STUDY OF IMPACT OF CATTLE REARING LIVELIHOOD PROJECT AT KAHATAGASDIGILIYA AND HORAWPOTHANA DS DIVISIONS

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ABSTRACT: The success of Dairy farming, as a livelihood, depends on milk production and marketing. This study was carried out in Horawapoththana and Kahadagasdigiliya DS divisions with the objectives of studying the management system, to evaluate the milk marketing system and to analyze income generation of cattle rearing livelihood project beneficiaries. Totally 70 selected cattle rearing farmers were included in the study. Data were collected through a questionnaire survey, farm observation, and group discussions. Data were analyzed using MS Excel and presented in table and chart forms. The results revealed that 100% of the farmers reared cattle for milk purpose under a semi-intensive system with grazing and stall feeding.Results depicted that majority (88.6%) of the beneficiaries reared cattle as a primary source of income with more than two years of experience. More than half of the (68.6%) farmers cultivated CO_3 as a fodder grass which was used to feed in the night. The variation in the milk production from cattle among beneficiaries was large due to the variation in the management practices. Majority of the cattle farmers sold their milk to middleman and Milco for a guaranteed price. To conclude, though the implementation of cattle farming livelihood project benefited the farmers by increasing their income level, there is a potential to further improve the income level by improving the management practices.

Keywords: livelihood,farming, cattle , milk, marketing

1. INTRODUCTION

Livestock is an integral part of the rural agricultural economy in Sri Lanka. The farm holdings with livestock are around 0.56 mill ha. The total number of farmers involved in livestock production is estimated as 700,000. The contribution of livestock sector including cattle and buffalo to GDP was 0.6% (Department of Animal Production and Health, 2015). The demand for milk and dairy products keeps on increasing. Hence, the dairy sector has been identified as the priority sector for development among other livestock sub-sectors in the country. There had been much focus on dairy farming and production in 2011 due to several initiatives taken by the government in the recent past as the country depends largely on imports to fulfill the domestic demand for milk and dairy products (Prasannath, 2015). Most of the livestock operations are categorized as smallholdings (Hitihamu and

Epasinghe, 2015). Bandara et al (2011) concluded that many farmers seem to continue their dairy operations only because of the dearth of regular alternative employment opportunities for them in the vicinity. However, Bandara et al (2011) recommended that upgrading animals, the establishment of good quality pasture and implementing a good extension service would improve the dairy sector.

In Anuradhapura district, dairy farming is an important traditional economic activity, mostly semi-intensive and extensive system is practiced (Bandara et al., 2011). Anuradhapura District contributes 6.5% to the total milk production of the country (Department of Animal Production and Health, 2014). Under the given context, Muslim Aid Sri Lanka implemented a cattle rearing project at the Horawapothana and Kahadagasdigiliya Divisional Secretariats in Anuradhapura Districts to increase the household income of the selected dairy farmers since the main livelihood activities of those farmers are dairying. Farmers in those areas possess own land for pasture establishment and sufficient state land for grazing is available in the village.

Though a few analyses on income generation of the project is available, a detail research data on overall farming system change and impact on socio-economic aspects of the project such as income generation, management system, and milk marketing systems are limited. In this context, this study was designed to analyse the impact of Cattle Rearing Livelihood Project on overall farming system change and on socio-economic characteristics of beneficiaries implemented by Muslim Aid Sri Lanka at Kahatagasdigiliya and Horawpothana DS Division. The research findings, it is expected that, may help the relevant authorities and non-government agencies involved in livelihood projects in developing similar models in the dry zone of Sri Lanka.

The project was implemented during 2015-2016 benefiting 70 families. Though the preliminary observation shows that additional income is generated through this project to the beneficiaries, the overall benefits of the project have not been evaluated. Therefore the objectives of the project are;

1. To study the change in the management system
2. To evaluate the milk marketing system
3. To analyze income generation

2. MATERIALS AND METHODS

Beneficiaries from Horawpothana and Kahatagasdigiliya veterinary divisions (70 dairy farmers) of the project were involved in the study. A pre-tested questionnaire was used to collect the information using

personal interview method. The questionnaire consisted of socio-economic information about the farmer, labour usage by the farmer, gender contribution on dairying, herd composition, breeds and production performance of animals, management system, breeding method, availability of feed stuff, and economic returns from dairying. In addition, milk payment registers of milk collection institutes were used to gather information. Data were coded in MS Excel and presented in chart and table formats.

3. RESULTS AND DISCUSSIONS

3.1 Socio-economic characteristics of farmers

According to the survey results given in the Table (1), the average family size of farmers was five (5) and all the farmers were married. The majority (71.4%) of the farmers' education level was primary and below. The knowledge of cattle farming seems to be acquired from their parents through learning by helping them. This finding indicated that rural farming community with poor education level who are unable to find alternative employment involved in cattle rearing with inherited skills, knowledge and motivation from their parents. The average age of livestock farmers in the project area was 46 years. The findings were in line with the findings of Singh (2003), Nachimuthu (2002) and Gadgil *et al.,* (2005) who reported a large percentage of respondents as middle age groups. Table (1) showed that the majority (90%) of the farmers were Muslim ethnic group. Through the DS division populated with majority of Sinhalese, the donor (Muslim Aid Sri Lanka) selected mainly poor households among Muslims to this project.

Table 1. Socio-economic characteristics of farmers

Attributes	Frequency	Percentage (%)
1.Gender		
Male	70	100.0
Female	0	0.0
2.Ethnicity		
Muslim	63	90.0
Sinhala	7	10.0
Tamil	0	0
3.Age respondent		
Young < 30 yrs	2	2.9
Middle 30-45 yrs	30	42.9
Over middle 46-65 yrs	38	54.3
Old > 65yrs	0	0.0
4.Educational level		
No schooling	10	14.3
Grade 1-5	40	57.1

Grade 6 - O/L	20	28.6
Grade A/L & >	0	0.0
5.Family size (no. of persons)		
3/below	10	14.3
4 to 5	33	47.1
6 to 7	24	34.3
over 7	3	4.3

Source: Survey data (2016)

3.2 Livestock production and management system

a. *Experience in Cattle Rearing before starting the project*

The results of this study revealed that hundred percent of the beneficiaries were given (on grant) with two improved jersey crossbred cows and Table (2) showed that the majority (88.6%) of the livestock farmers were rearing cow as a primary income source. According to the survey results given in the Table (2), a higher percentage (41.4%) of farmers lied between 2-4 years of experience in cattle farming and 22.9% of the cattle farmers have 3-5 years' experience in cattle farming. Around seventeen percent of the cattle farmer fall within less than 2 years' experience and another group of farmers (18.6%) involved for more than **6** years.

Table 2. Source of income and Experience in Cattle Rearing

Attributes	Frequency	Percentage (%)
Source of income		
1.Primary income source	62	88.6
2.Secondary income source	8	11.4
Experience in cattle farming		
1.<2year	12	17.1
2.2-4years	29	41.4
3.5-6yers	16	22.9
4.>6years	13	18.6

Source: Survey data (2016)

b. *Type of cattle farming and herd size*

Table (3) revealed that only 24.3 % of the farmers doing crop cultivation along with cattle rearing and 75.7% of farmers were not interested in any of the crop cultivation. They have practiced livestock as a sole farming system. Table (3) indicated that majority (85.7%) of the cattle farmers were smallholders and rest of the 14.3% of the cattle farmers were medium holders. Smallholders consist below than 5 breeds and medium holders consist 6-29 breeds in their cattle farm. The results indicated that there was no large holder in cattle rearing. The study indicated that the cattle farming in this area is practiced as a livelihood activity and not as a commercial activity.

Table 3. Size of herd

Attributes	Frequency	Percentage (%)
Type of farming		
1.Livestock only	53	75.7
2.Livestock&Crop	17	24.3
Size of herd		
1.Small hold < 5	60	85.7
2.Medium 6 - 29	10	14.3
3.Large holders > 29	0	0

Source: Survey data (2016)

c. *Purpose and system of cattle rearing*

There are different purposes for cattle rearing such as Milk, Meat, Dual and Draft but in the study are, Table (4) showed that all of the cattle farmers' rear cattle for milking purpose because of the demand for cattle milk was high. Results revealed that all the beneficiaries (100%) showed in Table (4) reared cattle in semi-intensive system. Before the intervention of Muslim Aid livelihood project, majority of the cattle farmers reared cattle as an extensive system. However, at present all of the beneficiaries built cattle shed and kept their cows under that shed in the night time.

Table 4. System of rearing

Attributes	Frequency	Percentage (%)
Purpose of rearing		
1.Milk	70	100
2.Meat	0	0
3.Dual	0	0
4.Drought	0	0
System of rearing		
1.Intensive	0	0
2.Extensive	0	0
3.semi intensive	70	100
4.Tethering	0	0

Source: Survey data (2016)

d. *Vaccination Practice*

According to the result, 41.4% of interviewed cattle farmers vaccinate their cattle and rest of the 58.6% reported not to use any vaccination during cattle management practices. The results revealed that poor knowledge about the vaccination and long distance between veterinary office and farmers house contributed to the low level of the vaccination practice.

e. *Type of feeding and Fodder cultivation*

According to the survey, Table (5) revealed that all cattle farmers practicing both stall feeding and grazing. In this division, grazing field for cattle may be an own land or relatives' land, public ground, land near to the pond area, the jungle and scrub-jungle areas. During the night time, all cattle were kept under a shed and during this time they practice stall feeding by providing CO_3 fodder grass from their cultivated land. Since there is a long dry period in the division, there are feed shortages for a longer period consequently animals face grazing problems. Further, during the paddy cultivation periods, the cattle would not be allowed to graze, this also contributed to grazing problem for their cattle. Therefore, to compensate the low level of grazing, stall feeding is done.

The CO_3 fodder grass is the main cultivated fodder in the project area. Muslim Aid provided cuttings for the CO_3 fodder grass stablishment to reduce the feed shortage during the dry period. Table (5) showed that 68.6% of the cattle farmers cultivated CO_3 and rest 31.4% of the cattle farmers were not involved in fodder cultivation. Farmers those who do not have the cultivated CO_3 fodder grass, cut fodder grass from other land and used that to feed in the night.

Table 5. Type of feeding and fodder cultivation

Attributes	Frequency	Percentage (%)
Type of feeding practice		
1.Stall feeding	0	0
2.Grazing/ Tethering	0	0
3.Stall feeding & grazing	70	100
Did you grow any improve pasture or fodder		
1.Yes	48	68.6
2.No	22	31.4
If yes, what type of pasture or fodder grow		
1.CO3	48	100
2.Napier	0	0
3.Other	0	0

Source: Survey data (2016)

3.3 Milk production and marketing system

The survey revealed that among 70 beneficiaries, 84.3% of them getting milk from their cow and rest of them have cow, which were non milk producers. All the farmers who have milk-producing cow collected milk in the morning time. Table (6) showed the majority (64.4%) of the cattle farmers milk yield was around 1-3 lit/animal/day and only 13.6% of the cattle farmers showed in Table (6) collected above 4 liters of milk from a cow per day. Most of the farmers in the research area reared improved Jersey, Sahiwal crossbreeds, these type of breeds are tolerant to heat and produce higher milk yield. However, the low milk production from majority of the farmers (64.4%) may be due to the poor management practices in overall.

Table 6. Milk production and marketing

Attributes	Frequency	Percentage (%)
Milk yield from cow /day		
1) <1 litter	0	0
2) 1-2 litter	21	35.6
3) 2.1-3 litter	17	28.8
4) 3.1-4 litter	13	22
5) 4 litter<	8	13.6
Marketing of milk		
1.Home consumption	2	2.9
2. Neighbors	0	0
3. Middleman	34	48.6
4.Nestle	0	0
5.Milco	23	32.9
6.Milk product	0	0

Source: Survey data (2016)

According to the survey result, Table (6) most of the (48.6%) farmers stated that they sold milk to the middleman and 32.9% sold milk to Milko. Only 2.9% of the farmers used whole milk for their family consumption.. Milco and middleman purchase milk at a guaranteed price, therefore, marketing of milk take place in a smooth way. The donor Muslim Aid helped to form a milk marketing system involving beneficiaries and a middleman. In this marketing system, one of the beneficiary is working as a middleman who is responsible for milk collection. The results showed the marketting system is successfully done.

3.4 Income generation

According to the survey results given in the Table (7) 88.5% of the project beneficiaries' monthly average income was below than SLR.10, 000.00 and only 11.5% of the beneficiaries' income was SLR.10, 000.00 to 20,000.00. Mainly Muslim Aid targeted ultra-poor people to implement their project accordingly they selected beneficiaries to implement their project. After the intervention of project, Table (7) showed that 64.3% of the beneficiaries' monthly average income was SLR.10, 000.00 – 30,000.00 and only 35.8% of the beneficiary's monthly income was below than SLR. 10,000.00. This income generation reports data showed that Muslim Aid livelihood project increased the beneficiary's average monthly income.

Table 7. Income generation

Attributes	Frequency	Percentage (%)
Total monthly income before project intervention		
1) <5000	19	27.1

2) 5001-10000	43	61.4
3) 10001-15000	6	8.6
4) >15000	2	2.9
Total monthly income after project intervention		
1) <5000	2	2.9
2) 5001-10000	23	32.9
3) 10001-15000	24	34.3
4) 15001-20000	17	24.3
5) 20001-30000	4	5.7

Source: Survey data (2016)

4. CONCLUSIONS

Based on the information from the study, the cattle-rearing livelihood project in Horawapoththana and Kahadagasdigiliya DS divisions helped to increased beneficiaries' income level. Before project intervention most of the farmers (88.5%) average monthly family income was below SLR. 10, 000.00. However, after the project intervention, only 35.8% of the farmer's monthly average income was below SLR. 10,000.00 and rest of the farmers (64.2%) average monthly income was in the range of SLR. 10,000.00 – 30,000.00. The study further found that there is change in the farm management system among the beneficiaries. However, further improvement in the management system needed.

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