to the results of the t-test, all positive attitudinal statements are significant. Because the *P*-value of all five statements is 0.000, which is less than the 0.05. Therefore, null hypothesis is rejected. It revealed that those attitudinal statements are significantly different from the standard mean of neutral value. It revealed that farmers are agreed with above five positive statements. Further it can be concluded as cash grant programme provides benefits for farmers. According to Rachman and Sudaryanto (2010) Indonesian fertilizer subsidy

programme made a positive impact on demand and usage of urea for rice cultivation. As a result of high urea usage, the productivity in rice was increased. However, in 2009 Ekanayaka revealed that the main fertilizer types (urea, TSP and MOP) were inelastic to fertilizer price, final product price and policy changes. Also, the fertilizer subsidy was not affected to fertilizer application in rice cultivation. This was because of unavailability of appropriate substitute to produce optimum yield.

Table 3: Result of the t test**.**

Attitudinal statements	Test Value = 3		
	t-value	P value (2-tailed) $\propto = 0.05$	Mean Difference
Cash grant programme allows to buy quality fertilizer	-9.839	.000	-.608
Cash grant programme is convenient for farmers than fertilizer subsidy program	-18.887	.000	-1.292
Reduce political corruptions through this alternative cash grant program	-19.668	.000	-1.092
Alternative cash grant programme provides opportunity for organic agriculture	-10.675	.000	-.717
Alternative cash grant programme is successful	-14.482	.000	-1.067
The cash is inadequate to buy enough fertilizer	-30.807	.000	-1.575
The cash is not received at right time	-11.111	.000	-1.183

The selected sample was agreed with two negative attitudinal statements. Those were significant from the one sample t-test. The p value for the first negative attitudinal statement of "the cash is inadequate to buy enough fertilizer" is 0.000 and revealed that there is a significant difference from the neutral mean. The *P* value of second negative attitudinal statement of "the cash is not receiving at time" is 0.000 and revealed that there is a significant difference from the neutral mean. Mean values of other three negative statements are higher than the neutral value of 3 and close to the disagree scales. Therefore, it can be stated as farmers do not agree with the statements of cash grant spend for other purpose, difficult procedure of receiving cash grant, cash grant programme is failed.

Table 4: Results of the paired T-tests for fertilizer usage and paddy yield.

Pairs	Mean		P value (paired T-test) $\propto = 0.05$
	Before	After	
Fertilizer usage – before and after	157.38	148.50	0.000
Paddy yield – before and after	1354.55	1338.79	0.000

Hypothesis

H_0 – The means of fertilizer usage/paddy yield before the cash grant programme equal to means of fertilizer usage /paddy production after the cash grant programme

H_1 – The means of fertilizer usage/paddy yield before cash grant programme not equal to means of fertilizer usage /paddy production after cash grant programme

According to the Table 4, there is a reduction in mean of fertilizer usage before and after the alternative cash grant programme. The *P* value of paired t-test is 0.000. Therefore, the null hypothesis is rejected which indicates that there is significant difference in mean of fertilizer usage before and after the cash grant programme. Results also show that there is a reduction in mean of paddy yield before and after the cash grant programme. The *P* value of paired t-test for second statement is also 0.000, which indicates there is a significant difference of mean values of paddy yield before and after the introducing of cash grant programme.

Weerahewa *et. al.* (2010) revealed that the paddy yield increase from 4 to 11% within the period of 2006 – 2007. The reduction of input cost for fertilizer to 6% from 15% was resulted from 2005 subsidy programme. The subsidy programme was involved to reduce credit liabilities of farmers for buying fertilizer. This subsidy programme also provided an opportunity to use recommended level of fertilizer for the paddy cultivation and resulted high productivity. The results of the study of Herath (2013) showed that subsidised low fertilizer prices promote farmers to use fertilizer at recommended rates for the paddy cultivation. In 2017, Wijethunga and Saito concluded that completely removal of subsidy for fertilizer was reduced and demand for fertilizer and farm profit while declining the paddy production.

According to the results (Table 5), the medians of four statements given as strengths are lower than the neutral value of three. These medians revealed that the reduce fertilizer wastage, reduce corruptions of politicians, farmer organisation support and convenience of the cash grant programme for farmers are important as strengths. The respondents have neutral opinion on positive attitudes of farmers as strength of the cash grant programme.

Table 5: Median values of SWOT statements.

	Statement	Median
Strengths	1. Reduce wastage	2.0
	2. Reduce corruptions by politicians	2.0
	3. Farm organization support	2.0
	4. Positive attitudes	3.0
	5. Convenience of cash grant for farmers	2.0
Weaknesses	1. Farmer organisation resistance	4.0
	2. Spend for other purpose	3.5
	3. Negative attitudes	2.0
	4. Not adopt to organic agriculture	3.0
	5. Lack of knowledge on fertilizer recommendation	4.0
Opportunities	1. Opportunity to move towards organic agriculture	2.0
	2. Opportunity to buy quality fertilizer	2.0
	3. Government support	2.0
	4. Reduce cost of production (COP)	2.0
	5. Environment protection	2.0
Threats	1. Market price	2.0
	2. cash is not receiving at right time	1.0
	3. Difficult procedure	3.0
	4. Tenant farmer conflicts	2.0
	5. Literacy	4.0

Source: Field survey (2017)
1 – strongly agree 2 – agree 3 – neutral 4 – disagree 5 – strongly disagree

According to the results of the statements given as weaknesses, only one statement has a median, which is lower than neutral value of 3. The statement is "farmers' negative attitudes". Median of the statement of not adopt to organic agriculture is 3. The medians of rest statements are higher than the neutral value of 3 which indicates that those are not important as weaknesses.

According to the results, statements given as opportunities have medians which are less than the neutral value of 3, which indicates that all five statements are important as opportunities. Further, it can be concluded as farmers can get an access to the quality fertilizer and government support through this cash grant programme. It also helps to reduce their COP by reducing input cost.

According to the result of the statements given as threats, three statements have medians which are less than neutral value. Those are market price of fertilizer, cash is not receiving at right time and tenant-farmer conflicts. Literacy of farmers is not a threat since the median of it higher than 3. According to that farmers were agreed with five strengths, one weakness, five opportunities and three threats with regard to the cash grant programme.

The significance of the each SWOT statement according to the–one sample Wilcoxon signed rank test is shown in Table 6.

Hypothesis used in this situation is as follows.

H_0 – The medians of each statements equal to three (3)
H_1 –The medians of each statements not equal to three (3)

Table 6: Result of one sample Wilcoxon signed rank test for SWOT.

	Statement	P value (2-tailed) $\propto = 0.05$
Strengths	1. Reduce wastage	0.000
	2. Reduce corruptions	0.000
	3. Farm organization support	0.000
	4. convenience of cash grant programme for farmers	0.000
Weaknesses	1. Negative attitudes	0.000
Opportunities	1. Opportunity to move towards organic agriculture	0.000
	2. Opportunity to buy quality fertilizer	0.000
	3. Government support	0.000
	4. Reduce cost of production	0.000
	5. Environment protection	0.000
Threats	1. Market price	0.000
	2. cash is not receiving at right time	0.000
	3. Tenant farmer conflicts	0.000

Source: Field survey (2017)

As per the Wilcoxon signed rank test, in the Table 6, *P* values for four statements related to strengths are equal to 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. It indicates that, those are significantly important as strengths of the cash grant program. P values for one statements related to weaknesses is equal to 0.000 which is less than 0.05. Therefore, the null hypothesis is rejected. It indicates that, the statement is significantly important as a weakness of the alternative cash grant programme. These should be taken into consideration when implementing new programmes.

P values for five statements related to opportunities are equal to 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. It indicates that, the statements are significantly important as opportunities of the cash grant programme. Policy makers have to consider these opportunities to increase the effectiveness of the kind of programmes.

P values for three statements related to threats are equal to 0.000, which is less than 0.05 and indicate that, the statements are significantly important as threats of the cash grant programme.

CONCLUSIONS AND RECOMMENDATIONS

This study was conducted to find out about farmers' attitude, socio-economic characteristics, impact on fertilizer usage and paddy production, strengths, weaknesses, opportunities and threats regarding the cash grant programme instead of fertilizer subsidy. The main goal was to get the comprehensive idea about the success of giving this cash grant at the grass root level and make improvement to provide maximum benefits. According to the results, majority of cash grant receiving farmers are 40 – 49 years of age. Majority of farmers are male, married and educated up to ordinary level. Their main occupation is farming. The monthly income of majority is between of Rs. 30,000 – 39,000 while the family is consisting with four members. When considering the farmer attitude towards the cash grant, farmers have overall positive attitude on 1) cash grant allows to buy quality fertilizer, 2) giving cash grant is convenienced for farmers than fertilizer subsidy program, 3) Reduce corruptions by politicians under this programme, 4) Cash grant provides opportunity to move towards organic agriculture, 5) cash grant programme is success. Also, the major negative attitudes are 1) cash is inadequate to buy enough fertilizer and 2) cash is not received at right time. When studying the fertilizer usage, there is a significant reduction of fertilizer usage by 5.6% after the introduction of cash grant programme. Thus, reduction of fertilizer usage may be a one reason to significant reduction of paddy yield by 1.16%.

When assessing the SWOT, the major strengths regarding the cash grant programme are reduction of fertilizer wastage**;** reduction of corruptions by politicians, farmer organisation support and easiness while farmers' negative attitude was the major weakness identified through the study. The opportunities

regarding the cash grant programme are opportunity to move towards organic agriculture and increased demand for quality fertilizer. The major threats regarding the fertilizer allowance are high market price of fertilizer, delaying of cash receiving time and tenant farmer conflicts. In order to give maximum benefit of cash grant programme, it is required to make payment arrangements at right time and provide trainings on adoption towards organic agriculture to provide maximum benefits of the fertilizer allowance.

The majority of the sample has a positive attitude about the cash grant programme as it provides opportunity to move towards organic agriculture and they believe that it is an opportunity given by the programme. However, at present adoption of farmers towards organic agriculture is poor. Therefore, while implementing the cash grant programme efficiently and effectively, it is required to arrange awareness programmes, education and training programmes with the involvement of relevant institutions.

ACKNOWLEDGEMENT

The authors would like to thank for the paddy farmers for their valuable support throughout the research study.

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