

**Norman Mhazo, Benjamin Hanyani-Mlambo, Raymond M. Nazare, Knowledge Mupanda, and Michael T. Masarirambi: Small- and medium- scale production and marketing of processed fruits and vegetables in Zimbabwe**

## **SMALL- AND MEDIUM-SCALE PRODUCTION AND MARKETING OF PROCESSED FRUITS AND VEGETABLES IN ZIMBABWE.**

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### **ABSTRACT**

*A study was conducted to investigate the constraints and prospects of small-scale production and marketing of processed fruits and vegetables in the eastern districts of Zimbabwe. A sample of 26 small-scale horticultural producers/ processors was randomly selected during the land reform exercise involving in-depth interviews to gain insight of the requirements for small-scale enterprises to effectively produce and market processed fruits and vegetables. The results showed that small-scale food enterprises were mainly engaged in the production of dried fruits, vegetables, and fruit jams. The growers are encountering technical, financial, infrastructural, institutional, social and information gaps as constraints. It was revealed that fruit and vegetable production declined sharply during the land reform transitional period. Food processing was hindered by lack of training, high prices of basic ingredients, lack of appropriate processing equipment and shortages of packaging material. Processors generally lacked marketing information and processing skills. From this study, it may be concluded that availability of appropriate processing equipment, processing skills, packaging material, and marketing information could improve financial returns to small-scale horticultural processors. It may be recommended that small scale fruit and vegetables processors require further training in their business and that banks and allied companies are urged to avail financial services to them.*

**Keywords:** Food processing, dried fruits and vegetables, fruit jam, financial and socio-political constraints.

## INTRODUCTION

Zimbabwe's economy suffered immensely as a result of the land reform programme implemented in 2000-2. Thousands of indigenous households were allocated land under resettlement models A1 (smallholder farming) and A2 (small-scale commercial agriculture). The resettlement exercise was expected to increase levels of agricultural production as under-utilised land in the former large commercial farms was opened up for farming activities, communal areas were de-congested and most commercial farm sizes were reduced to manageable sizes for new farmers. Research has established that productivity increases exponentially with decrease in farm size in all natural regions of Zimbabwe (Elich, 2005). Though substantial growth has since been noted among A1 farmers in terms of land clearance, planting of crops and investment in new assets, A2 farmers have been hindered from making significant farming investments due to political instability, hyperinflation, lack of credit, high interest rates, high taxation and general economic meltdown (Mutangadura, 2001; Scoones, 2008) and also lack of security of tenure. This was exacerbated by negative changes in climate and lack of commercial farming skills. It is, however, widely believed that achieving political and economic stability in the country would enhance potential of the land reform to increase average farm incomes, improve income distribution and reduce poverty (Chakwera, 1996; Chitiga and Mabugu, 2008). An increase in agricultural production on the new resettlements is a key source of livelihood that has potential to create a diversified portfolio of activities such as food processing. Food processing may increase the value of crops, through improving shelf-life, adding value and thus yielding higher returns, and furthermore overcoming seasonal and perishability constraints (Masarirambi *et al.*, 2009).

In sub-Saharan Africa, it is estimated that 60% of the labour force find part of its work in food processing enterprises (Jaffee, 1993; Odunfa, 1995; ITDG, 2005). The envisaged growth trend in the Zimbabwean agricultural sector is likely to favour establishment of small- and medium-scale food industries (Sandlels, 1989; Simalenga, 1996; Fold, 1999; Mhazo *et al.*, 2012). The greatest potential lies in the growth of small-scale fruit and vegetable processing as many horticultural producers experience problems in marketing of fresh produce. The major limitations faced by fruit and vegetable farmers include; lack of access to marketing information, lack of market integration, lack of data on supply and demand trends and prices, reliance on spot or road-side markets, transport constraints and spoilage (Daniels, 1993, Dawson, 1994; Boyd *et al.*, 1997; SMALL FOOD, 1999 a and b). On the other hand, buyers of farm produce perceive local farmers as struggling, marginalised and deserving special attention (Toler *et al.*, 2009). Adoption of improved and validated food processing technologies, enforcement of good standards of quality and hygiene and regulatory instruments may assist local small- and medium-scale food industries to compete favourably with relatively more established food processors in the market place.

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Food processing is predominantly a female activity, practised on a daily basis by the majority of women. Between 62% and 84% of small-and medium-scale enterprises in Lesotho, South Africa, Swaziland and Zimbabwe are owned by women (USAID, 1998; ZEPZA, 1998; Sharif, 2000). The predominant role of women in small-scale food processing activities can be attributed to the lack of requirement for a formal education. Sharif (2000), reported that 70% of women in sub-Saharan Africa who were 15 years and above were illiterate whilst for men it was about 20%. The fact that women can combine household chores and running a food processing enterprise and the lack of competition from men in food related activities (Richter *et al.*, 1996) presents an opportunity for women to achieve upward economic mobility. With a few additional skills and initial external support, daily activities can be utilised by women to generate income. Women are particularly predominant within the informal food sector, which essentially consists of units which usually employ family members (the majority with no formal training in food processing), and which are not legally registered as businesses. Given the high level of female participation in small-scale food processing enterprises, the sector is widely acknowledged to be a valuable mechanism to empower women in rural and peri-urban areas and enhance their economic status (Mosha, 1983; Mugova, 1996; Mrema, 1997; Richter *et al.*, 1996; Machete, 1997). Even though women are predominantly found in lower income food processing enterprises, they have a critical role in helping families to survive (Soetan, 1997).

From the above, present work was designed to know the requirements for small-and medium-scale enterprises to effectively produce and market processed fruits and vegetables. Specific attention was given to the identification of the necessary requirements for small-scale producers/processors to effectively produce and market processed fruit and vegetable products and access to potential markets.

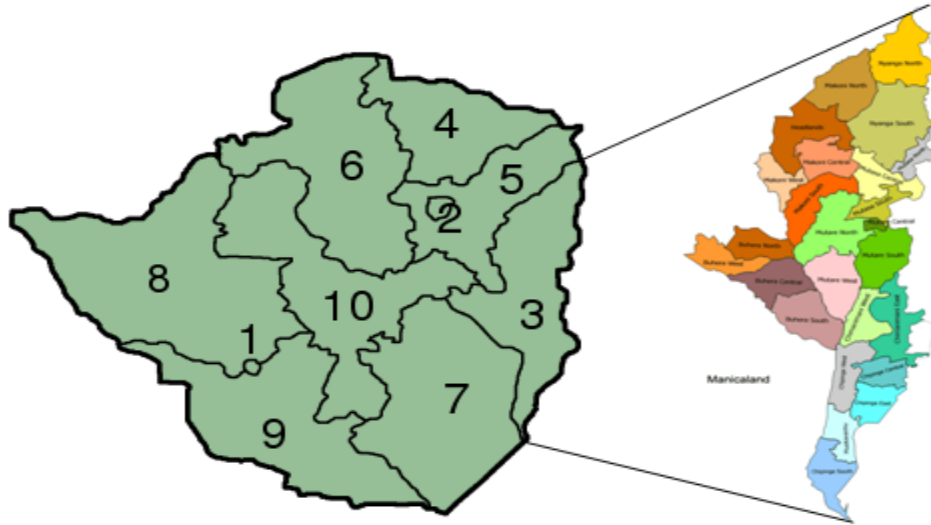
## **METHODOLOGY**

A series of staggered 26 case studies were carried out in the eastern districts of Zimbabwe (Figure 1) between 2000 and 2005. Sampling was done in areas that had different geophysical characteristics, degrees of infra-structural development and social dimensions. The study examined the specific requirements of existing small- and medium-scale producers/processors in terms of procurement of raw materials, appropriate processing technologies, quality control procedures, market information and marketing effort. The impact of food safety and hygiene were also brought into account.

Of the 26 case studies, seven were carried out in Mashonaland East Province in the districts of Murehwa (5 cases), Marondera (1) and Mudzi (1). The remaining 19 were in Manicaland Province in the districts of Nyanga (12), Makoni (1), Chimanimani (4) and Chipinge (2). Manicaland province is the largest producer of fruits and vegetables followed by Mashonaland East in vegetable production and Mashonaland Central in fruit production.

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The data were analysed using the Statistical Package for Social Sciences (SPSS; Chicago, Illinois, USA). and through comparative analysis based on descriptive statistical analysis.



**Figure 1. The map of Zimbabwe showing the eastern districts.**

The constraints investigated included technical, financial, infrastructural, institutional, social and informational factors. The case studies involved in-depth interviews with randomly selected small- and medium-scale horticultural producers/processors using a standard interview guide and checklist. The interview guide was developed on the basis of results from previous baseline research work.

## RESULTS

### Processed products

Of all the case studies conducted, 15 enterprises were involved in the processing of fruit jam /jelly/marmalades, 14 were involved in drying of vegetables and 5 processed dried fruit products. Only two enterprises processed vegetable soups, chutney and piccalilli.

### Socio-economic constraints:

Small- and medium-scale processors located in the tourist zones of Nyanga and the Eastern Highlands reported that they lost business due to the general decline in tourism in the country. Processed food sales at roadside kiosks dropped drastically since 2000 due to reduced volume of traffic on the main roads as a result of erratic supplies and increased price of fuel.

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Fruit and vegetable production declined sharply during the farm ownership transition period due to socio-political tensions and economic logistical challenges. This was further worsened by high input costs particularly for seed, chemicals and equipment, lack of technical know-how and recurrent droughts. The limited amount of fruit and vegetables available on the market was relatively expensive for the processors to make meaningful business.

Prices of basic commodities that were essential for food processing such as sugar and salt had increased sharply during the period of the study. This resulted in highly priced processed products on the market. Consequently, very low sales were realised as consumers were prioritising on essential basic foodstuffs and cutting down on luxuries such as fruit jam.

**Fruit and vegetable production and management constraints:**

Small-scale horticultural producers reported limited access to seed, fertilizer, pesticides and irrigation water. Some producers embarked on stream-bank cultivation where access to water was relatively easy posing environmental degradation. Fruit and vegetable production was also heavily constrained by the prevalence of pests and diseases such as aphids and mildews that caused losses of up to 50% in some cases. However, most of the producers demonstrated a good knowledge of the common pests and diseases but had limited understanding of appropriate control methods.

**Food processing technological constraints:**

Most, (88%), of the interviewed processors carried out their food processing activities in their home kitchens (Table 1). Processing of raw materials (grading, peeling, and cutting) was done by hand using ordinary kitchen knives. The ordinary household pots (clay, enamel, and aluminium) were used for cooking jam. Drying of vegetables was predominantly done by spreading out cut and blanched pieces in thin layers on clean flat surfaces in the sun. Small-scale processors lacked storage facilities to keep raw or semi-processed products for use in the off-season period.

**Packaging:**

Accessing appropriate packaging material for processed products was identified as a major constraint especially for those enterprises with a high market focus. In December 2000, like most industrial players during that period, Zimbabwe Glass Industry Limited, the country's leading glass container manufacturer, suspended production citing economic challenges. Jam producers who relied on the company for jam jars were left without a supplier. Most (73%), enterprises resorted to using recycled glass jars (Table 1). However, they were quite aware of the food safety and hygiene concerns of the practice. The few who were not comfortable with use of recycled glass jars had substituted them with plastic peanut butter

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jars. They, however, knew very well that these were not recommended for jam, as they could not be easily sterilised.

**Marketing:**

Marketing of small-scale processed food products was found to be largely informal. Enterprises located in rural areas relied on demand from local informal markets, which were small and unreliable. Demand was erratic and seasonal (only when fresh products were not available). The study established that there was a general lack of marketing information and skills. Processors had little knowledge of their customer preferences regarding product range, taste and packaging for example. There was no evidence of deliberate effort to promote marketing of the processed products. Lack of transport was often cited as a hindrance to going out and marketing the businesses.

**Training:**

The study showed that 31% of the producers/processors interviewed had received formal training in food processing (Table 1). The majority of processors relied on informal training, informal sources of information and recipes found in magazines and books. However, the few (8%) who had received training in food processing generally lacked skills in product marketing.

It was established that all processors were aware of the general food safety requirements and the hygienic practices to be adhered to in the industry. Nonetheless, less than 40 % of the respondents were paying significant attention to hygiene and basic food safety procedures (Table 1). Knowledge of regulations and legislation governing food safety and hygiene issues was only evident among those processors who marketed their products through formal outlets. The required cost of meeting the Standard Association of Zimbabwe (SAZ, 2004) regulations was viewed by the more informal processors as not encouraging.

**Working capital:**

Various processors (75%) interviewed indicated poor cash flow as a constraint (Table 1). The cash problem was among other factors caused by bad debts from clients amid runaway inflation.

Table 1. Constraints (%) of food processing faced by small scale processors in Eastern Districts of Zimbabwe.

Place	88%	-carried food processing in home kitchen
	12%	- factories
Packaging	73%	-recycled glass jars
	27%	-new glass jars
Training	31%	-formal training
	69%	-informal training
	40%	-paid attention to hygiene and food safety
Finance	75%	-faced financial constraints
	25%	-did not report any problem

## DISCUSSION

Drying of fruits and vegetables and jam making have potential to provide small-scale producers improved returns to horticultural production in Zimbabwe. However, the country's agricultural sector is currently recovering from the effects of the national economic and political problems and the world economic downturn. The country is still suffering from erratic fuel and electricity supply (Reuters, 2008; Shango, 2009; IRIN, 2010), while unemployment was recorded to the level of 94% (Mail and Guardian, 2009). An acute shortage of foreign exchange, high agricultural production costs and a sharp decline in tourism revenue that dropped drastically in the last decade (Machipisa, 2001, Ferreira, 2004) has yet to take off. The escalating costs of basic food commodities in the years of socio-economic turbulence prompted the Government of Zimbabwe (GoZ) to introduce price controls on basic food items. Unfortunately this move led to erratic supplies and general shortages of some controlled products such as sugar, cooking oil, salt and margarine (Wines, 2007).

In that dilemma, the GoZ lifted the price controls only leading to sharp rises of prices and worsening the already bad situation of fruit and vegetable processors. Imported preservatives such as pectin became just too expensive for jam processors due to the shortage of foreign currency, high parallel exchange rates and inflation. Price increases for local products, sugar for example, had a direct effect on the cost of processing fruit products such as jam. The recent introduction of a multiple currency system has not helped

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much since access to foreign currency by the majority of ordinary Zimbabweans remains poor (Takunda, 2009), thereby entailing subdued demand for processed fruit and vegetable products and limited working capital for the producers/processors.

The shortage of seed, fertilizer, pesticides and water for irrigation made it difficult for new farmers to increase and/or diversify production of fruit and vegetables (Svotwa *et al.*, 2007). Stream-bank cultivation, which is quite rampant, is an illegal practice that not only puts the producer at risk of prosecution but leads to environmental degradation.

Lack of appropriate food processing equipment and cold storage facilities hinder the ability to process large volumes of products over a relatively longer period. Horticultural crops are highly perishable and seasonal. For one to continuously process fruits and vegetables there has to be some storage facilities. The general lack of cold storage facilities among small-scale processors implies that they can only process vegetables and fruits that will be in season at a particular time (Madakadze *et al.*, 2004). Without appropriate storage facilities it, therefore, means that small-scale processors have limited capacity to maintain constant supply of processed products.

The use of basic household utensils is limiting production capacity. Jam processors for example, often use inappropriate pots and wood fire for cooking. Cooking over wood fire makes it difficult to regulate temperatures resulting in poor quality smoky-flavoured products. There is a need to adopt modern methods and use of appropriate equipment (Madakadze *et al.*, 2004; Parawira and Muchuweti 2008; Masarirambi *et al.*, 2009; 2010). The traditional method of sun drying of vegetables was found to be relatively slow thereby exposing the product to bad weather conditions, insect infestation, enzymatic reactions, micro-organism growth, mycotoxin development and dust contamination (Kordylas, 1990; Madakadze *et al.*, 2004; Sprenger, 2005; Masarirambi *et al.*, 2010). Lack of formal training acts as a barrier against confidence in marketing food products and business development even though the quality could be good.

## **CONCLUSIONS**

The success of small-scale food processors strongly depends upon integration of various points of intervention such as development or acquisition of appropriate processing equipment and related infrastructure, provision of processing skills through training and availability of appropriate packaging material. Marketing information and skills should be made available for the small-scale food processors to break into the formal markets. Processors would require reliable sources of high quality raw material of the appropriate varieties, efficient storage facilities to buffer seasonal production peaks and periods of shortage and trained labour force to plan and perform necessary operations. This, however, depends on the parallel developments in the fruit and vegetable production sector, processors' access to finance and political stability. It may be recommended that small scale



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