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Seasonal variation in the food consumption patterns of the people of Mutambara district of Zimbabwe

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SUMMARY

The pattern of food consumption among the people of Mutambara was studied during periods in December/January, May, and August. A total of 146 food items were consumed. The largest number of meals missed, mainly lunches, was in May. Home grown foods were consumed to a greater extent in May and August than in the December/January period. Wild and semi-wild vegetables and insects were consumed only in December/January when they were available.

INTRODUCTION

The pattern of the consumption of various food items in rural households would be expected to change with the seasons as the availability of various types of food changes. To obtain meaningful information on the pattern of food consumption of a given community, it is essential to conduct surveys during the different seasons of the year.

The objective of this study was to determine the food items consumed by the people in Mutambara during the course of the year.

To do this, surveys were conducted during the periods of January, May and August, 1988. These periods correspond approximately to the hot, wet beginning of the cold, dry and the beginning of the hot, dry periods respectively. In an earlier report¹ the types of foods consumed during the December/January period of 1988 were reported.

MATERIALS AND METHODS

Information on householders and the food consumed on seven consecutive days during periods in December 28th to January 5th, 8th to 14th May, and 7th to 13th August, 1988, was obtained using questionnaires as described previously.¹ Two to thirty-eight households were selected from each of eleven villages for study. The same householders were interviewed during the three study periods. Householders who left the area or became otherwise inaccessible were not reported.

RESULTS

Most of the people involved remained in the area during the course of the study. Two of the respondents from Mutambara mission left the mission at the end of April 1988 thus reducing the size of the sample. No immigrants into households were reported during the whole course of the study.

From Table I, it can be seen that supper with only a total of seven meals missed, seems to be the most important meal of the day. The largest number of meals was missed in May when people would have the largest amount and widest variety of food from among their own crops. Lunches comprised most of the meals missed in May probably because people would be working in the fields where a variety of food items would be consumed in a more or less informal atmosphere.

In contrast, the fact that no lunches were missed in August may be a reflection of the relative scarcity of food items outside formal meals during that period.

A total of 146 items was consumed during the study period but some related items were combined in the compilation of Table II. The scientific names of some of the food items are listed in Table III.

In general, those food items which the villagers produced themselves were consumed to a greater extent in May and August than in January. For rural communities the hot wet season can be a difficult period not only because food reserves from the previous harvest would be declining but also because people would be involved in hard work in the fields. Fresh leafy vegetables were consumed in January when they would be most tender. However, garden grown vegetables such as tomatoes as well as those items that were bought from commercial dealers were consumed more or less evenly throughout the year.

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Table I shows the meal that should have been consumed by all households in the three survey seasons, meals actually consumed, meals missed and meals missed expressed as a percentage of expected meals. The meals are shown as breakfast (B), lunch (L) and supper (S).

	Meals that should have been eaten in the three seasons			Meals that were eaten in the three seasons			Meals that were missed in the three seasons			Meals missed as a % meals that should have been eaten		
	B	L	S	B	L	S	B	L	S	B	L	S
January	438	438	438	432	428	434	6	10	4	1	2	1
May	432	432	432	417	382	429	15	50	3	3	12	1
August	432	432	432	392	432	40	0	0	9	0	0	
TOTAL	1 302	1 302	1 302	1 241	1 242	1 295	61	60	7	141	14	2

TABLE II shows the frequency with which the various food items were consumed during the three periods of study. An attempt has been made to group related foods together.

	Percent meals with item in month of			Percent households involved in month of		
	Jan	May	Aug	Jan	May	Aug
Total number of meals or households	3585	3502	3530	172	170	170
CEREAL PRODUCTS						
Maize						
1. green	0.9	1.8	0.0	12.8	98.4	0.8
2. corn flakes	0.3	0.1	0.1	1.7	1.2	0.6
3. dried whole grain, cooked	0.2	1.7	0.8	1.8	3.6	4.1
4. samp and mealie rice	0.5	1.1	8.4	7.5	5.9	51.8
5. super refined meal	0.6	2.3	0.4	2.3	5.3	1.8
6. refined meal	74.1	2.2	2.9	91.9	3.5	5.3
7. unrefined meal	5.5	50.7	60.9	8.1	91.2	90.0
8. mutwiwa-home prepared	0.0	0.1	0.0	0.0	0.6	0.0
SMALL GRAINS						
9. bulrush millet meal	0.5	1.1	0.7	1.7	8.8	6.5
10. finger millet meal	0.4	1.1	1.5	11.6	7.7	12.4
11. polished rice	0.8	1.1	1.5	11.6	7.7	12.4
12. sorghum meal	.1	0.5	0.5	0.6	5.3	3.5
13. sorghum grain dried & stamped	0.0	0.5	0.0	0.0	5.3	0.0
Wheat						
14. whole wheat flour	0.9	0.2	4.4	9.3	3.5	28.8
15. white flour	22.7	17.7	13.1	94.2	97.1	73.5
16. pasta	0.1	0.3	0.2	1.2	1.8	1.8
ROOTS & TUBERS						
17. carrots	0.2	0.3	0.1	2.3	1.2	1.2
18. onions	12.9	4.7	5.7	54.1	25.9	20.6
19. taro	.1	0.1	0.2	0.6	1.2	1.2

TABLE II (cont.)

		Percent meals with item in month of			Percent households involved in month of		
		Jan	May	Aug	Jan	May	Aug
20.	potatoes	0.9	0.6	0.1	11.6	5.3	1.2
21.	sweet potatoes	.1	4.2	1.1	0.6	35.9	6.5
22.	cassava	0.0	0.5	0.1	0.0	4.7	1.2
LEGUMES							
23.	green and dried bambara nuts	0.1	2.3	2.8	2.9	21.8	19.9
24.	dried cow peas	0.1	2.3	2.8	2.9	21.8	19.9
25.	green & dried bambara nuts	0.1	3.1	0.4	2.3	28.8	4.1
26.	green & dried peanuts	0.2	1.1	0.6	3.4	13.6	6.5
27.	peanut butter	1.8	0.5	1.0	15.1	9.9	9.4
28.	fresh & canned green beans	0.0	0.2	2.4	0.0	1.8	29.9
SEEDS							
29.	sunflower seeds	1.1	0.0	0.1	8.7	0.0	0.6
30.	sunflower paste	0.6	0.0	0.0	4.1	0.0	0.0
LEAFY VEGETABLES							
31.	fresh baobab leaves	0.7	0.0	0.0	7.6	0.0	0.0
32.	fresh & dried blackjack	1.6	1.2	0.1	15.1	8.8	0.6
33.	fresh & dried cabbage	8.5	2.1	3.2	63.4	21.8	23.6
34.	fresh & dried choumollier	1.5	0.1	.1	15.7	1.2	0.6
35.	fresh & dried covo	8.0	7.2	10.7	49.4	69.4	56.4
36.	dried cowpea leaves	0.1	3.0	1.2	1.2	24.1	12.9
37.	fresh & dried derere-minda	4.7	2.5	0.1	34.3	23.4	1.2
38.	fresh mbowa	0.4	0.0	0.0	4.1	0.0	0.0
39.	fresh mudedy	.1	0.0	0.0	0.6	0.0	0.0
40.	fresh mukakashango	1.5	0.0	0.0	11.0	0.0	0.0
41.	fresh ndakupuka	1.3	0.9	1.4	18.6	7.7	10.6
42.	fresh & dried pumpkin leaves	5.2	11.0	0.1	58.1	99.4	17.7
44.	fresh & dried runi	2.6	1.5	0.1	29.7	15.3	1.2
45.	gowokowo	0.0	1.5	0.0	0.0	11.2	0.0
46.	fresh spinach	.1	0.1	0.0	0.6	0.6	0.0
47.	fresh brochole	0.0	0.0	.1	0.0	0.0	0.6
OTHER VEGETABLES							
48.	cucumbers	0.1	0.2	0.1	1.7	1.8	1.2
49.	fresh & dried okra	0.9	1.2	0.1	14.5	15.3	1.2
50.	marrow	0.1	0.0	0.0	1.7	0.0	0.0
51.	fresh & dried mushroom	0.3	1.5	0.1	5.2	17.7	1.2
52.	fresh mharupwa	.1	0.0	0.0	0.6	0.0	0.0
53.	green pepper	0.1	0.0	0.2	2.3	0.0	1.2
54.	pumpkin	0.1	3.8	0.3	1.2	31.8	4.1
55.	tomatoes	40.1	23.1	31.3	93.6	99.9	75.3

TABLE II (cont.)

	Percent meals with item in month of			Percent households involved in month of		
	Jan	May	Aug	Jan	May	Aug
56. egg plant	0.0	0.0	.1	0.0	0.0	0.6
57. squash	0.0	0.0	0.1	0.0	0.0	0.6
FRUIT						
58. apple	0.2	0.2	0.2	2.3	1.2	1.2
59. banana	0.7	0.1	0.2	2.3	1.2	1.2
60. guava	0.1	2.5	0.1	1.2	18.8	1.2
61. grape	0.1	0.0	0.0	1.2	0.0	0.0
62. lemon	.1	0.2	0.1	0.6	2.4	1.8
63. avocado pear	0.0	0.1	0.0	0.0	1.2	0.0
64. orange	0.2	0.4	0.4	1.7	2.9	2.9
65. paw paw	0.4	0.1	0.1	7.6	1.2	3.5
66. mango	1.8	0.0	0.0	27.3	0.0	0.0
67. mazhanje	0.6	0.0	0.0	8.7	0.0	0.0
68. fresh & canned peach	0.3	0.0	0.0	4.7	0.0	0.0
69. pineapple	0.1	0.0	0.0	2.3	0.0	0.0
70. water melon	0.1	0.0	0.0	1.7	0.0	0.0
71. baobab fruit	0.0	0.0	0.4	0.0	0.0	3.5
72. sugar cane	.1	2.0	1.5	0.6	21.2	24.7
ANIMAL PRODUCTS						
73. Beef	10.9	7.5	7.7	72.8	67.1	58.4
74. Chicken	1.6	2.7	2.1	2.3	26.5	18.8
75. eggs	3.0	2.8	2.4	29.1	29.9	14.1
76. fish, fresh & frozen, river	0.0	0.2	0.4	0.0	2.9	4.7
77. dried matemba	5.7	3.6	3.6	61.6	25.3	37.1
78. goat meat	0.1	0.1	0.1	1.2	1.2	1.8
79. pork	0.4	0.4	0.2	3.0	1.8	1.2
80. mutton	0.2	0.0	0.0	1.7	0.0	0.0
81. rabbit	.1	0.0	0.0	0.6	0.0	0.0
OTHER EDIBLE ANIMALS						
82. mice	0.0	0.0	0.8	0.0	0.0	3.5
83. cicadas	0.1	0.0	0.0	1.2	0.0	0.0
84. ishwa	0.7	0.0	0.0	12.2	0.0	0.0
85. mopane worms	.7	0.0	0.0	0.6	0.0	0.0
86. majuru	1.5	0.0	0.0	12.2	0.0	0.0
87. tsambarafuta	0.1	0.0	0.0	2.3	0.0	0.0
88. isunwaunwa	.1	2.4	0.0	0.6	17.1	0.0
89. locust	0.0	0.1	0.0	0.0	0.6	0.0
DAIRY PRODUCTS						
90. milk, fresh	22.8	12.7	10.0	84.3	97.6	54.6

TABLE II (cont.)

		Percent meals with item in month of			Percent households involved in month of		
		Jan	May	Aug	Jan	May	Aug
91.	full cream, powdered	0.0	1.7	1.9	0.0	18.8	9.4
92.	skimmed, powdered	0.0	0.2	0.0	0.0	2.9	0.0
93.	home and commercial fermented	2.6	7.5	7.9	32.6	60.1	60.2
95.	butter	0.1	0.0	0.0	1.7	0.0	0.0
95.	cheese	0.1	0.1	0.2	1.2	1.2	1.8
96.	fats & oils	52.7	47.9	54.7	148.2	99.9	98.1
BEVERAGES							
97.	coffee	0.4	1.5	1.9	4.1	18.2	10.
98.	mineral drink	1.2	0.4	0.3	10.6	2.4	1.2
99.	maheu	0.0	0.8	0.9	0.0	11.8	11.8
100.	tea	25.6	20.3	20.1	90.7	76.5	81.8
101.	sugars	30.2	20.0	25.8	92.1	85.3	96.4

Table III lists scientific names of some of the food items mentioned in the text. Food items for which the scientific name could not be identified are described briefly,

Common Name	Scientific name or description
Blackjack	<i>Bidens pilosa</i>
Cicada	<i>Loba leopardina</i>
Cow pea	<i>Vigna sinensis</i>
Derere-munda	<i>Chorchorus tridens</i>
Gowokowo	a leafy vegetable
Ishwa	<i>Macrotermes falciger</i>
Locust	<i>Migratoides</i>
Majuru	<i>Macrotermes</i>
Mbowa	<i>Amaranthus thunbergii</i>
Mharupwa	<i>Solanum mammosum</i>
Mice	<i>Seatomys praeternismis</i>
Mopane worms	<i>Imbrasia epimethea</i>
Mudedya	a leafy vegetable
Mukakashango	<i>Coccinia odoensis</i>
Runi	<i>Cleome gynandra</i>
Taro	<i>Colocasia antiquorum</i>
Tsambarafuta	<i>Acrida bicolor</i>
Zhanje	<i>Upaca kirkiana</i>

It can be observed from the table that the proportion of households using unrefined maize meal rises from 8.1 percent in January to over 90 percent in May and August. This is probably because, after

harvest, most villagers have their own grain ground at local millers. Only the landless would use commercial maize meal throughout the year. Bulrush millet, finger millet and sorghum meals were used as alternatives for maize meal in the preparation of sadza, the staple dish. Maize meal is preferred to be small grains in the preparations of sadza because it is easier to grow, process, and cook the meal.

Only a small proportion of people consumed beans green, preferring instead to use the mature dry form. The dried beans were consumed with sadza or on their own. Green bambara nuts were popular when in season. No sunflower seeds were consumed in May, and only one percent of the households ate in August.

The leafy vegetables consumed were similar to those reported by earlier investigations,^{2,3,4,5,6} except that choumollier seems to have replaced by covo in popularity. The most popular leafy vegetable throughout the year was covo although it was beaten by pumpkin leaves in May. Cabbage was also a relatively important vegetable.

Of the seventeen leafy vegetables that people reported consuming throughout the year, eight were not cultivated but grew wild or semi-wild in the field. The semi-wild vegetables such as derere-munda normally grow in cultivated fields where they may be spared during hand cultivation. Some such as mbowa may grow on land on to which cattle manure has been applied. Most are preserved by brief cooking then

drying in the sun. Little information on the nutritional value of semi-wild vegetable is available.

The various kinds of fruit were consumed in small amounts and at irregular intervals. The variety of wild and cultivated fruits reported here is similar to that reported by other worker.^{2,3,4,5,6} As different wild fruits ripen at different times of the year it is possible that other wild fruits are consumed in addition to those such as baobabs and mazhanje reported here.

Although dried fish is consumed throughout the year, fresh fish was most consumed in August when it appears that villagers had time to catch their own. Most of the insects were consumed in January with only the grasshopper group being group being consumed in May. This arises because most of the insects are available only the early part of the rainy season.

Edible insects have been found to be quite nutritious⁷ with, for instance, termites, being rich in lipid and lysine, an essential amino acid which is deficient in cereals. Insects may, therefore, complement maize meal in the diet. Although locusts, reported to contain 47-59 pc protein, would be expected to provide that nutrient, it is normally a very difficult task to catch more than a few. Tsambarafuta, tsunwaunwa, and termites, rich in lipid, would also be limited in their value.

During the whole duration of the study, fresh milk was consumed only with tea. Although no-one reported fermented milk in January, some did so in May and August. Fermented milk, commercial or home prepared, is consumed together with sadza. Cooking oil and margarine were consumed widely more or less evenly throughout the year. This widespread use of commercial oils seems to be part of a nation-wide trend towards a western type pattern of eating.

The consumption of sugar decreased in both May and August. This may be because in these seasons, people were eating a large selection of foods for breakfast instead of relying on the usual tea and bread or porridge. Tea remained the most popular beverage throughout the survey period, although coffee and home prepared maheu were also popular.

CONCLUSION

In conclusion, it appears that the people of Mutambara generally eat three meals a day, have

apparently a varied diet, and produce a substantial proportion of food that they consume. It may be important that the variety in the food that they consume. It may be important that the variety in the food applies to the overall course of the year rather than to the variety of food consumed during individual meals.

Of the 146 items that the people reported consuming, nearly 25 pc would be considered to be processed foods. It would be interesting to monitor the trend in the consumption of processed foods among this community in the years to come. It would also be interesting to investigate to what extent the food consumption patterns of this community continues to be influenced by climatic factors such as rainfall.

When there are sufficient rains, Mutambara people currently produce adequate quantities of food that are probably varied enough to provide nourishment meals.

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