

# Smallholder Horticulture

*in*  
**ZIMBABWE**



*edited by*  
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and  
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# MARKETING SYSTEMS FOR SMALLHOLDERS: A COMPARISON OF ASSEMBLY MARKETS IN AREAS OF PRODUCTION WITH FARMER MARKETING AT MBARE MUSIKA IN HARARE

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## ABSTRACT

The main traditional marketing channel in the study area involves the transportation of the produce to Mbare Musika in Harare using buses and private trucks, and the marketing is done by the farmers. The system has its own market management strategies but does not apply strategic market management.

The innovative marketing system introduced by the project is based on the establishment of farmer controlled associations with the capacity to do primary bulking, grading and packaging of the produce at the assembly markets and then transporting and marketing the produce on behalf of its members. The system is designed to reach a wider range of market outlets and customer segments, thus giving a better potential to maximize profits relative to the traditional marketing systems with narrower market segments.

Two years after the first assembly market was completed in Mutoko, to assist with the marketing of horticultural produce from smallholder farms, the volumes being channelled through the new outlet are still very low and account for only 8% of the total volume of produce handled by the project. Few farmers are taking advantage of the large capital investment made by government at the assembly markets, which include coldrooms and grading machines. This investment was made to make the marketing of horticultural produce from the area more competitive.

The million dollar question is why have the two assembly markets established to date failed to provide attractive market outlets for horticultural produce from smallholder farms?

It is likely that the new marketing channel being promoted by the project is not as efficient and profitable to the farmers as the traditional marketing channel through Mbare Musika and therefore give a lower return or fails to meet their marketing objectives.

The theoretical justification for the introduction and use of assembly markets is that it allows the smallholder farmers to benefit from the economies of scale through bulking up of the produce, benefit from collective bargaining during price negotiations and allow marketing specialization by the associations which would be conducive to process and technological development.

It was therefore expected that the net return to the farmer would be higher in the new system and be able to attract a greater patronage compared to the traditional marketing systems. The slow adoption of the new marketing system is assumed to be due to the low return and sub-optimal performance with respect to meeting the farmer's objectives.

## INTRODUCTION

Mbare Musika is the largest open fruit and vegetable market and is estimated to handle 350 000 tonnes annually accounting for 40% of the volume of produce delivered to the Harare and Chitungwiza, (ARDA, 1990).

The customer composition for the Mbare Musika market is as follows:-

- 52% retailers operating from city council market stalls,
- 28% hawkers mainly selling from street corners,
- 9% middlemen popularly known as the "Makoronyera" who operate as small scale wholesalers at Mbare Musika and
- 11% other customers including the public.

The 1990 ARDA survey estimates the private wholesalers to handle up to 400 000 tonnes of fruit and vegetables annually, most of which is targeted to the up market and institutions, 5% of the produce is exported and up to 40% goes into local inter-regional trade. The range of produce originating from the members associated with a given wholesale unit tends to be narrow and this had developed a dependency on inter-trade among the wholesalers to facilitate the supply of a wider range of products to their customers. The private wholesalers tend to have the following infrastructure and services;

- market and service buildings with cold storage and precooling facilities,
- grading, packing and prepacking facilities,
- transport for distribution,
- an extension service to provide back up services to the producers,
- an information service on product prices, demand and supply levels,
- assistance to producers with the procurement of production inputs and
- specialisation in the marketing of members produce.

The assembly markets being introduced in the project are an attempt to assist smallholder producers to penetrate the up market using similar strategies to those being adopted by the competitors (large-scale commercial producers). The basic strategy adopted by the assembly markets is that of copying the competitors and adapting the technology or process innovations to suit ones environment. The commercial farmers are coming together and establishing pack housing where produce is delivered, graded and marketed on behalf of the members. Examples include Hortico, FAVCO and Enterprise Coop.

## COMPARATIVE PRICES THROUGH THE ASSEMBLY MARKETS AND MBARE MUSIKA

Table 1 shows that the assembly market price surpassed the Mbare Musika prices in all the twelve months of the year. The results are slightly distorted by the fact that the

**Table 1: Weighted average tomato prices \$ per kilogram for the two channels and volumes in tonnes at the assembly market**

Month	Ass. mkt. prices	Mbare price	Ass. mkt. vol.
November 92	2.83	1.1	0.47
December 92		1.99	0
January 93	1.16	0.66	0.03
February 93	1.08	0.93	34.21
March 93	0.67	0.27	66.66
April 93	0.82	0.39	28.38
May 93	1.00	0.50	40.49
June 93	1.50	0.80	17.76
July 93	1.45	0.90	15.19
August 93	1.10	0.29	29.07
September 93	0.87	0.56	38.47
October 93	1.60	0.60	29.32
	Column 1	Column 2	Column 3
Correlation coefficient	1		
Column 1 and Column 2	0.74323	1	
	Variable 1	Variable 2	
	Column 1	Column 2	Column 3
Mean	1.28	0.75	25.0
Correlation coefficient			
Column 1 and 2	0.7432		
Paired observations	11		
Required value			
for significance at:-			
P = 0.01	0.7348		
Correlation coefficient			
Column 2 and 3	-0.6647		
Paired observations	12		
Required value			
for significance at:-			
P = 0.05	-0.5324		
P = 0.02	-0.6581		

The assembly market delivers all the A and B grade tomatoes to the up market and the C grade tomatoes to Mbare Musika, but not withstanding this fact, the correction factor necessary is very small. Farmers deliver produce to the assembly market when prices at Mbare Musika are low. There is a relatively strong negative correlation (-0.66) between the volume of produce delivered to the assembly market and the Mbare Musika prices. There is strong positive correlation of 0.74 between Mbare Musika prices and the assembly market prices.

Surveys conducted also confirm that generally the graded assembly market produce channelled at outlets other than Mbare Musika tends to fetch higher prices except during times of serious shortages like drought years or parts of the summer period (November to January).

**Musika during the period November to January were available we would expect them to be higher than the assembly market prices.**

### PROFITABILITY USING THE MBARE MUSIKA AND ASSEMBLY MARKET CHANNELS

The selling prices used as shown in Tables 2a and 2b were based on the figures extracted from the trend lines derived from Table 1. Three figures have been used for the calculations for Table 2b, that is the high end, the respective mid-point price and the low end of the trend line. The assumed distribution for graded produce if delivering all produce to the assembly market is 30% A grade, 40% B grade and 30% C grade. Calculations for scenario A assume this distribution. The assumed production cost is \$10 000 per hectare with a yield of 20 tonnes per hectare. Scenario B is based on figures for tomatoes delivered to the assembly markets in 1993 in which grades A and B constituted only 8% of the total volume.

**Table 2a: Profitability for the Mbare Musika Channel**

#### Ungrade produce Mbare Musika

Assumed prices/13 kg Box	18	16	12	8	6
Number of boxes	80	80	80	80	80
Total of Sales	1 440	1 280	960	640	480
Marketing Costs	191	191	191	191	191
Net After Marketing	1 249	1 089	769	449	289
Production Costs	526	526	526	526	526
Gross Margin	723	563	243	-77	-231
Gross Margin % of Sales Tax	50%	44%	25%	-12%	-49%

**Table 2b: Profitability of the Uzumba Assembly Market Channel**

#### Scenario A for summer

	Price	Revenue or cost	Price	Revenue or cost	Price	Revenue or cost
31 boxes A	\$16	496	\$14	434	\$13	403
38 boxes B	\$14	532	\$13	494	\$12	456
31 boxes C	\$11	341	\$ 9	279	\$ 8	248
Total Sales Revenue		1 369		1 207		1 107
Less Marketing Costs		188		188		188
		1 181		1 019		188
Less Production Costs		526		526		526
Gross Margin (GM)		655		493		- 393
GM as % of Sales		48%		41%		- 36%



Table 2b (cont)

Scenario B for summer						
	Price	Revenue or cost	Price	Revenue or cost	Price	Revenue or cost
10 boxes A & B	\$16	160	\$14	140	\$13	130
94 boxes C	\$11	1 034	\$ 9	846	\$ 8	752
Total Sales Revenue		1 194		986		882
Less Marketing Costs		188		188		188
		1 006		798		694
Less Production Costs		526		526		526
Gross Margin (GM)		480		272		168
GM as % of Sales		40%		28%		19%

## Scenario A for winter

	Price	Revenue or cost	Price	Revenue or cost	Price	Revenue or cost
31 boxes A	\$13	403	\$12	372	\$10	310
38 boxes B	\$12	456	\$10	380	\$ 8	304
31 boxes C	\$ 8	248	\$ 6	186	\$ 4	124
Total Sales Revenue		1 107		938		738
Less Marketing Costs		188		188		188
		919		750		550
Less Production Costs		526		526		526
Gross Margin (GM)		393		224		24
GM as % of Sales		36%		24%		3%

## Scenario B for winter

	Price	Revenue or cost	Price	Revenue or cost	Price	Revenue or cost
10 boxes A & B	\$13	130	\$12	120	\$10	100
94 boxes C	\$ 8	752	\$ 6	564	\$ 4	376
Total Sales Revenue		882		684		476
Less Marketing Costs		188		188		188
		694		496		288
Less Production Costs		526		526		526
Gross Margin (GM)		168		-30		-238
GM as % of Sales		19%		-4%		-50%

\*Boxes at the Uzumba Assembly Market are 10 kgs. Those at Mbare Musika are 13 kgs (Table 1)

From a financial point of view (Table 3), the Uzumba assembly market offers the

**Table 3: Financial marketing cost estimates**

80 boxes of Tomato (13 kg each)			
Item	Mbare Musika \$	Ass. Mkt. Uzumba \$	Ass. Mkt. Mutoko \$
Packaging		21	21
Market levy	7		
Busfare	20		
Transport	149	125	193
Grading		21	21
Market transport			
Labour			
Accommodation			
Food	7		
Cart fare	8		
Handling fee		21	21
Other			
Total	191	188	256

From an economic point of view (Table 4), adjustments have to be made on packaging, market transport and labour. The packaging fee recovered does not reflect the true cost of packaging incurred. The packaging fee of 20 cents per crate was based on the assumption that the crates would be recycled for three years before replacement and during which time the initial capital costs would have been recovered. Experience shows that most of the crates are lost during the marketing process so the replacement will have to be made sooner than planned. The economic cost of the packaging is therefore much bigger than the 20 cents charged per trip. For budgeting purpose the figure has been doubled. For the packaging material used by the smallholder farmers a nominal fee of twelve cents per crate per trip is used to cater for the replacement of the crates.

**Table 4: Economic marketing cost estimates**

80 boxes Tomato (13 kg each)			
Item	Mbare Musika \$	Ass. Mkt. Uzumba \$	Ass. Mkt. Mutoko \$
Packaging	10	42	42
Market levy	7		
Busfare	20		
Transport	149	125	193
Grading		21	21
Market transport		42	42
Labour	263		
Accommodation			
Food	7		
Cart fare	8		
Handling fee		21	21
Other			
Total	464	251	319

There is also need for an economic adjustment on labour. The use of the assembly market channel saves the farmer an equivalent of 12 labour days per hectare for picking, grading and packing. Marketing normally extends over an eight week period with the farmer coming twice a week to the market. For each marketing trip the farmer spends two days at the market. The use of the assembly market channel saves the farmer an equivalent of 2.5 labour days per trip valued at 50% of the minimum wage rate in the agricultural industry.

The distribution costs for the assembly market channel are currently being financed by the project and not passed on to the farmers. Given that the farmers are paying 18.6 cents per kilogram of produce transported from Mutoko to Harare, the local distribution costs have been calculated at 25% of Mutoko-Harare transport costs. This gives about 40 cents per crate.

From the economic analysis the assembly market channel is more efficient than the Mbare Musika in terms of overall resource use. From a financial point of view Mbare Musika is just as cost competitive as the assembly market channels when considering the average for the two assembly markets.

#### FARMERS SALES AND OPINIONS OF THE ALTERNATIVE MARKETING CHANNELS: ASSEMBLY MARKETS AND MBARE MUSIKA.

Farmers sales directly at Mbare Musika are shown in Table 5.

Based on the 1993 figures, 4907 tonnes of vegetables were marketed through Mbare Musika and 428 tonnes marketed through the assembly markets, representing only 8.7% of the Mbare Musika sales. Using output as a proxy measure of channel demand ranks Mbare Musika as number one and the assembly market as the second. From the 1993 ARDA survey, 80% of the farmers rank the assembly market as the best market channel, 15% prefer Mbare Musika and 5% rate the middleman's channel as the best despite the fact that they used Mbare Musika much more than the assembly markets.

Those in favour of the assembly market channel gave the following reasons for supporting the channel:

- time saving as farmers do not go to the market,
- offers higher prices most of the time,
- reduces labour requirements for grading, packing and marketing and
- payment is delivered at home in the form of cheques.

Those in favour of the Mbare Musika channel gave the following reasons for supporting the channel.

- has good transport service for the produce,
- offers higher prices especially in summer,
- has no deductions like the handling, grading and packaging fees,
- all produce is cleared at this market and
- the farmers get a chance to socialize as they meet and discuss at the market.

Some of the problems associated with the assembly market channel given by the farmers include:

- delays in payment,
- fluid pricing system allowing an opportunity for cheating.

Table 5: Vegetables marketed direct at Mbare Musika

Produce Transported (tonnes) to Mbare													
MUTOKO													
Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1988/89	277	192	405	292	154	146	87	115	210	82	414	228	2 602
1989/90	183	225	232	100	85	77	42	108	59	236	400	20	1 767
1990/91	226	402	395	120	50	150	125	170	120	60	271	193	2 282
1991/92	260	365	360	140	90	105	95	190	160	110	260	205	2 340
1992/93	100	31	79	33	23	236	408	71	71	362	526	319	2 259
Total	1 046	1 215	1 471	685	402	714	757	654	620	850	1 871	965	11 250
JZUMBA													
Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1988/89	163	39						126	200	141	135	187	991
1989/90	103				37		56	180	123	44	142	205	890
1990/91	183	251	151	189	133	41	176	181	63	44	161	30	1 603
1991/92	210	305	240	230	175	110	155	110	160	140	240	165	2 240
1992/93	526	175	275	126	153	235	123	118	100	178	245	394	2 648
Total	1 185	770	666	545	498	386	510	715	646	547	923	981	8 372

- limited supply of crates to the potential suppliers and
- increased handling of over-ripe produce resulting in higher losses especially during the glut periods.

Problems associated with the Mbare Musika channel given in the survey include the following:-

- theft,
- generally low prices especially during glut periods,
- poor accommodation facilities,
- limited marketing time,
- poor market infrastructure, no shelter and this is a problem during the rainy season,
- weak communication system with producers and
- high cost of packaging material as producers use own crates and bags.

### TECHNOLOGICAL PROGRESS

There has been very little technological advancement in the Mbare Musika channel over the last ten years or so. The noticeable change is that there is an increase in the use of trucks rather than buses to ferry produce to the market. There is a corresponding increase in the use of boxes for packaging as required by truckers compared to the use of tins preferred by the buses.

For the assembly market channel, there has been the provision of collection points in the production area, ten in Mutoko and two in Uzumba. The collection points provide a small storeroom (20m<sup>2</sup>) and an open sided verandah (48 m<sup>2</sup>) under asbestos roof.

The collection points are used as input supply and produce collection points and also for holding local meetings. Other infrastructure provided includes:

- the assembly market grading shed (530m<sup>2</sup>)
- grading machines and tables
- coldrooms

The survey results reflect that the farmers using Mbare Musika as a marketing channel also apply the elements of the marketing mix in their marketing strategy: 64% of the farmers apply the pricing strategy and 86% apply the product strategy. The promotion and place strategies are applied to a limited extent in the Mbare Musika channel. Fifty five percent of the farmers reported that they also look at competition when crafting their production and marketing strategy.

Most of the smallholder farmers use their own resources to pay for the market levy and busfare to the market and transport cost for the produce is met after sales as they cannot afford to pay before sales. The limited financial power of the farmers makes them restrict the application of the marketing mix to the product and price strategies. Only 18% of the farmers indicated the application of promotion in their marketing strategy.

This confirms the second hypothesis being tested, that most smallholder farmers are resource poor and too weak to participate in strategic marketing. To maximize profit, farmers use both marketing channels depending on the nature of the product,

## MARKET CONDUCT

Mbare Musika has many buyers and sellers with more or less the same competitive strength and more closely approximates perfectly competitive markets, unlike the up-markets dominated by a few strong wholesalers which are mainly oligopoly markets.

In times of shortages, the Mbare Musika channel is the most profitable and when there is adequate or oversupply the up-market, targeted by the assembly market, is most profitable.

This is confirmed by the supply pattern to the assembly markets shown in Table 1. As prices at Mbare Musika decline, the volumes of produce delivered to the assembly market increase. For the summer period when prices are high at Mbare Musika, deliveries to the assembly market are almost nil.

In the up market the larger and more established firms use contracts to keep out new entrants from the lucrative markets. The large wholesalers can also control the product prices to some extent as they have coldstore facilities with which they can regulate market supply.

The perishable nature of the horticultural products combined with the limited marketing time at Mbare Musika, the lack of unionization by the farmers and the resource poverty associated with most of the producers puts them in a weak price bargaining position. The weak technological position does not allow product storage for speculation purposes.

For the Mbare Musika channel, entry and exit barriers are very low. For agricultural commodities there is limited potential for product differentiation. Most of the competitive strategies are based on pricing, product quality through grading and timing of supply. Technological investment in the Mbare Musika channel is very limited.

For the oligopoly up market, entry barriers are high, competition is based on all the four elements of the marketing mix. Differentiation from competition is mainly based on service quality and consistency. Investment in technology to secure a sustainable competitive advantage becomes critical. Major players in the up market are computerizing for more efficient data management and quick response to inquiries. Large investments are going into grading facilities, cold chain infrastructure in transit and during storage and retail outlets for distribution channels. This makes the entry and exit barriers high. Supply on contract terms and negotiable payment terms are also used to keep out new entrants.

For the assembly market channel to be able to penetrate the market and operate profitably, it is forced to apply strategic market management techniques and to invest in technological improvements to secure and maintain a profitable position in the up-market.

## PRODUCT SUITABILITY AND QUALITY

Results of the 1990 ARDA survey show that 65% of buyers at Mbare Musika rate the produce sold as good, 29% rated the produced as acceptable and 6% say the quality is bad.

For the graded produce channelled through the assembly markets, results of the

quality is rated as good to excellent but general complaints were on the high prices and irregular supply.

It is important to note that the red tomato which is down graded for the supermarket customers is rated as first grade for the Mbare Musika customers who prefer produce ready for cooking given the limited storage space and lack of refrigeration facilities in their environment. The middle to high income customers mainly serviced by the supermarkets prefer tomatoes not overripe and which can be used in a variety of ways other than just cooking.

## NEW PRODUCT DEVELOPMENT

The smallholder farmers are not conducting new product development on their own, but rely on research conducted by the research institutions. Some farmers do adaptive trials for new crop varieties introduced in the area. The assembly market channel has been actively promoting the concept of production programming in which the production and varieties promoted are based on market trends, demand and profitability. Both channels are not directly involved in genetic improvement (new product development) but the assembly market channel is promoting a wider range of products.

## PRICING EFFICIENCY

Despite the high prices for the summer crop in the case of tomatoes, most of the production is done in winter due to a variety of reasons which include the following:

- competition for land from food crops,
- high incidence of pests and diseases reducing the yield,
- water logging conditions in the gardens as most of the vegetable production is done in the vleis,
- competition for labour from other crops and farm enterprises and
- competition for the scarce financial resources.

Resource constraints, managerial capacity and communication deficiencies make it difficult for the smallholder producers to quickly respond to the price incentives. Risk management by the smallholder producers forces them to produce a wide variety of crops and not just respond to short term market price changes as the industry is sensitive to the vagaries of nature.

Due to the lack of proper records on the total sales and prices at Mbare Musika over the past years, it is not possible to come up with a meaningful trend analysis to demonstrate the resource allocative efficiency of the pricing system.

## RECOMMENDATIONS AND CONCLUSIONS

In resource-poor environments, the Mbare Musika marketing channel remains the most viable alternative. The local district markets and middleman channels are the least profitable.

Where an investment capacity exists through the mobilization of self, government or donor funds the development of assembly markets is strongly encouraged. Demands

grading shed, coldrooms, transport, accounting and administration staff and skilled marketing personnel. Once established, the assembly markets open up a wider range of opportunities to the smallholder farmers including:

- the ability to participate in government tenders which require bulk and regular supplies,
- the ability to use collective bargaining in price setting and lobbying for government assistance,
- ability to compete with the large scale commercial farmers in their up-market profit sanctuaries and also at Mbare Musika,
- promotion of technological advancement through specialization of activities and taking advantage of economies of scale and the experience curve effects,
- improvement of marketing methods and the broadening of the market and product scope and
- development of rural institutions able to service the farmers with both input supply and commodity marketing.

The high standards of competitiveness required for survival in the up-market serve as a driving force for the assembly markets to strive to achieve them or face the risk of being driven out of the market. When introducing the assembly market channel, it is important to have adequate funds to allow an integrated implementation of the assembly market infrastructure, an efficient data handling and accounting system, provision of transport and packaging material, and staff and farmer training.

The smallholder farmers marketing their produce on an individual basis through Mbare Musika do apply aspects of customer analysis, competition analysis and market analysis, though to a limited extent due to the limited financial resources. More efforts should be made to try and promote coordination among the small producers to have more standard packaging, collective price bargaining, planned production programs and more uniform grading.

The assembly markets provide a framework to apply strategic marketing. Strategic marketing is pro-active, initiates, negotiates, manages acceptable exchange relationships with key groups in pursuit of sustainable competitive advantage in the chosen product markets and has a wider scope in terms of operation, environmental coverage and time horizon.

The small volume of produce handled by the assembly market and the limited quantities purchased by its customers show the high entry barriers with new entrants left to start off at the marginal end of the market and with much higher cost curves. The up-market constitute about 40% of the total market because of the institutional buyers, but this segment is experiencing slow growth compared to the low income market affected by high population growth rates. Profit margins can be high once one manages to penetrate some of the market segments.

There is no significant cost difference between the two channels after adjusting for ungraded produce, and summer prices for ungraded produce at Mbare Musika are sometimes higher than at assembly markets. It, therefore, can be concluded that "The marketing management and economics of smallholder marketing systems is efficient given the environmental constraints." The Mbare Musika marketing system has been used to represent the traditional smallholder marketing systems in this analysis. It is not implied that Mbare Musika is the only smallholder marketing systems nor is it



Mbare Musika is an efficient market with respect to its ability to clear produce and its quick and large price response to supply variations. Unfortunately it is not always a profitable market to the producers especially during periods of glut or normal supply.

The fact that the assembly markets disposed the bulk of their produce at Mbare Musika serves to confirm that Mbare Musika is an efficient marketing channel. The slow adoption of the assembly market channel is mainly due to logistical problems associated with the implementation of the project. Compared to Mbare Musika, the assembly market channel is quite competitive in terms of profitability given that most of the farmers supply their produce in winter when prices at Mbare Musika are generally low.

To maximize profit, it is recommended that the farmers use both marketing channels depending on the nature of the product, its suitability to different market segments and the timing of supply.



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