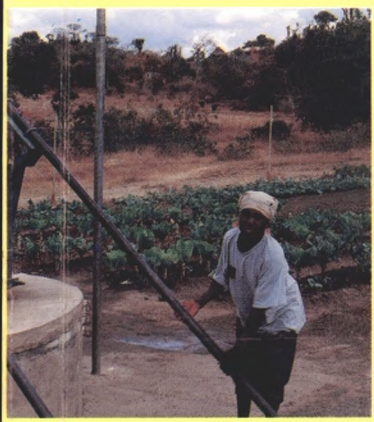
Smallholder Horticulture

in ZIMBABWE



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SECTION 1

CROP PRODUCTION, RESOURCE USE AND ENVIRONMENTAL SUSTAINABILITY

1

VEGETABLE CROP PRODUCTION IN COMMUNAL AREAS IN MASHONALAND EAST AND MASHONALAND WEST: RESULTS OF A SURVEY IN 1988

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ABSTRACT

A survey of horticultural crop production in Zimbabwe was carried out in 1988 in order to provide information relevant to the development of a strategy for horticultural research. This was needed in view of the obviously great potential for expansion of horticulture and the shortage, especially, of useful data on then-current production by communal area and other smallholder farmers. The data obtained was used in research planning but not hitherto published in any widely available form.

The survey showed leaf vegetables (especially rape and cabbage) tomatoes, green beans, onions, sweet potatoes and pumpkins to be the most important vegetable crops grown. Their production tended to be concentrated in Natural Region II, i.e. a region of relatively good rainfall, but even so usually involved irrigation. This was almost invariably of the bucket type which is both laborious and inefficient. Production was predominantly for cash, or for both cash and food, in Mashonaland East. In Mashonaland West, where horticulture is less prevalent, although cash plus food and cash alone were the predominant motives, production for food alone was also commonly cited. Vegetables, in general and also specific crops were heavily concentrated in areas with particular advantages in terms of proximity to the Harare market and other market-related features. The overall impression is of commercially-oriented smallholder farmers who would benefit from more efficient irrigation technologies and from advances in conventional production technology e.g. better cultivars, soil management methods and pest and disease control. This impression is supported by the very wide range of vegetables being grown on a small scale, with emphasis on those in demand in urban markets rather than traditional vegetables, and the fact that many wards (the unit of the survey) reported the introduction of new vegetables in the previous five years.

INTRODUCTION

There is currently very little data on horticultural crop production by the smallholder/communal area farming sector in Zimbabwe. A major, four-volume, report on all aspects of horticulture in Zimbabwe produced in 1992 (ULG, 1992) concluded that

the available data was not adequate to establish the areas of land under the different horticultural crops in communal areas. The report cited an Agritex survey in 1984/85 and 1985/86 and on the basis of this estimated that the smallholder sector had in excess of 40 000 ha growing vegetables, 4 000 ha growing citrus and top fruit and very little growing flowers or soft fruits. The authors suggested that there may have been considerable subsequent expansion between the dates of the survey and those of preparation of their report in 1991/92. The droughts of 1991/92 and 1992/93 may, conversely, have reduced the production area again. Production was found to be centred in Mashonaland East and Manicaland with major concentrations in Chinamora, Seke, Wedza, Mutoko, Chitungwiza and Murehwa servicing the Harare/Chitungwiza urban areas and Marange servicing Mutare. In other provinces production was concentrated around Bulawayo, Gweru and Masvingo.

Production is on small-scale irrigation schemes and on "vlei gardens" which are on seasonally inundated meadowland areas with water tables near to the surface. There were 120 small-scale irrigation schemes, supervised by Agritex, in 1992 with a total area of about 6 750 ha (ULG, 1992) and others, such as the Mashonaland East Fruit and Vegetable project supported by donor funds. Makadho (1992) concluded that vegetable crops covered about 500 ha of the Agritex irrigation schemes in winter and a smaller area in summer. In terms of area vlei (bani or dambo) production is much more important. Vegetables are an important part of the farming system even outside of formal irrigation schemes. Surveys in Mangwende district (high rainfall, Natural Region II) and Chivi district (low rainfall, Natural Region IV) by Shumba (1992) showed that vegetables took up respectively 10% and 15% of the total cropped land and in Mangwende were responsible for 23% of total on-farm income (no data was given for Chivi).

The survey reported below was carried out primarily as an aid to the formulation of strategy on the ways in which research on horticultural crop production could best help small-scale farmers to increase their overall well-being through horticulture. It has been used for this purpose but not previously published in any generally available form.

MATERIALS AND METHODS

The survey was carried by means of survey forms distributed through Agritex at the provincial level with completion of the forms for each Ward within each District. The questions related to geographical location, agro-ecological zone (natural region), farming sector, area under cropping for each crop, seasons of production, use for sale or consumption, whether any of the crops had been introduced in the last five years and whether, and how, they were irrigated. The results in this paper refer to communal and resettlement areas and small-scale commercial farms, mainly to the first of these sectors. Data from large-scale commercial farms was excluded.

Not all forms were completed entirely in the way requested, for example some just ticked presence or absence of particular crops rather than giving hectarages or lumped areas of vegetables together instead of subdividing by crop. This results in the virtual certainty that the figures given are underestimates of total cropping but is unlikely to have introduced systematic bias which would modify the comparisons and conclusions.

1. Importance of the different crops

A very wide range of vegetables was grown in the two provinces: 27 in Mashonaland East and 19 in Mashonaland West (Table 1). Rape, tomato, green beans, onions and cabbage were the major vegetable crops in Mashonaland East and cabbage, tomato, rape, pumpkins and sweet potatoes in Mashonaland West. In general the area growing vegetables was much greater in Mashonaland East than in Mashonaland West.

Table 1: Survey returns on the areas (ha) cropped with different vegetables in communal, resettlement and small-scale commercial areas in 1988 in Mashonaland East (ME) and Mashonaland West (MW)

Crop	ME	MW	Total	Crop	ME	MW	Total
Rape	861	145	1 006	Squash	27	—	27
Tomato	750	192	942	Butternut	24	—	24
Cabbage	218	207	425	Potatoes	16	8	24
G. Beans	330	16	346	Shallots	20	2	22
Onions	233	5	238	Broccoli	21	R	21
S. Potato	112	68	180	Peas	4	1	5
Kale	162	15	177	Garlic	4	—	4
Pumpkins	36	127	163	Tsenza	3	—	3
Covo	97	14	111	Egg Plants	3	—	3
Cucumber	75	R	75	Cauliflower	R	—	R
Tsunga	38	35	73	Lettuce	R	—	R
Okra	61	11	72	B. Marrow	R	—	R
Carrots	38	7	45	Turnip	R	—	R
W. Melon	34	5	39	Beetroot	R	—	R
Undifferentiated vegetables	514	162	676	Total vegetables	3 681	1 021	4 702

G. Beans = Green Beans, S. Potato = Sweet Potato, Butternut = Butternut Squash, B. Marrow = Baby Marrow.
R = either recorded as present without area being specified or less the 0.5 ha recorded.

2. Distribution by Natural Region

Zimbabwe is classified into natural regions or agro-ecological zones ranging from I to V, described in detail by Chasi and Shamudzarira (1992). These primarily reflect rainfall and its reliability, ranging from I (more than 900–1 000 mm, usually reliable) to V (less than 300–450 mm, erratic and very unreliable).

In Mashonaland East rape was concentrated in natural regions IIa and IIb, cabbage was equally represented in regions IIa, IIb and III while green beans were mainly in NR IV. Tomatoes were mainly produced in NR IIb but with substantial areas in NRs IIa and IV and onions mainly in NR IIb.

In Mashonaland West cabbages, tomatoes and rape were produced mainly in NR IIa and pumpkins in NR IV (Table 2).

3. Irrigation practices

Overwhelmingly vegetable crops were irrigated, in the vast majority of cases by bucket irrigation but occasionally by flood or sprinkler systems (Table 3)

Table 2: Vegetable production by natural region in Mashonaland East (ME) and Mashonaland West (MW) 1988 (ha)

Crop	Province	Natural Region		
		II	III	IV
Rape	ME	779	50	32
	MW	128	14	13
Tomato	ME	513	58	179
	MW	170	15	7
Cabbage	ME	147	65	6
	MW	111	95	1
Sweet potato	ME	82	—	30
	MW	43	12	13
Pumpkins	ME	21	5	10
	MW	47	R	80

R = Recorded as present but no area given

Table 3: Irrigation practice (no of wards)

	Rape		Tomato		Cabbage	
	ME	MW	ME	MW	ME	MW
Bucket (Bu)	24	19	20	25	20	25
Furrow (Fu)	3	1	5		1	
Basin (Bas)	1	1				
Sprinkler			1			3
Bu + Fu	4		4		4	
Bu + Sp				1		2
Bu + Bas		1				2

4. Crop usage

Although respondents were asked to record whether each particular crop was grown mainly for food or mainly for cash many placed ticks in both columns which was taken to indicate that both home consumption and sale were important. There was a tendency for income generation to be a more frequent reason for vegetable production in Mashonaland East than was home consumption while the reverse was true in Mashonaland West (Table 4).

Table 4: Main purpose of crop production (no of wards)

	Mashonaland East				Mashonaland West		
	Rape	Tomato	Onions	S. Potato	Rape	Tomato	S. Potato
Food	9	3	4	3	19	12	10
Cash	11	14	14	5	10	12	2
Cash + Food	16	11	11	2	31	27	8

5. New crops

It was recorded that new crops had been introduced in 23 out of the 44 wards in Mashonaland East in the previous five years. Forty-one separate crops had been introduced into at least one ward each. No crop had been introduced into more than four wards (Table 5).

Some data on fruit crops is included here because the question was intended to reveal attitudes to horticulture innovation in general.

Table 5: New crops introduced in the previous five years

(No. of wards reporting) Mashonaland East				
Apples (1)	Avocado (1)	Banana (1)	Musk Melon (1)	Grapes (1)
Papaya (2)	Lemons (2)	Peaches (3)	Mangoes (3)	Guavas (3)
Oranges (5)	Beetroot (1)	Cucumbers (1)	Leek (1)	Shallots (1)
Tsenza (1)	Green Peppers (1)	Peas (1)	Butternut (1)	Turnip (1)
Lettuce (1)	Eggplant (2)	Cauliflower (2)	Sweet Potato (2)	Covo (2)
Chili (2)	Squash (2)	Pepper (2)	Potato (2)	Pumpkin (2)
Kale (3)	Broccoli (3)	Rape (3)	Green Beans (3)	Onions (3)
Garlic (4)	Tomato (4)	Okra (4)	Water Melon (4)	

6. Distribution by locality

Out of the 44 wards sampled in Mashonaland East a single ward, Chinamora, near Harare had 470 ha of vegetables and another in Nhakiwa in Murewa 500 ha of vegetables. These two wards had more than 25% of the total vegetable production area of the 44 recorded wards in the Mashonaland East province and almost as much as the entire recorded area in Mashonaland West. The area recorded under onion production in Goto ward of Wedza district was 27% (62 ha) of that recorded in the province as a whole.

DISCUSSION

From this survey it appeared that smallholder vegetable crop production in these two provinces has the following key characteristics.

A very large number of different types of vegetables are grown. These are mainly the typical vegetables of temperate zone horticulture, reflecting the climate which has winter frosts and relatively moderate summer temperatures as a result of the altitude and has a fairly low rainfall (under 1 000 mm/yr) in the areas surveyed.

Leaf vegetables, especially rape and cabbage, tomatoes, green beans, onions, sweet potatoes and pumpkins are the most widely grown, in that order. Although the crops are grown both for home consumption and sale the latter predominates in Mashonaland East which is the most important producer.

Production areas for particular crops are heavily concentrated in a few specific areas. These include Chinamora, which is very close to the large urban markets of Harare/Chitungwiza and Murewa which is usually frost free so can produce tomatoes when other areas cannot. There is also a degree of crop-specificity within what can be regarded as the Harare peri-urban region. This pattern of concentration depending on

proximity to markets (c.f. "truck-farming" in the USA, market gardening in UK) and location-specific production advantages indicates a market-driven logic to production.

The large number of crops being grown and the diversity of crops introduced in the previous five years suggests an innovative, commercially-oriented attitude operating at a local level.

Irrigation is regarded as essential for the production of most vegetables with the exception of pumpkins and sweet potatoes but the technology reported, dependent on buckets in the main, is very laborious and probably inefficient (Lovell *et al.*, 1992). It indicates that most of the vegetables are grown on vleis and vlei margins with shallow water tables.

The potential for development along conventional lines would seem to be considerable: Kundhlande *et al.* (1994) reported that vegetable produce in vlei "gardens" is already a major source of wealth creation, to the extent that it is the basis for economic growth in a number of localities and it provides funds for the purchase of irrigation pumps and vehicles.

There is little doubt but that the smallholder sector has the management skills in the production of the main crops reported on here to be able to compete very effectively in local and regional markets. They should therefore be able to utilize technical developments in crop production as they are made in terms of new cultivar selection, soil management, pest and disease control, etc. The yield levels achieved by good vlei-garden farmers, c.f. Chigumira *et al.* (1994), compare very well with the average results reported from commercial farms (CSO, 1994). The dependence on irrigation, indeed, inevitably leads to the need to maximize output in relation to the use of scarce water resources and to obtain an adequate return on the heavy labour involved in traditional irrigation systems and the capital required to introduce and maintain the more efficient and reliable modern irrigation systems.

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U.L.G., 1992. Overview of Present Horticultural Production, Part II Smallholder/ Communal Sector. *In: Horticultural Export Marketing Study Zimbabwe.* Volume 1, pp 11–12. Warwick, ULG Consultants Ltd.

This book provides essential data on smallholder horticulture in Zimbabwe encompassing the experience of researchers and extension workers and of managers of schemes to develop smallholder horticultural production and marketing.

Most of the authors of the different chapters are Zimbabweans, others are employed in Zimbabwe or bring to bear relevant experience of smallholder horticultural production in other African countries.

The main objectives of compiling this book were:

- To make more widely available the information which has hitherto been unpublished or available only in "grey" literature of limited distribution.
- To bring into one volume information relating to production and management, economics and transportation, marketing and sociological and gender issues.
- To provide a background against which ideas on smallholder horticultural development, especially in relation to the booming horticultural export business can be evaluated.

The book throws considerable light on smallholder horticulture as a dynamic sector of smallholder agriculture, driven by its value as an income-generating enterprise but also subjected to the constraints of a largely subsistence-oriented rural economy. It reveals very considerable sophistication by the farmers in their choice of production and marketing strategies and will be invaluable to all concerned with rural development in Zimbabwe and throughout the developing world.

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