



**MUSIKA**

**AN ASSESSMENT OF SHARED VALUE IN THE  
SMALLHOLDER LIVESTOCK MARKET: A COMPARATIVE  
ANALYSIS**

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**MUSIKA DEVELOPMENT INITIATIVES**

## **Foreword**

This report was generated to serve as a reference document for Musika Development Initiatives (Musika) and its implementing partners. Musika is a non-profit company that works to stimulate private sector investments in rural agricultural markets. It achieves this by helping businesses to develop mutually beneficial and transparent commercial relationships with smallholders that integrate the provision of information and technology adoption, and provide confidence and long term incentives for smallholders to invest in their farming business. It provides its corporate clients with high quality, commercially focused technical advice, business model support and where relevant, smart subsidies to bring down some of the initial risks in doing business with the smallholder market. Musika also supports innovative market-based solutions to environmental issues and strives to ensure women are key participants in improved agricultural markets.

In doing this, Musika is helping to create 'shared value' in rural agricultural markets, which can be defined as business approaches that a company uses to generate economic value in a way that also produces value for society by addressing its challenges (Porter and Kramer, 2011). Musika acknowledges and appreciates the financial support from the Swedish Embassy in Lusaka.

## Statement of Confidentiality and Disclaimer

This report has been modified to make it suitable for public circulation. As part of the information generation process, an agribusiness firm implementing an intervention supported by Musika was interviewed. **However, the name of the firm and other details that may identify it have been withheld in order to protect the company's identity and information.** The firm is therefore referred to as Musika Partner Firm (MPF) through-out the report. For queries and comments, contact the Research Manager, 6, Tukuluho Road, Long acres, Lusaka: +260 211 253 989; fax +260 211 255 502.

**Disclaimer:** The views and information expressed in this report are those of the authors. Whilst due diligence was employed in preparing this document, Musika accepts no liability or responsibility for any loss or damage of whatsoever kind, which any persons or institutions may suffer as a result of any action or decision taken on the basis of information contained herein.

## Executive Summary

Despite facing rampant disease outbreaks, the majority of the smallholder livestock producers in Zambia have insufficient access to veterinary services and extension on improved animal health practices. To address this, Musika supported the development of commercial linkages between veterinary firms and the rural livestock farmers. Through a cost-share arrangement, Musika provided both equipment and logistical support that would enable the firms provide an extension-based sales model or a bundle of services to the rural livestock market, which includes veterinary products, extension services and genetic and nutrition services. It was hypothesized that the initiative would create shared value in that it would derive economic value for the firms while at the same time increase farmers' herd health, livestock productivity and ultimately income from livestock. After four years of implementing these initiatives, Musika conducted a comparative analysis that aimed to examine the extent of shared-value in the intervention areas against non-intervention areas. To do this, the survey collected data on cattle production from farming households in the user group (program beneficiaries) and non-user group (non-beneficiaries), as well as data on business performance from a veterinary MPF that is serving the rural livestock farmers. The study was conducted in two districts in Southern Province. Understanding the extent of shared value in the smallholder livestock market is critical for scaling successful business models and guiding implementation efforts. The key findings of the study are outlined below.

### Farmer Level Results

- i. The results showed that livestock productivity was higher among the farmers in the user group than those in the non-user group. Farmers in the user group experienced a lower mortality rate of about 1.7% per household herd, while farmers in the non-user group experienced a higher mortality rate of about 5.8% per household herd. In addition, the calving rate per household herd was found to be higher for the user group at 67%, than for the non-user group at 53%.
- ii. During the wet season, farmers in the user group experienced significantly higher milk production than those in the non-user group, that is about 339 liters per month and 225 liters per month respectively. Similarly, for milk sales, households in the user group were able to sell more milk than households in the non-user group of about 137 liters and 95 liters respectively. This shows that increased milk production translated into a higher marketable milk surplus for farmers in the user group than for those in the non-user group.
- iii. The proportion of farmers observed to have adopted improved management practices such as dehorning was higher in the user group than in the non-user group. About 84% of the farmers dehorned their animals compared to 64% amongst non-users.

## **Firm Level Results**

- iv. To implement the market initiative, the MPF changed its business model from an over-the-counter sales model to an extension-based sales model. The results from the firm level interview showed that the firm had experienced significant growth in product sales after it changed its business model from an over-the-counter sales model to an extension-based rural sales model. The extension-based model improved the firm's business-to-person interactions which ultimately led to an increase in product purchases per client. In addition, the firm also gained the customers' loyalty as well as new clients due to customer referrals and expansion into new geographical areas.
  
- v. The Aggregated sales for all the veterinary firms Musika supported increased over three fold between 2014 and 2015 because the firms were using an extension-based distribution network to service the farmers in the rural areas.
  
- vi. Despite achieving positive results, the extension-based business model also led to a number of operational constraints such as increased operational costs and challenges in managing the business growth. Despite this, the evidence still indicates that the firms are generating positive earnings because of investing in the rural livestock markets.

All in all, the results show that the farmers and firms are experiencing a mutually beneficial commercial relationship which is deriving shared value. It is therefore critical that development efforts continue to support private sector investments in the provision of products and technical information in rural areas that are under-served.

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<sup>1</sup> Name of the company changed to protect the company's identity and information



## Chapter 1 - Introduction

### 1.1 Background

Livestock production is an important source of livelihood for many rural farmers in Zambia. Over 80% of smallholder farmers own some type of livestock, with a third of the farmers owning high value livestock types such as cattle (IAPRI, 2015). However, smallholder livestock production has been characterized by many challenges with inadequate access to livestock services and knowledge emerging as one of the main constraints to improving farmers' livestock productivity. This, in part, is due to the limited investment by agribusinesses in rural veterinary service provision which implies that farmers have to travel long distances of about 30km to access veterinary services (Lubungu & Mofya-Mukuka, 2012). Because of this, the majority of livestock producers do not control for much of the livestock diseases. For instance, about 75% of the livestock producers do not control for ticks and fleas (IAPRI, 2015) and between May 2011 and April 2012 more than 60% of the cattle owning households had their animals infected by diseases, with resulting death rates estimated at 127 per 1000 cattle (Lubungu & Mofya-Mukuka, 2012).

The low levels of investment in the rural areas by agribusinesses is a problem that cuts across multiple agricultural sub-sectors. The reasons for this are many, ranging from low levels of farmer productivity, high transactional costs and poor rural infrastructure to support business development among others (Bonaglia, 2008; International Growth Centre, 2012). All these factors significantly increase the cost of doing business thereby eroding the business case for investing in rural markets. Despite this, there is growing evidence that shows that companies that are employing business models that create 'shared value' in the rural areas are able to generate business viability and sustainability (Musika Development Initiatives, 2015). Shared value can be defined as business approaches that a company uses to generate economic value, in a way that also produces value for society by addressing its challenges. A shared value approach reconnects company success with social progress (Porter & Kramer, 2011).

It is against this background that Musika supported the development of commercial linkages between veterinary firms and the rural livestock farmers. Through a cost-share arrangement, Musika provided both equipment and logistical support that would enable the firms provide an extension-based sales model or a bundle of services to the rural livestock market, that include veterinary products, extension services and genetic and nutrition services. It was hypothesized that the initiative would create shared value, in that the firms would derive economic value while at the same time increase farmers' herd health, livestock productivity and ultimately income from livestock.

After four years of implementing these interventions, Musika conducted a research study in order to understand the extent of shared value in the smallholder livestock markets that have Musika supported veterinary initiatives. Understanding the extent of shared value is critical for scaling successful business models and guiding implementation efforts.

## **1.2 Objectives**

The main objective of the research was to determine the extent of shared value in the smallholder livestock markets that have Musika supported veterinary initiatives. In particular, the study had the following specific research objectives:

- i. Determine differences in farmers' livestock productivity in the intervention areas versus non-intervention areas.
- ii. Assess the farmers' perceptions of the benefits of working with private veterinary firms.
- iii. Determine the business performance of the veterinary firms that are engaging the rural smallholder livestock farmers as clients.

## Chapter 2 - Research Design and Data Sources

The survey respondents were categorized into two groups, the user group and non-user group. The user group constituted livestock farmers who were accessing veterinary services and facilities for cattle from the private veterinary firms that Musika had supported. The non-user group constituted livestock farmers who were accessing veterinary services from other sources other than the private firms Musika had supported. In order to identify a suitable control area in which to sample the non-user group, data from the Rural Agricultural Livelihoods Survey (RALS) 2015 was used to match livestock farmers in the treatment area to comparable livestock farmers in potential control areas. The treatment and control areas were matched based on key characteristics which would have resulted in a biasing effect if not accounted for such as average cattle ownership, proximity to veterinary services, disease incidence and household asset ownership.

Both qualitative and quantitative data collection methods were used to collect the survey data in two districts in Southern province. The survey interviewed 395 households through household interviews: 205 households were users and 190 were non-users. In addition, focus group discussions (FDGs) were conducted on farmers that were not participating in the household survey, and they were organized into 10 user groups and 10 non-user groups. Each FGD comprised of a minimum of approximately 8 to 12 participants divided into male and female groups so as to encourage both genders to participate. Participants from the user groups were randomly sampled from sampling frames provided by selected private veterinary firms that had provided veterinary services and facilities to farmers through Musika's support. The household was used as the main unit of analysis and estimates produced were relating to cattle and not any other type of livestock. In addition, a qualitative assessment was conducted on a veterinary MPF to examine the business performance of veterinary firms serving the smallholder livestock market. The results of the business performance assessment were used to build a case study that demonstrates the benefits that investing in an extension-based rural sales model yields for agribusinesses.

## Chapter 3 - Comparative Analysis of User and Non-User Groups

### 3.1 Demographic Characteristics

Table 1 shows the demographic characteristics of households in the user group and non-user group. There were more male headed households than female headed households in both the user group and non-user group. The proportion of male headed households in the user group was 98% and 91% in the non-user group. This shows that there is still a significantly low female involvement in cattle production activities. There were no significant differences in the average age of the household head and household size for the user group and non-user group. The average age of the household head was about 45 years in the user group and 46 in the non-user group, while the average household size was 8 in the user group and 9 in the non-user group. On the other hand, a slight difference could be observed in the average cattle owned between the users and non-users, with about 18 and 15 cattle owned per household, respectively

**Table 1: Household Demographic Characteristics**

Demographic Indicators	User group	Non-user group
Average age of the household head (years)	45	46
Proportion of male headed households (%)	98	91
Proportion of female headed households (%)	2	9
Average household size	8	9
Average cattle owned per household (as at May 2016)	18	15

### 3.2 Improved Management Practices

In addition to product provision, the veterinary firms provided extension messages to farmers on improved management practices which pertain to issues related to herd health plans (tick prevention, vaccinations, deworming) and animal management (mainly animal nutrition, kraal management, and calf management). In order to determine whether farmers were adopting the improved management practices, the proportion of farmers practicing selected cattle management practices was derived and the results are stipulated in table 2.

#### *Supplemental feeding, Weaning and Dehorning*

The proportion of farmers observed to be using better management practices such as weaning and dehorning were more in the user group than non-user group. About 84% of the farmers in the user group dehorned their animals compared to 64% amongst non-users. It was also noted that 16% of the farmers in the user group weaned their calves while 12% weaned their calves in the non-user group. Furthermore, there were less farmers in the user group that practiced improved feeding practices. Only 27% of the farmers in the user group gave their animals supplemental feed in form of maize bran and crop residues. On the other hand, 39% of the farmers in the non-user group gave their animals supplemental feed which was mainly in form of crop residue. This shows that more efforts need to be directed towards enhancing the extension messages on nutrition. These findings also show that farmers have adopted dehorning more widely than other practices such as weaning and supplemental feeding.

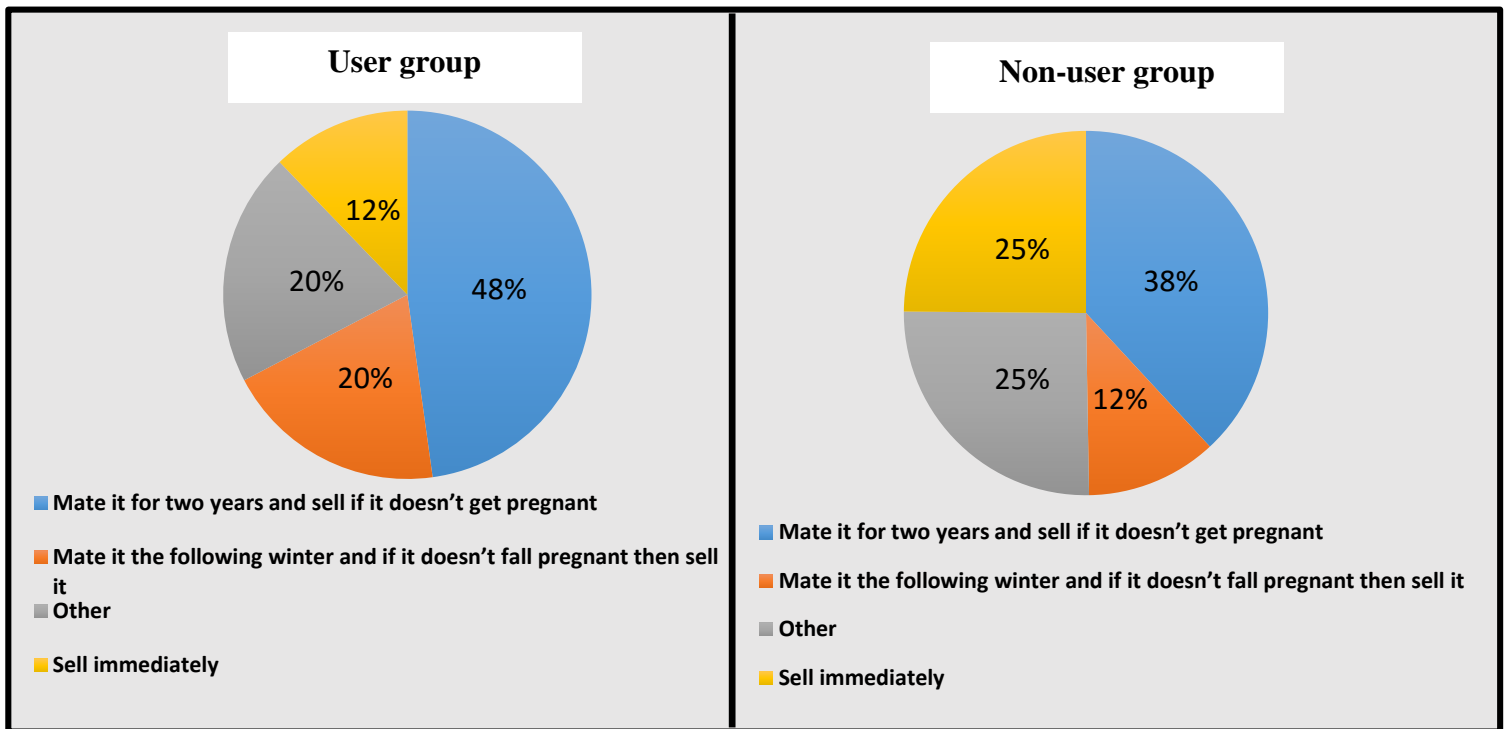
**Table 2: Management Practices by Users and Non-users**

Improved management practices	User group	Non-user group
supplemental feeding (%)	27	39
Weaning (%)	16	12
Dehorning (%)	84	64

### *Culling Practices*

To find out how farmers deal with cows that do not breed, they were asked to indicate what measures they take when a cow does not breed. Figure 1 highlights the different responses organized into four categories. Amongst the user group, about 48% of the farmers said they first mate the cows for two years and sell them off if they don't fall pregnant, 20% of the farmers mate the cows the following year and sell off if the cows don't fall pregnant, while 12% reported that they sell off the cows that don't breed immediately. The remaining 20% of the farmers indicated that they had never experienced cows that do not breed, others continued to mate the cow for more than two years, while others used the animals for activities such as animal draught power.

**Figure 1: Culling practices**



On the other hand, the responses from the non-user group were as follows: 38% of the farmers first mate the cows for two years and sell them off if they don't fall pregnant. 12% of the farmers mate the cows the following year and sell off if the cows don't fall pregnant, while 25% reported that they sell off the cows that don't breed immediately. In addition, about 25% of the farmers

either continued to mate the cow for more than two years or used them for other activities such as animal draught power.

Furthermore, the focused group discussions derived some of the benefits perceived by farmers of receiving extension services. Farmers indicated that they were able to receive information on product usage and brand differentiation which improved their capacity to treat their animals and enabled them to make informed choices about the different brands. Surprisingly, the provision of extension services also led to an increase in the proportion of female farmers reached. One of the firms interviewed indicated that the proportion of female farmers receiving training on improved livestock management practiced increased from 10% to 25%, thereby opening up a completely new customer base.

### **3.3 Cattle Herd Health and Milk Production and Sales**

Table 3 compares mortality rates, calving rates, milk production and milk sales amongst farmers in the user group and non-user group. A discussion on these variables is provided below.

#### ***Cattle Mortality Rates and Calving Rates***

Results on the mortality rates revealed that farmers in the user group experienced lower mortality rates of about 1.7% per household herd, while farmers from the non-user group experienced higher mortality rates of about 5.8% per household herd. This is not surprising as the farmers in the user group were able to access improved veterinary services through the Musika supported initiatives, which may positively affect the health of the animals. As for the calving rates, the average calving rate per household herd was found to be higher for the user group at 67%, than for the non-user group at 53%. The median calving rate showed an even higher distinction in performance between the user group and non-user group. The median estimate showed that more than 50% of the beneficiaries had calving rates above 67% in the user group and 50 % in the non-user group.

**Table 3: Cattle Mortality Rates, Calving Rates and Milk Production and Sales**

<b>Indicators</b>	<b>User group</b>	<b>Non-user group</b>
<b>1. Mortality rates</b>		
Average mortality rate per household herd	1.7%	5.8%
<b>2. Calving rates</b>		
Average calving rate per household herd	67%	53%
Median calving rate	67%	50%
<b>3. Milk Production</b>		
Milk Production per household per month during the wet season (litres)	339	255
Milk Production per household per month during the dry season (litres)	132	133
<b>4. Milk sales</b>		
Milk sales per household per month during the wet season (litres)	137	95
Milk sales per household per month during the dry season (litres)	38	23

***Milk Production and Sales***

The level of milk production is affected by the quality of nutrition milking cows are subjected to, among other factors. Since the nutrition of the animals in smallholder production is highly susceptible to seasonal fluctuations, the effect of these fluctuations on milk production and sales were taken into account in the analysis. To do this, the periods of milk production and sales were



segmented into two categories, that is the ‘wet’ season and the ‘dry’ season. The wet season refers to the period between November to April when cattle typically have more food available from grazing. The dry season refers to the period from May to October when cattle typically have less food available from grazing. Milk production and sales for the user group and non-user group were then compared with respect to the two periods

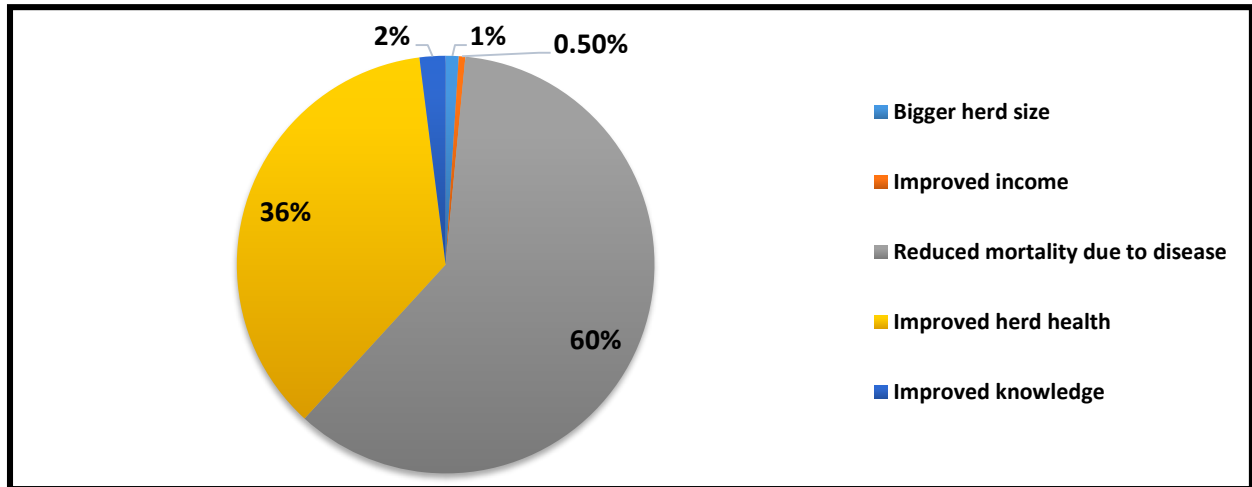
The results showed that farmers in the user group experienced significantly higher milk production and sales than those in the non-user group during the wet season. The average milk production per month for households in the user group was about 339 liters and 225 liters for those in the non-user group. On the other hand, there wasn’t a significant difference observed in milk production during the dry season between the user group and non-user group. It is possible that improved access to veterinary services significantly improved milk production during the wet season, but that this effect was countered by the poor nutrition in the dry season.

As for milk sales, households in the user group were able to sell more milk on average than households in the non-user group of about 137 liters per month and 95 liters per month respectively, during the wet season. This shows that increased milk production amongst farmers in the user group translated into a higher marketable milk surplus than for those in the non-user group. The milk sales during the dry season were also higher for users than non-users, that is about 38 liters per month and 23 liters per month respectively. However, the difference was not as much as in the wet season.

### **3.4 Farmer Perceptions of the Benefits of Working with the MPF**

Figure 2 shows the farmers’ perceptions of the benefits they experienced due to accessing improved veterinary services. About 60% of the households indicated that they experienced reduced cattle mortality caused by disease while 36% of the households were of the perception that the general health of their herds had improved. Furthermore, only about 2% of the livestock producers felt that their knowledge on livestock production practices had improved.

**Figure 2: Farmers perceptions of the benefits they have experienced due to accessing improved veterinary services (user group only)**



## **Chapter 4 - Firm Level Case Study**

As part of its agenda to improve how agricultural markets work for the poor, Musika provided equipment and logistical support to private veterinary firms to enable them provide an extension based sales model or a bundle of services to the rural livestock market, which include veterinary products, extension services and genetic and nutrition services. In addition to the farmer survey, a qualitative assessment was conducted on a sampled veterinary MPF to examine the business performance of veterinary firms serving the smallholder livestock market. The results of the business performance assessment were used to build a case study that demonstrates the benefits that investing in an extension-based rural sales model yields for agribusinesses. Data was collected from the MPF through one-on-one interviews with the firm owner and/or key firm staff. The following were the findings from the case study.

### **4.1 A comparison of Profit and Costs Over Time**

To implement the market initiative, the MPF changed its business model from an over-the-counter sales model to an extension-based sales model which coupled product provision with product training, extension services and in some cases operating livestock service centers in the rural areas. Because of this, the firm experienced a significant increase in sales. Furthermore, one the firm's rural sales agents also experienced an increase in monthly drug sales from K1200 (low season) and K2400 (high season) in 2014, to K1800 (low season) and K3000 (high season) in 2016. In addition, the firm also increased its product range due to an increase in the demand for its products.

### **4.2 Change in Customer Base**

The firm staff interviewed also indicated that they had observed an increase in the number of clients. This was in part due to a change in their business model from serving walk-in clients only to reaching out to would-be clients through the provision of extension services. This process began when they identified lead farmers to help mobilize farmer groups in their community for the firm to visit and train on animal husbandry issues. During these meetings, farmers who were looking to purchase veterinary services would be advised to go to the MPFs sales outlets. Because of this, the

firm's customer base expanded. In addition to the increase in the number of walk-in clients, the firm also opened new outlets in various geographical areas to an entirely new population.

In addition, the firm had also benefited from customer referrals or word-of-mouth. Even though the firm could not estimate the customer referral value generated, there was evidence indicating that a proportion of the new clients going to its outlets were encouraged to do so by other farmers who had previously used the firm's products. For instance, in 2014, the firm included their contact details on the packaging material of their products. Since then, they observed that some of the new clients walking into the outlets would have empty product packages that they acquired from older clients, with the contact details on them.

### **4.3 Customer Loyalty**

There are a number of reasons why the firm believes it has gained considerable loyalty from its customers. The firm's emphasis on providing quality products, extension service as well as a rural distribution network have played a key role in promoting customer loyalty. The firm received positive feedback about its products from its customers, which is testament to the quality of the products it provides. Provision of extension messages to the farmers has also positioned the firm as a leader in matters of veterinary product knowledge in the minds of farmers. The staff cited many instances in which farmers would purchase products from competing outlets, but would come to the MPF's staff in order to get an explanation on how to use the product. In addition, the firm's rural product distribution network provides a convenient and less costly shopping experience for the firm's clients. This is because the firm accepts product orders via phone call from its clients, who are then directed to the nearest outlet they can purchase the products. Because of this, clients were pleased that they were able to pick up the products from a rurally placed agent. There were also cases in which clients would opt to wait for the firm's outlets to open during the stipulated business hours, even when there were other competing stores within the vicinity that would already be open to serve clients.

#### **4.4 Challenges Experienced as a Result of Using an Extension-based Sales Model**

##### *Challenges Derived from the Firm's Perspective*

Despite achieving these successes, the MPF has experienced a number of challenges because of using an extension based business model. Firstly, the amount of investment required to set up and operate an extension system was high which led to an increase in the costs of running the business. The movement from an over-the-counter model to an extension service model resulted in an increase in operational costs mainly due to an increase in the number of staff needed to run the business and fuel expenditure required to travel to the rural regions. The firm indicated that it did not make profit off of their clinical services, however it still offered these services to its customers as it eventually helps to increase product sales. Thus all in all, the firm indicated that it generates positive returns.

There was also indication that the firm was having challenges managing the growth of the business that came as a result of the extension-based business model. Farmers cited incidences of stock selling out in certain outlets, or sales staff not being available in the outlets because they would also be involved in the community outreach activities. In addition, the firm's outreach activities would in some cases connect the firm to potential clients who are located in far-flung areas which do not have easy access to an outlet. Therefore, serving such clients on a consistent basis would be challenging.

Serving a low income clientele that is highly dependent on seasonal income has also posed challenges for the business. Firstly, farmers continue to express discontentment over the price of veterinary products and express interest to have the option of accessing the products on credit. Secondly, the rural farmers are only beginning to embrace a commercial approach to accessing veterinary services and there are a number of reasons for this. In the past, farmers were able to access veterinary products from government at little or no cost which negatively impacted their willingness to pay for services. In addition, livestock production was for a long time perceived by farmers to be a cultural activity or way of life rather than a commercial undertaking.

### *Challenges Derived from the Farmers' Perspective*

The results from the focus group discussions held with some of the firm's clients revealed two main challenges that could lead to inefficiencies in the way the extension services were being provided. Farmers indicated that the MPF did not regularly conduct maintenance works at livestock service centers or facilities, which were used as key points of interaction between the firm and the farmers. The centers are used for servicing farmers as well as a meeting location for trainings. However, some of the centers were not yet fully constructed while others needed repair. There was also a limited supply of water in some areas, making it difficult to run the centers. The farmers also called for increased investment in hazard mitigation and education, such as provision of appropriate safety gear to be used during spraying or dipping activities.

The clients also cited challenges related to the extension system schedule and personnel. They indicated that extension staff made infrequent visits, and sometimes would come late for meetings or not show up at all. This could be attributed, in part, to the ineffective communication that sometimes occurs prior to field meetings or trainings. The lack of consistency in extension service provision has the potential to negatively impact the farmers' confidence and the firm's business.

## Chapter 5 - Conclusion

Musika supported veterinary firms to develop commercial linkages with smallholder livestock farmers that integrate the provision of veterinary products, extension services and genetic and nutrition services to farmers. After four years of implementing these market initiatives, Musika conducted a research study in order to understand the extent of shared value in the smallholder livestock markets that have Musika supported veterinary initiatives.

The results showed that livestock productivity was higher among the farmers in the user group than in the non-user group. Farmers in the user group experienced lower mortality rates of about 1.7% per household herd, while farmers in the non-user experienced a higher mortality rate of about 5.8% per household herd. In addition, the calving rate per household herd was found to be higher for the user group at 67% per household herd, than for the non-user group at 53% per household herd. Furthermore, during the wet season, farmers in the user group experienced significantly higher milk production than those in the non-user group, that is about 339 liters per month and 225 liters per month respectively. Similarly, for milk sales, households in the user group were able to sell more milk than households in the non-user group of about 137 liters and 95 liters respectively. As regards management practices, the proportion of farmers observed to have adopted improved management practices such as dehorning was higher in the user group than in the non-user group. About 84% of the farmers dehorned their animals compared to 64% amongst non-users.

To implement the market initiative, the MPF changed its business model from an over-the-counter sales model to an extension-based sales model. The results from the firm level interviews showed that the MPF had experienced significant growth in product sales after it changed its business model from an over-the-counter sales model to an extension-based rural sales model. The extension-based model improved the firm's business-to-person interactions which ultimately led to an increase in product purchases per client. In addition, the firm also gained the customers' loyalty as well as new clients due to customer referrals and expansion into new geographical areas. Despite achieving these positive results, the extension-based business model also led to a number of operational challenges such as increased operational costs and challenges in managing the business growth. Despite this, the evidence still indicates that the firms are generating positive earnings because of investing in the rural livestock markets.

All in all, the farmer and firm level results show that the farmers and firms are experiencing a mutually beneficial commercial relationship which is deriving shared value. It is therefore critical that developments efforts focus on supporting private sector investment in the provision of veterinary products and information in rural areas that are under-served.