

Small-scale maize milling and consumption in the Limpopo Province of South Africa: An overview

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*With research assistance by the National Agricultural Marketing Council and post-graduate students
from the Department Agricultural Economics at the University of Pretoria*



Project collaborators

- International partners:
 - FANRPAN
 - MSU
- National partners:
 - Department Agricultural Economics, UP
 - NAMC

Project objective

- To provide policy makers with information that can help them implement policies leading to improved household food security and agricultural productivity growth in the Limpopo Province of South Africa

Primary information sources

- Survey of maize consumers in the Limpopo Province
- Survey of small- and medium scale millers in the Limpopo Province

Methodology overview (1)

Survey instruments

- Based on the questionnaires designed for the Eastern Cape study
- Some questions were rephrased
- Questions were added to investigate some issues related to fortification

Sampling methodology: Consumers

- 3 Main ethnic groups:
 - Venda (Vhembe) [Target n = 168]
 - Sepedi (Polokwane and Greater Groblersdal) [Target n = 168]
 - Tsonga (Greater Giyani) [Target n = 168]
- Random walk in randomly pre-selected villages

Sampling methodology: Small millers

- Located through discussions with consumers in the various survey areas
- Target: As many as possible

Methodology overview (2)

Research team & activities

- **Survey preparations:**
UP Staff in collaboration with NAMC staff
- **Data gathering in Vhembe, Greater Groblersdal & Polokwane:**
4 Enumerators (local residents) located by the NAMC staff
Training of enumerators by UP & NAMC staff
Funded by NAMC
- **Data gathering in Greater Giyani:**
3 Enumerators (local residents) located by the UP staff
Training of enumerators by UP staff
Funded by UP
- **Data capturing:**
UP staff & Post-graduate students at UP
- **Data analysis:**
UP staff

Time frame

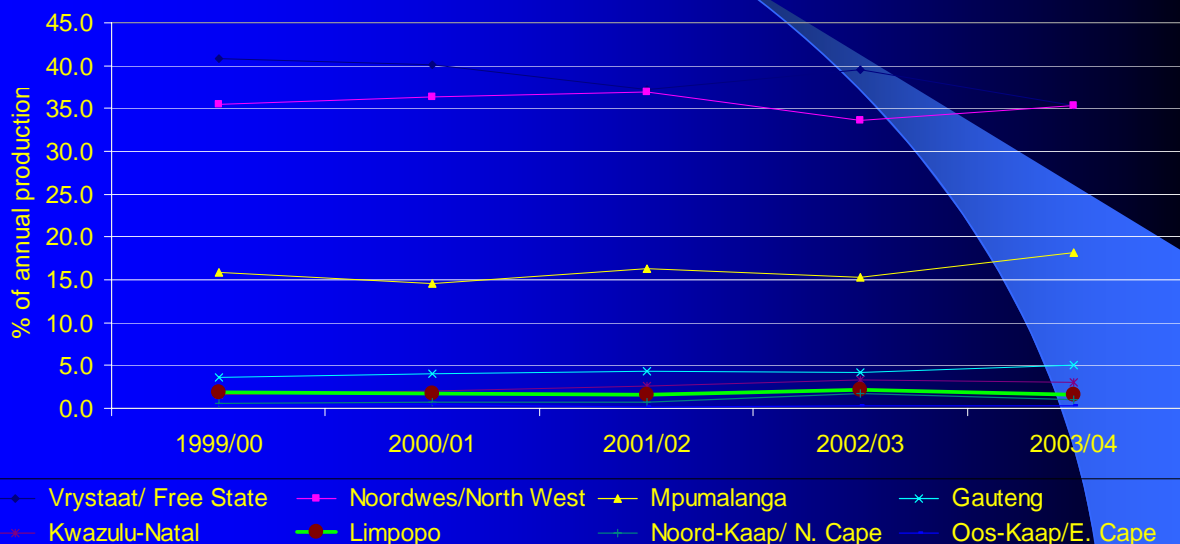
- Survey preparation activities: Period up to November 2005
- Data gathering: November 2004 to May 2005
- Data capturing: April 2005 to May 2005
- Data analysis: June 2005

Constraints of the study

- Limited funding
 - NAMC (through Rockefeller): US\$5000 (for data gathering activities)
 - UP: R10000 (for data gathering activities & data capturing)
 - No funding allocated towards data analysis and reporting activities
- Limited time frame
- Enumerators:
 - Inadequate research skills
 - Inadequate supervision in certain survey areas
- Respondents:
 - Several consumers and millers refused to be interviewed
 - Consumers and millers complained about the length of the questionnaires
 - Several respondents demanded payment for their participation in the study
- Small-scale miller survey:
 - The majority of the small-scale millers do not keep any records and were unable to supply quantitative data
- Climate:
 - The drought in the Limpopo Province, impacted negatively on small-scale maize production during the survey period

Maize production: The Limpopo Province in context

White maize production in SA for the period 1999/00 to 2003/04
(Source: Grain SA)

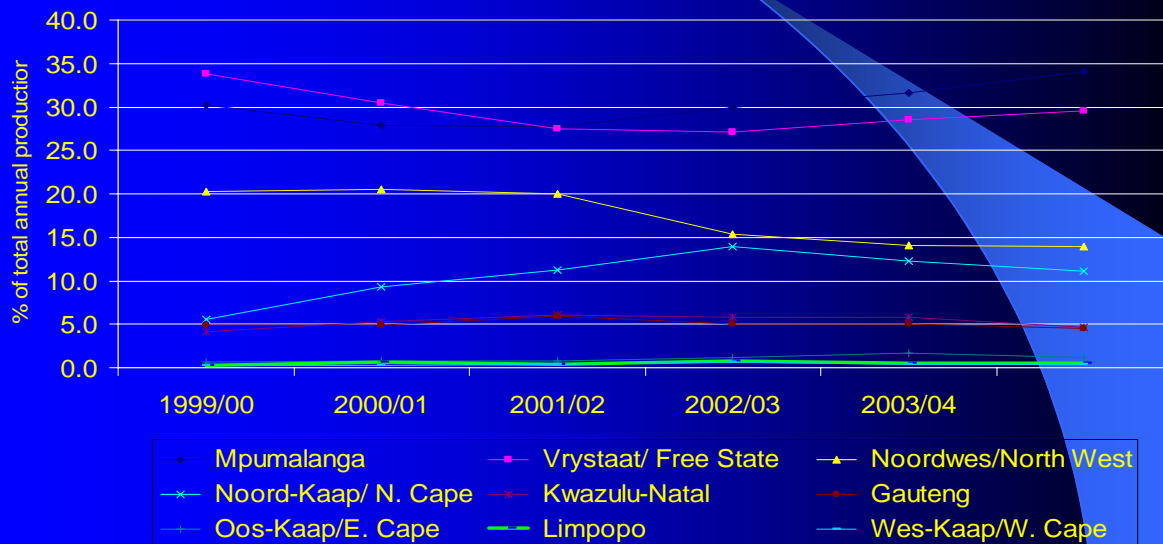


Limpopo Province:

1.4% to 2.2% of total white maize production in SA during the period 1999/00 to 2003/04

Maize production: The Limpopo Province in context

Yellow maize production in SA for the period 1999/00 to 2003/04
(Source: Grain SA)



Limpopo Province:

0.3% to 0.7% of total yellow maize production in SA during the period 1999/00 to 2003/04

Maize meal types: An overview

Type:	Extraction rate:	Fat content:	Fibre content:	Texture:
Super	↓ Lower Higher	↓ Lower Higher	↓ Lower Higher	↓ Finer Coarser
Special				
Sifted				
Unsifted				

Results and discussion: Millers

Results & Discussion: Millers

SAMPLE SIZES

- Stationary swap / service millers:

District municipality:	# (n = 42):	% (n = 42):
Vhembe	27	64.3
Mopani	14	33.3
Sekhukhune	1	2.4

- Medium-scale (independent) millers:
n = 7

Results & Discussion: Stationary swap / service millers

TYPES OF MAIZE PROCESSED

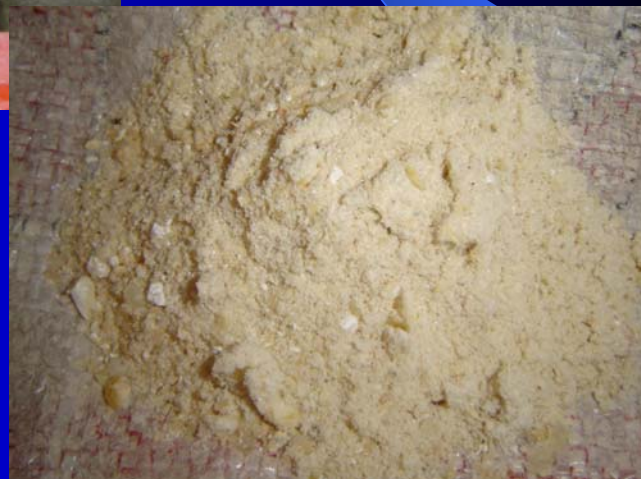
(past 12 months)

Maize type:	# (n = 42):	% (n = 42):
White maize	42	100.0
Yellow maize	35	83.3

TYPES OF MAIZE MEAL PRODUCED

(past 12 months)

Maize type:	# (n = 42):	% (n = 42):
Special maize meal	36	85.7
Super maize meal	16	38.1
Sifted maize meal	7	16.7
Unsifted maize meal	2	4.8



Results & Discussion: Stationary swap / service millers

MILLING THROUGHPUT

- 52.4%: 1000kg/day or less
- 31.0%: 1001kg/day to 2000kg/day
- Average: 1341kg/day

MILLING RATIOS

- Confusion!
- (No responses & illogical responses)

MILLING FEES

- ± R16 / 20 litre
bucket of grain





Results & Discussion:

Stationary swap / service millers

MAIZE MEAL RETAILING ACTIVITIES

Maize meal retailing activity:	# (n = 42):	% (n = 42):
Operate a general retail store	6	14.3
Sell commercial maize meal	5	11.9
Sell packed maize meal from own mill	1	2.4

- Maize meal retailing not very common amongst the sample of small millers
- Very limited selling of packed maize meal produced at own mill

Reasons:

- Inappropriate technology
- High maize prices
- Access to credit / financing
- Customers not interested

Results & Discussion: Stationary swap / service millers

OTHER BUSINESS ACTIVITIES BESIDES MILLING

- Farming
- General retail store
- Grain trading
- Bar / Bottle store
- Restaurant
- Plough service
- Private employment
- Pensioner



Results & Discussion: Stationary swap / service millers

GRAIN PURCHASING

- Only 1 miller in the sample (from Venda) purchases maize grain from emerging and commercial maize farmers in the area close to the mill, to process it and then sell the meal (quantitative data not available)
- Main reasons for not entering into production milling:

Reason	Importance:
No access to credit / financing	Higher ↓ Lower
Not profitable	
No grain storage facilities	
Technology not appropriate	
Transport problems to acquire grain	
Customers prefer service milling	

GRAIN PRODUCTION FOR MILLING

- Not applicable

GRAIN STORAGE

- Only 16.7%: Some type of grain storage facility
- Mainly: Floor space in mill or home



Results & Discussion: Stationary swap / service millers

MILLER POPULATIONS IN SURVEY AREAS:

Millers buying grain and selling maize meal:

- Present: 88.1% of the sample millers said “none”
- 5 Years ago: 78.6% of the sample millers said “none”
- → Decrease in the average number of these millers in survey areas over 5 year period (according to the respondents)

Service millers:

- Present: Average of 4.4 millers per area
- 5 Years ago : Average of 3.3 millers per area
- → Increase in the average number of these millers in survey areas over 5 year period (according to the respondents)

Results & Discussion: Stationary swap / service millers

GENERAL PERCEPTIONS

“Do you feel that the milling industry in this ward gives households the opportunity to choose where to mill their maize?”

- 59.5%: Yes (Several mills to choose from & Satisfied customers)

“What do you think can be changed to make maize meal more affordable to low income consumers?”

- Land for maize production
- Government subsidies for millers to enable grain purchasing

“Main factors limiting profitability of your milling business?”

- Inadequate maize production by customers
- Technology not suitable
- Lack of land to produce maize
- No grain storage facilities
- Financing

“Do you feel that government is supportive of small milling in this area?”

- 90.5%: No

Results and discussion: Maize consumers

Results & Discussion: Maize consumers

SAMPLE DESCRIPTION

n = 517

- **Venda: n = 181 (35.0%)**
- **Tsonga: n = 168 (32.5%)**
- **Sepedi: n = 168 (32.5%)**

Results & Discussion:

Maize consumers

MAIZE MEAL PROCUREMENT PRACTICES: SUMMARY

Ethnic group	Choice between commercial maize meal and service milling maize meal?			Ever use local service mill?	Ever mill by hand?
	Service milling maize meal	Commercial maize meal	Any		
Venda(n=181)	36.5 %	35.4 %	15.5 %	67.4 %	0.0%
Tsonga (n=168)	55.4 %	39.3 %	0.6 %	39.3 %	0.0%
Sepedi (n=168)	26.2 %	59.5 %	8.9 %	18.5 %	0.0%

• **Preference reasons:** Affordability, Habit, Taste, Hygiene, Convenience

• **Other service milling observations:**

- Average shelf life of service miller maize meal: 3 months
- Mothers / Wives normally take maize grain to mills

Results & Discussion:

Maize consumers

COMMERCIAL MAIZE MEAL TYPE PREFERENCES:

- Venda: Super maize meal purchased in last month (49.2%)
- Tsonga: Super maize meal purchased in last month (48.8%)
Special maize meal purchased in last month (44.6%)
- Sepedi: Super maize meal purchased in last month (64.3%)

MAIN PURCHASE LOCATIONS:

- Local supermarkets
- Co-operative mills
- Small local shops

Results & Discussion: Maize consumers

Average service miller populations at present:

(according to the consumer respondents)

- Venda: 3.2 millers in area (increased from 5 years ago)
- Tsonga: 1.5 millers in area (increased from 5 years ago)
- Sepedi: 1 miller in area (constant from 5 years ago)

Bakkie miller populations:

Very few / None in all areas

Results & Discussion: Maize consumers

White maize grain production and selling by households:

Ethnic group	% of households ...	
	Producing white maize	Selling white maize
Venda(n=181)	32.6	1.7
Tsonga (n=168)	44.0	0.6
Sepedi (n=168)	29.8	0

- No white maize production for the majority of households
- Major reasons for not producing crops:
 - Cannot acquire plot to rent or buy
 - Poor water access
 - Financial constraints
- Very few households sell the produced white maize grain
- Thus, captured maize consuming households in the survey

Results & Discussion: Maize consumers

Maize grain / Maize meal received as payment:

- 7 households received white maize grain as a form of payment
- No households received yellow maize grain and maize meal as a form of payment

- Thus, payment in the form of maize grain / maize meal was not common amongst the sampled consumers**

Results & Discussion: Fortification

Service millers:

- 95.2%: No understanding of fortification
- 97.6%: Not aware of the maize meal fortification legislation
- 100.0%: Did not receive any training on fortification
- 100.0%: No fortification done at mill

Consumers:

- 49.1%: No exposure to fortification
- 47.2%: No understanding of fortification
- 41.6%: No opinion about the relative price of fortified maize meal
- 13.2%: Fortified maize meal is more expensive
- 41.2%: No opinion about the health benefit of fortified maize meal
- 13.9%: Fortified maize meal is healthier