Chapter 17

Experiencing the Functionality of Mathematical Indigenous ICTs on Community Development:
A Case of Farm House Dairy Product

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ABSTRACT

The use of Information Communication Technologies (ICTs) in agriculture is fundamental to rural development especially in the 21ˢᵗ century (Rashid, et al., 2007). This chapter thus illustrates the use of an indigenous technology using the case of Madila production in a Dairy House Farm at Molapowabojang, a rural village in Southern District of Botswana. The Dairy House Farm started production in 2002 with the aim of producing both fresh and sour or curdled milk (Madila). Although traditionally madila was for subsistence family consumption, the use of community-compatible ICT, namely, sieve like plastic bag, natural sun beam and cooling system made from a wooden shelter, combined with modern machines such as milking machines, milk tubes attached to the cow's udder have enabled the Dintwa family to convert the practice into commercial industry.

From manual to usage of machines, milk is produced in large quantities and through quantitative and computer skills, the farm output is managed well. The sales of fresh milk and madila (sour milk) are tracked through the use of an ICT gadget, the computer. This family uses internet and media such as Farmers'

Digest to identify cows that can produce more milk. In the future, the Dintwa family plans embark on another project, that of the production of food for the cows as a strategy to reduce costs for buying from others and maximize profits. Currently, the Dairy House Farm is negotiating the possibility of engaging in the cross border trading with farmers in South Africa because of customer demand in that country.

The benefits of the farm to the community are multifold. About 80% of workers in the Dairy House Farm project come from Molapowabojang, a rural village in which this farm is located. There is no doubt that this farm contributes to the wellbeing of its employees. This project also contributes directly to community members not working in the farm. They are given liquid whey for free and the product is useful in a number of ways. It can be used to cook sour meal (sorghum or porridge). Overall, the madila product is highly nutritious making the farm contribute to development of the village by reducing the rate of malnutrition among people especially, children who benefit from it.

INTRODUCTION

Ownership of cattle has been part of the Botswana culture time immemorial. It was a sign of social significance in that poverty was measured by the number of beasts a family had. The head of the family with fewer cattle attracted less dignity from the community members. However, farming practices were not motivated by profit making as is it recently. ICTs have played a role in this new direction. For instance, a modern farmer obtains information from various sources including ICT gadgets like computers and internet for a successful profiting making business. Such information includes topics on disease management, modern animal feeds, cross-breeding techniques, etc. Moreover, the farmer is now able to predict his production from the quantity and the quality of the animal feeds he or she buys. However, the use of technology in animal agriculture is not new. The need to improve animals especially cows, necessitated the use of artificial insemination and the freezing of semen, which became successful because of research and the generation of information through experimentation. Thus, ICTs have been and continue to be used to enhance agriculture, which is a cornerstone of rural developments in villages such as Molapowabojang. The purpose of this study was to explore how modern technology is integrated into the cultural techniques of

dairy farming to commercialize the production and how such initiative contribute to community development.

BACKGROUND

The Dairy House Farm (Figure 1) showcased in this chapter belongs to a family, Mr Batshwari Dintwa and his wife Lucy. They embarked on this project in January 2002 through the help of Citizen Entrepreneurial Development Agency (CEDA).

CEDA is a government initiative grant scheme to help Batswana engage in entrepreneurship with the goal of diversifying the country's economy (Republic of Botswana, 2007). The Farm is located in Molapowabojang and it occupies 25 hectares of land. It houses about 100 herds of cattle, of which 50 were being milked at the time of the research.

Molapowabojang is one of the villages in the Ngwaketste Sub-district with a population of about 5 000 and 19 associated localities with 2 600 people. It is a typical rural area in the sense that both arable and pastoral farming are practiced. Although it experiences lack of rain like some parts of the country, pastoral and subsistence farming are a norm. It is, for example, the culture among Batswana to rear cattle for meat, fresh milk, *madila* and skin but not for commercial purposes.

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