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Emerging Policy Issues

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DEPARTMENT OF AGRICULTURAL ECONOMICS & EXTENSION
FACULTY OF AGRICULTURE, UNIVERSITY OF ZIMBABWE
P.O. BOX MP 167, MOUNT PLEASANT, HARARE
ZIMBABWE

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Department of Agricultural Economics and Extension
Faculty of Agriculture
University of Zimbabwe
P.O. Box MP 167
Mount Pleasant
Harare
ZIMBABWE

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Lawrence Rubey is a Visiting Lecturer at the University of Zimbabwe.

As in much of Southern and Eastern Africa, the maize marketing system in South Africa is largely controlled by a government parastatal, the Maize Board. Although the past decade has seen several reforms in South Africa's single channel maize marketing system, market reform has not received the urgent attention that it has in other countries of the region. This is despite evidence that, even in normal rainfall years, large numbers of South African consumers are "food insecure."[1] There is considerable evidence that, despite record maize harvests in the late 1980's, chronic protein-energy malnutrition is widespread among rural black schoolchildren, affecting 25 to 40 percent of the population (UNICEF, 1989).

There are several possible reasons for the lack of pressures for marketing reform under such circumstances. First, the unique nature of South Africa's political environment has limited involvement by international donor institutions. This has meant that the impetus for reform can only come from within, not from "outside" as has usually been the case in the region. Second, there is a widespread perception within South Africa that the Maize Board has been a relatively efficient institution. Proponents of the single-channel marketing system point to the considerable degree of price and producer income stability that has prevailed and contrast the current situation to the "free market" price disasters of the 1930's that precipitated the creation of the Maize Board.

This paper, while accepting these two explanations, suggests that there is a third interpretation of the apparent lack of a true reform impulse: South Africa's maize marketing system, like many such systems in Africa, was designed to meet the needs of a particular group of market participants, namely white commercial farmers and large-scale maize millers. Since to date, the marketing system has met these needs, there is little impetus for change, especially given the rigidities of the current political system. In this view, significant reforms of the maize marketing system will only occur when representatives of the disenfranchised majority obtain a degree of control over the conduct of agricultural policy in South Africa. Given the rapid pace of political reform and the apparent commitment to broader participation in government policy making, within the next few years there will likely be increased focus on options for reform of the maize marketing system. In particular, there may be substantial scope for addressing the "food insecurity paradox" and raising rural incomes through select reforms of the maize marketing system.

By drawing on the available literature, interviews with knowledgeable market participants and South African academics, and the experience of other Southern African nations, this paper attempts to identify the emerging policy issues in the maize sub-sector and outline an agenda for future research.

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[1] As Rukuni and Eicher (1985) have pointed out, food security has two key components: national food availability and food access by individuals. Food access failures permit the coexistence of large national grain surpluses and malnutrition.

I. Maize production and price policy in South Africa

In South Africa, the total area planted to maize has steadily declined over the last decade. For example, area planted declined from 4.3 million hectares in 1980/81 to 3.0 million hectares in 1991/92 (Maize Board, 1992). Falling real producer prices are generally blamed for this erosion in area planted. Over the past five years, inflation has been running at 15-20 percent, while the Maize Board buying price has only increased by about 10 percent per year (Maize Board, 1992). Due to producer price increases and concerted government efforts for the 1992/93 growing season, maize plantings did increase to 3.44 million hectares, with 1.87 million hectares devoted to white maize and 1.57 million hectares devoted to yellow maize. However, the severe drought in the Southern African region severely reduced yields and production fell to 3.5 million metric tonnes, down from 7.3 million tonnes in 1990/91 and 11.5 million tonnes in 1989/90 (Financial Gazette, 1992). As a consequence, South Africa plans to import over 4.5 million tonnes of maize during the 1992/93 marketing year. In a normal year, the domestic demand is about 7.3 million metric tonnes.

Maize production is divided fairly evenly between white and yellow maize. During 1990/91, 4.36 million metric tonnes of white maize were produced compared to 3.98 million metric tonnes of yellow maize. For the last two marketing seasons, there has been no difference in the producer prices for white maize and yellow maize. Even in the 1989/90 marketing year, the white maize producer price was only 3 percent higher than the yellow maize producer price. Yellow maize yields are often higher than those of white maize, although based on the experience of growers in South Africa and the existing hybrids now in use the maximum yield differential between yellow and white is about 10 percent (Elliott, 1992).

The maintenance of price stability has been the major challenge of the Maize Board. As in much of the region, South African farming areas are drought-prone. Without crucial rainfall in January and February, when tasselling takes place, production can be severely affected. Maize price setting, as carried out by the Maize Board, is a complex task. In essence, the Maize Board has a graduated pricing system. Each August, a price scenario is announced for the coming planting season that links a given national crop to a particular producer price. For example, in 1991/92, a 6.5 million metric tonne crop was linked to a producer price of R387 per tonne, while a bumper harvest of 11 million metric tonnes would have meant a producer price of only R287 per tonne. The price and crop scenarios developed by the Maize Board are based on variables such as expected demand, projected interest and inflation rates, export price trends and the Board's budget situation. By October or November, farmers must decide how much to plant, based on the price and crop scenarios and predictions about the weather. In March of the following year, once the size of the crop is known, Maize Board buying and selling prices for the marketing year are announced.

Producer prices are set by the Maize Board and are pan-territorial and pan-seasonal. The Maize Board also utilizing a computer-based "least cost" model that is used to manage the complex task of distributing and allocating Maize Board stocks in a manner that minimizes the Board's transport and storage costs. Maize prices for the 1990/91 marketing year are outlined in Table 1.

Table 1: Maize Prices (Rand per metric tonne)

	1990/91 marketing year	
	White	Yellow
Maize Board producer price (including supplementary payments)	302.67	302.67
Maize Board selling price (best grades)	393.00	360.00

For much of the 1980s, South Africa was one of the few countries in the region to post frequent maize surpluses. However, the export possibilities of the Maize Board are limited since South Africa has not been able to profitably export outside the Southern African region given recent domestic and international prices. High transport costs to overseas markets and large producer subsidies paid by the EEC and U.S. limit the ability of South Africa to export maize as stockfeeds. Regional markets in white maize are limited. The occurrence of bumper harvests generally tend to coincide in the region: when South African maize producers experience good harvests, so do many other producers in neighbouring countries. However, in 1991, South Africa was able to export a significant amount of white maize to neighboring African nations at a profit.

II. Maize marketing

As in many Southern African countries, South Africa is divided into geographical entities that govern maize movements and maize sales by producers. South Africa is divided into Area "A," Area "B," and the "exempted area." Area "A" comprises the Transvaal province, the Orange Free State province, and selected districts in the Cape Province and Natal province. The bulk of the nation's marketed maize is produced in this area. Producers in Area "A" must sell their maize to the Maize Board , its agents, registered miller traders or end-users of yellow maize. "Miller traders" are commercial millers that are registered with the Maize Board to buy maize directly from producers. Although end-users of yellow maize, such as stockfeeders, can buy directly from producers, they must pay a prescribed levy to the Maize Board (Maize Board, 1991).

Area "B" comprises the remaining districts in the Cape Province and the province of Natal. Producers in Area "B" must sell their maize to either the Maize board, registered maize traders, and registered miller traders. Registered maize traders buy maize for their own account at prices that may not be less than the prices fixed for Area "A." Traders are required to provide monthly returns of their transactions to the Maize Board and pay a levy of purchases of producer maize (Maize Board, 1991).

The rest of South Africa and the so-called "homelands" are exempted areas in which producers can sell to any person within the area at any price. However, since most of the marketed maize is produced in controlled areas (i.e. Area "A" and Area "B"), the Maize Board has virtually complete control over the disposal of all maize marketed in the country.

III. Maize milling

Maize milling in South Africa is dominated by a commercial milling industry that comprises over 60 firms. The sheer number of milling firms leads many to believe that there is a significant degree of competition in the milling industry (Elliott, 1992). Yet the two largest firms, Tiger Milling and Premier Milling, each have approximately 20 percent of the maize meal market. There is a common perception that the milling industry is operating far below capacity. Most millers operate only one shift. It has been estimated that the nation's total milling capacity is only about 25 percent utilized (Financial Mail, 1991).

The extraction rates, minimum and maximum oil and fiber content, and particle size of maize meal must conform to industry standards. Four types of maize meal are produced by millers:

1) "super" (or "fine"), a highly refined, degermed product with a 62.5 percent extraction rate;
2) "special sifted," a refined product with an extraction rate of 78.7 percent. Special sifted comprises over half of the maize meal market and is sometimes enriched with proteins and vitamins;
3) "sifted," a less refined product, with an 88.7 percent extraction rate; and
4) "unsifted" or "straight-run," an unrefined meal with an extraction rate of over 98 percent.

A range of other maize grain products are also manufactured for specialized uses including: samp, halved or quartered maize kernels with all the bran and germ removed; maize rice, rice-like particles of 2 mm to 3 mm produced from the hard endosperm of the maize kernel; maize grits, a product with a very low oil content used primarily in the manufacture of traditional beer; and maize flour, primarily used by the baking industry.

Interestingly, despite the diversity of maize meal products on the market, there is not a great deal of price differentiation between meal of different processing types. In April 1992, the maximum differential between the cheapest type of meal (straight-run) and the most expensive "super" was only 30 percent.

Although the maximum prices at which maize could be sold by millers were fixed by the Maize Board until 1971, there are currently no restrictions on retail maize meal prices. Price controls were lifted because the Maize board was convinced that the degree of competition existing in the industry due to excess capacity would prevent large price increases. The Maize Board conducts regular surveys of the ex-mill and retail maize meal prices in order to determine when consumers are "exploited." Apparently no evidence of such activity has been found to date (Maize Board, 1991).

However, a comparison of the average milling and retailing margin in South Africa with government-set milling and retailing margin in Zimbabwe reveals an interesting paradox. In Zimbabwe, the milling industry is quite concentrated. There are four commercial maize millers, and the largest firm has over 65 percent of the national market. In South Africa, there are many more milling firms and, one would expect, a much more competitive milling and retailing structure. However, the total milling and retailing margin in South Africa is over twice the margin in Zimbabwe (see Table 2).

Table 2: Comparison of White Maize Marketing and Milling Margins in South Africa and Zimbabwe, in Metric Tonnes (converted to U.S. dollars)[2]

	April 1992	
	South Africa	Zimbabwe
A. Parastatal producer price	US$ 115	US$ 110
B. Parastatal selling price	US$ 166	US$ 138
C. Ex-mill price, with no govt subsidy	US$ 342	US$ 210
D. Retail price for 80% extraction rate meal, with no govt subsidy	US$ 370	US$ 233
E. Retail price for 80% extraction rate meal, including govt subsidy	---	US$ 155
F. Maize millers margin (D minus B)	US$ 176	US$ 72

For Zimbabwe, the government-set maximum ex-mill and retail "roller meal" prices were used in the calculation in Table 2. Roller meal in Zimbabwe has an approximate extraction rate of 82-85 percent. For South Africa, where there are no maximum retail prices for maize meal, the Premier Milling ex-mill price of "special sifted" maize meal was used. The retail price of "special sifted" was obtained by averaging the observed retail price in three large chain supermarkets in Johannesburg and Pretoria. Retail prices in rural outlets in South Africa would undoubtedly be even higher.

There are several possible explanations for this apparent paradox in marketing margins. One or two of the largest millers may act as "price leaders" with the smaller millers following this price leadership. However, it is not clear what mechanisms would prevent price discounts by smaller millers to gain a greater market share, particularly if there is under-utilized capacity. Price leadership or collusion at the retail level does not appear plausible given the number of large retail chains and smaller grocery shops. Another possible explanation is that production costs are higher in South Africa than in Zimbabwe. Maize millers in South Africa tend to have newer equipment and face higher labour costs. Transport and energy costs may also be higher. Clearly, this paradox needs further investigation as it is difficult to make inferences about the impact of market structure on

[2] Assuming 1US$=2.80 Rand and 1US$=5.0 ZIM$. Given that the Zimbabwe dollar is likely to be overvalued by 20 to 40 percent, this calculation may overstate the Zimbabwean maize price structure, although comparisons of the relative magnitude of margins is still valid.

product pricing based on a rapid appraisal and a limited number of observations.

IV. Maize consumption

Maize is the staple food of the bulk of the population in South Africa. It is consumed primarily as a thin breakfast porridge and a thick stiff porridge with the evening meal. According to data from the Maize Board that categorizes maize consumption by racial groupings, black consumers account for 94 percent of the maize meal consumed (Maize Board, 1992). For rural consumers in this group, maize products account for 53 percent of all carbohydrates, while maize products account for 40 percent of all carbohydrates consumed by urban consumers in this grouping (Elliott, 1991).

Maize consumption is primarily a rural phenomenon as over 70 percent of white maize is sold in rural areas. Per capita consumption of maize products averages 78 kg in rural areas and 48 kg in urban areas (Elliott, 1991). In 1990, over 50 percent of black South Africans were residents in rural areas. As in much of Southern Africa, the conventional wisdom is that consumers, particularly those in urban areas, prefer the more refined maize meal products.

The total domestic market is about 7.3 million tonnes, with Maize Board intake approximately 6.3 million tonnes in a typical year. About 1 million tonnes are retained each year by producers.

Considerable work has been done by South African academics on price and income elasticities for white maize. Cadiz (1984) and Van Zyl (1986), both using country-wide data, found that white maize meal had a negative income elasticity of demand and therefore was an "inferior" good. Estimation of price elasticities revealed that demand was somewhat price insensitive: a 10 percent increase in price would only reduce quantity demanded by 1.5 to 3.3 percent.

These earlier results have been called into question by recent work by Elliott (1991). By using consumption data that only included black consumers, he found that white maize meal was a "normal" good in that it had a positive income elasticity of demand in both rural and urban areas. Estimates of the price elasticity of demand for maize meal were also much higher than in previous studies. Elliott (1992) has asserted that competition from other grains, primarily bread and rice, have made consumers, particularly those in urban areas, much more sensitive to price changes. A summary of recent estimates of price and income elasticities is presented in Table 3.

Table 3: Estimates of White Maize Meal Price and Income Elasticities from Previous Studies

	Cadiz (1984)	Van Zyl (1986)	Elliott (1991)
Price elasticity for human consumption	-0.33	-0.15	-0.70 (urban)
Income elasticity for human consumption	-0.38	-0.30	0.06 (urban) 0.20 (rural)

In the last five years, marketing specialists at the Maize Board have been concerned about stagnant demand for maize products. In recent years, wheat bread and rice have garnered a greater share of the cereals market at the expense of maize, particularly in urban areas. The convenience of bread and rice as urban "fast foods" is widely thought to be responsible for this trend. The Maize Board fears a fall in future maize demand as a larger percentage of the black South African population migrates to urban areas. As a result, the Maize Board recently implemented a nationwide advertising campaign. The theme of the marketing campaign, "The Maize Generation," is an effort to promote maize consumption among younger, urban consumers.

V. Emerging policy issues in the South African maize subsector

As South Africa undergoes the process of political transformation, there will likely be increased pressures to address the coexistence of food insecurity and large national grain stocks. In such an environment, the structure and performance of the maize marketing system will undoubtedly become an issue of major importance. Additional questions arise, including: In what sense can the experiences of other nations in the region inform the process of grain marketing reform in South Africa? What can be expected to be the emerging policy issues in the maize subsector? Given the size of the South African market, how will changes in grain production and marketing policy affect its SADCC neighbors?

This section examines several emerging policy issues in the South African maize subsector. An attempt is made to draw on the experiences of other nations in the region as well as identify areas in which approaches taken in South Africa might contribute to on-going reforms elsewhere.

The Demand for Yellow Maize and Maize Board Blending

One of the more interesting developments in South African maize policy has been the increased reliance on blending yellow and white maize. A blend of 70 percent yellow maize and 30 percent white maize was mandated for the first time during the 1986/87 marketing year due to drought. Given the thin market for white maize, domestic shortfalls must be met with imported yellow maize. In 1986/87 the Maize Board had limited white maize stocks and directed that all millers produce a blended product with set proportions. Shortfalls in white maize production also necessitated blending during both the 1990/91 and 1991/92 marketing years. However, during this period, the proportion of yellow maize was much lower, about 15 percent yellow to 85 percent white. Finally, due to the severe drought and massive importation of yellow maize, the Maize Board anticipates blending during the 1992/93 marketing year for as long as white maize stocks permit.

There is considerable consumer resistance to blended maize products. The objections to yellow maize blends include: 1) yellow maize is for animal feed not human consumption; 2) yellow maize causes upset stomachs and diarrhea; 3) colour and appearance are an extremely important element of "taste" as it is often said that "you eat with your eyes"; 4) yellow maize does not keep as well after it is cooked and becomes quite bitter in taste after sitting for a while. In essence, the marketing of blended maize products in South Africa has become a political issue. Blending is viewed by many as emblematic of a government that

has little concern for the preferences of the black majority.

Due to the unique political circumstances of South Africa, the largely-white controlled Maize Board has gone to great lengths to convince consumers of maize that the introduction of blended maize products was a necessary step in the face of maize shortfalls. The Maize Board has undertaken a public relations campaign to convince consumers that, at least nutritionally, there is virtually no difference between yellow and white maize. In fact, yellow maize does have greater amounts of carotene. Advice on improved cooking methods for blended maize products has also been disseminated.

The actual "blending threshold" of yellow maize is unclear. Apparently consumer tests have revealed that consumers can (visually) detect relatively small amounts of yellow maize in a predominantly white maize product (Elliott, 1992). The Maize Board has not attempted blindfolded taste tests to date. An informal appraisal in Zimbabwe suggests that a blend of up to 30 percent yellow and 70 percent white still retains many of the characteristics of white maize, but with greater proportions of yellow maize, the distinction between a blended product and yellow maize quickly becomes indistinguishable.

Clearly, there are advantages to the marketing of blended maize products, if the political ramifications of promoting blended products are addressed. The potential for marketing blended products as a lower cost option to white maize might be an option for other nations in Southern Africa with a less charged political environment. Given the significant levels of malnutrition that persist in the region, there may be opportunities to target low-income consumers by subsidizing blended maize products in normal rainfall years. The subsidy could be administered at the milling stage and only apply to 2.5 kg bags in order to reduce leakage to the stockfeed industry. A market outlet for yellow maize could provide Southern African nations with added flexibility in maize policy decisions.

Another interesting feature of the South African maize meal market has been post-processing enrichment. In Southern and Eastern Africa, the conventional wisdom is that consumers prefer the more refined types of maize meal. Yet the nutritional value of the more refined meals can be considerably less than that of the "traditional" unrefined meals. In South Africa, "special sifted" maize meal, comprising over half of the market, is often enriched with protein and vitamins to replace losses during the milling process. However, there also have been pockets of resistance to enrichment of maize meal. In the politically charged atmosphere of South Africa, rumours have arisen that the enrichment of maize meal is a government attempt to reduce fertility. It is not clear why enrichment has not received wider acceptance in the rest of the region.

The Future Role of the Maize Board

In 1989, South Africa's Minister of Agriculture appointed a Committee of Enquiry to examine maize marketing arrangements. Declining real producer prices and increased pressure for government contributions to the Maize Board's stabilization fund had convinced many that there were "problems" in the maize industry (Groenewald, 1989). In normal years, maize production exceeds domestic demand, but since world market prices have been considerably above local producer prices, the Maize Board is often forced to export at a loss. Since stockfeeders are very sensitive to changes in the relative prices of grains, increasing the Maize Board selling prices to compensate for export losses tends to result in

sharp drops in demand for maize from the stockfeed industry. Alternatively, the option of lowering producer prices to export parity tends to encounter strong opposition from farmers' groups that cite rapidly increasing input costs.

The Committee of Enquiry concluded that the advantages of a single-channel marketing system overshadowed the disadvantages and recommended that the Maize Board and its appointed agents remain as sole buyer and sellers. In a review of the report of the Committee of Enquiry, Groenewald (1989) states that the report did little to address future maize marketing needs and represented a missed opportunity. Thus, to date, the main policy thrust has been to increase the flexibility of the Maize Board in the management of its maize trading account.

Yet given the on-going political reorientation of South Africa, it is not inconceivable that the Maize Board will soon face a new mandate. With the advent of majority rule in Zimbabwe in 1980, the new government embarked on a major effort to redress some of the inequities of the grain marketing system. The number of parastatal depots rose from 35 to 74, with most of the new depots located near communal farm areas. In 1988/89, a good rainfall year, Zimbabwe's Grain Marketing Board also operated 53 temporary collection points from which grain was purchased. Between 1979 and 1985, smallholder maize production more than tripled (Rohrbach, 1989). Communal farmers were responsible for over half of all maize production and over a third of Grain Marketing Board intake. Rohrbach (1989) attributes the growth in smallholder production to a complementary set of changes in agricultural policies, institutions, and technologies. The changes include: 1) a dramatic rise in producer prices in the early 1980's; 2) commitment to strong research and extension support; and 3) improved access to credit, input markets, and product markets.

However, despite these apparent advances, the lesson learned in Zimbabwe has been that increased provision of marketing services to smallholders is, at best, a mixed blessing (Jayne and Chisvo, 1991). Since the majority of smallholders in semi-arid farming areas in Southern Africa are net buyers of grain, even with an infusion of institutional and technical support, investment in an extractive grain marketing infrastructure may do little for the majority of smallholders. A careful evaluation of the effects of pursuing the Zimbabwean model of parastatal development on the food security status of South African smallholders in marginal areas is required. It may well be that efforts to ameliorate food insecurity in smallholder areas rests on the development of a vibrant private grain trading network that can coordinate the transport of grain from commercial farming areas, the processing of grain at local hammer mills, and the distribution of packaged "straight-run" meal to retail outlets.

Potential Impacts of Maize Market Liberalization on Food Security

In Zimbabwe, recent research has found that a complex set of grain marketing regulations and movement restrictions have had an adverse effect of the food security status of rural households (Jayne and Chisvo, 1991). There is also evidence that this set of marketing restrictions and policy-induced constraints has restricted the ability of small-scale hammer millers to provide urban consumers with a less costly and less refined maize meal product, thereby preserving the market share of a concentrated industrial milling sector (Jayne and Rubey, 1992). Evidence from Zimbabwe suggests that the poor are the main

consumers of maize meal from small hammer mills.

Many of the same peculiarities that led researchers in Zimbabwe to partially attribute rural and urban household food insecurity to a restrictive maize marketing system exist in South Africa. The "food insecurity paradox" of the 1980's in Zimbabwe mirrors the South African experience very closely. The stark duality of the agricultural sector in South Africa dwarfs even that of Zimbabwe. Maize production and marketing is dominated by large commercial farmers in the favorable agro-ecological zones. The vast majority of smallholders live on marginal lands and are dependent to some extent on non-agricultural earnings and remittances.

There is anecdotal evidence of a strong seasonal pattern to commercial sales of maize-meal. Because of own-production in smallholder areas, sales of commercial maize meal drop off at harvest. Maize produced by smallholders is either ground by hand or milled at a local hammer mill. As the marketing year progresses and rural smallholders run out of grain, sales gradually start to pick up. Commercial millers in South Africa speak of this slack period after harvest as the time when "the market has not started to run." Furthermore, Maize Board officials have acknowledged that the Board does not make provisions for "ultra-small buyers."

Although a firm conclusion awaits further research and solid empirical evidence, it is hypothesized that the prohibitions against a private grain trade and the apparent unidirectional flow of grain from producing areas into the Maize Board and the commercial milling system have had negative impacts on rural households in marginal farming areas that are net buyers of grain. The large milling margins in the commercial milling sector would indicate that a locally milled "straight-run" meal could be made available at a considerably lower price than commercially-produced maize meal.

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PERSONS CONTACTED

1. J.A. Groenwald., Professor of Agricultural Economics, University of Pretoria.
2. Mike Elliott, Senior Economist, Maize Board, Pretoria.
3. Jasu Sibeko, Faculty of Law, University of Witswatersrand, Johannesburg.
4. Gavin Vincent, Office of the Technical Director, Premier Milling, Johannesburg.
5. John Nel, Product Sales Division, Premier Milling, Johannesburg.