

Contracting arrangements in agribusiness procurement practices in South Africa

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Abstract

This paper presents an overview of contracting arrangements in agribusiness procurement practices in South Africa. The objective of this paper is to contribute to a better understanding of the structures and issues of raw commodity procurement in South African agribusiness supply chains. The results suggest that a wide range of institutions are employed to procure raw commodities for the South African agro-processing sector and that companies are increasingly moving away from the open market as a source of supply for raw commodities, and are utilising contractual arrangements instead. According to the main findings, 78.5% of the total volume of fruit and vegetables procured by agribusiness companies for processing is based on some form of contracting arrangement. The balance is procured through a combination of the open market, own estates, agents and imports. It is only in the case of potatoes, onions, beans and peanuts that a stronger reliance on the spot market is evident. South African retailers source 70% to 100% of their fresh produce directly from farmers (usually through growing programmes). The procurement of meat, poultry and eggs appears to favour vertical integration (and in some cases own production), medium- to long-term contracts and long-term 'informal' supply arrangements with selected groups of farmers.

Keywords: Procurement, contracting, agro-processing

1. Introduction

With the increasing commercialisation of agricultural and food systems worldwide, the food industry is increasingly being dominated by supermarkets and agro-industries, whilst the influence of the farmer, small traders and neighbourhood stores is declining (Reardon & Berdegue, 2002:371-388; Reardon *et al.*, 2003:1140-1146). This trend is fuelled by the increasing urbanisation of the world population, large-scale innovation in biological and information technologies and a strong consumer demand for high-quality food products. This is not only a trend in the industrialised nations of the

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world but is also happening in those middle- to low-income developing countries that are strongly integrated in the world economy, such as South Africa, Brazil, Chile, Thailand, China and India. Small farmers, in particular, may have difficulties making the transition to a more commercialised food system because they may struggle to meet the private quality and safety standards set by large retailers, wholesale buyers and exporters. At the same time they are constrained by limited support services provided by governments due to policy reforms, market liberalisation and fiscal and governance problems (Reardon & Barrett, 2000:195-205; Reardon *et al.*, 2003:1140-1146; Bienabe *et al.*, 2004:1-5). This combination of forces presents the real danger that a majority of small farmers in developing countries could be excluded from commercial supply chains, resulting in serious questions being posed about the 'future of small farms' in the developing world (Maxwell, 2005:1-2; Hazell, 2005:2-5).

Because of these changes in agricultural and food systems and the dominant role played by large agribusiness firms in agricultural and food systems, it is important to find ways and means to effectively engage them in the important task of promoting market access for small-scale farmers. Agribusiness firms should therefore be considered partners in the challenge of establishing ways and means of strengthening their linkages with small farmers (Santacoloma *et al.*, 2005: 55-60).

Since South African agribusiness firms (including food manufacturers and food retailers) source large quantities of agricultural commodities, they certainly represent the major market for any farmer. The question, however, is: how do these firms source their raw material from farmers? What are the changes in procurement practices, and to what extent do they use spot markets or direct purchases from farmers? Are South African agribusiness firms following the trend in the US and Europe whereby an increasing share of agricultural commodity output is bypassing the traditional spot markets? In this context the main objective of this paper is to investigate the procurement arrangements in the South African agribusiness sector.

The paper does not intend to debate the theoretical foundation for the existence of agricultural contracts in South Africa. The main contribution of the paper is more related to the evidence of contracting in the South African agricultural industry and to show the increased incidence in contracting which should provide the basis for future research. As such this paper presents largely an inventory of contracting in South African agriculture and in the process provides useful inter-industry comparisons of the extent of contractual arrangements.

The paper first provides the context with an overview of the size and composition of the agro-food complex in South Africa. Obtaining the data on private and confidential matters such as contracts and terms of contract from role players in this intricate and integrated sector requires innovative methods. Section 3 describes the research methodology. Section 4 presents the research results in terms of the procurement arrangements of South African agribusiness supply chains, with a specific focus on the incidence of contracting arrangements. Section 5 presents a summary and conclusion.

2. The South African agro-food complex

The South African agro-food complex, including inputs, primary production and processing, contributes approximately R124 billion to South Africa's GDP, with about 2 228 companies involved in food and beverage manufacturing (National Agricultural Directory, 2004/05:608). According to Fedderke and Szalontai (2005), the South African food manufacturing sector is characterised by a high level of industry concentration and a slightly increasing trend in concentration. A few large companies dominate the national food industry, including National Brands, Tiger Brands and Nestlé SA. According to Euromonitor (2005:11-12), about 42% of all foods in SA are packaged foods, which are dominated by large multinational companies. The South African retail market is also highly concentrated. According to the market information provider AC Nielsen, conventional branded grocery stores account for about 70% of South Africa's grocery turnover, despite the fact that these stores account for only about 6% of the total number of retail stores in the country. Four retailers dominate the South African food retail sector: Shoprite/Checkers, Pick 'n Pay, SPAR and Woolworths. The estimated market shares and target markets of these retailers are summarised in Table 1.

Table 1: The estimated market shares and target markets of the major retailers in South Africa

Retailer	Estimated market share ³	Main target market (LSM ⁴ groups)
Pick 'n Pay	33%	LSM 7 - 10 (mainly) Lower LSM groups (selected stores)
Shoprite/Checkers: Shoprite Checkers & Hyperama	33%	LSM 3 - 6 LSM 7 - 10
SPAR ⁵ Stores in metropolitan areas Stores in rural areas	26%	LSM 7 - 10 Lower LSM groups
Woolworths	8%	LSM 7 - 10

³ Estimation based on discussions with procurement personnel of the various retailers.

⁴ The South African Advertising Research Foundation (SAARF) developed a market segmentation tool called the Universal Living Standard Measures* (SU-LSM) based on the socio-economic status of an individual or group. Consumers of least status form the segment SU-LSM 1 and those of the highest status SU-LSM 10 (Source: www.saarf.co.za).

⁵ SPAR has the largest rural footprint amongst all the South African retailers.

The 20 major sectors of the South African agricultural economy (according to gross value in 2005) are shown in Table 2. The relative importance of food categories such as poultry, red meat, milk, fruit, vegetables, eggs and sugar cane is evident from the data in the table. Within the context of this article, fruit and vegetables are an important category (responsible for almost 25% of gross value).

Table 2: The 20 major sectors of the South African agricultural economy (2005/2006)

Number	Sector	Value R'000	Percent contribution	Cumulative percentage contribution
1	Fowls slaughtered	11,278,448	15.9	15.9
2	Cattle and calves slaughtered	9,448,634	13.3	29.2
3	Maize	6,760,352	9.5	38.7
4	Fresh milk	4,859,836	6.8	45.6
5	Vegetables	4,293,162	6.0	51.6
6	Deciduous and other fruit	4,259,595	6.0	57.6
7	Sugar cane	3,654,463	5.1	62.8
8	Eggs	3,527,378	5.0	67.7
9	Potatoes	3,015,672	4.2	72.0
10	Viticulture	2,783,216	3.9	75.9
11	Citrus fruit	2,529,207	3.6	79.5
12	Hay	2,365,232	3.3	82.8
13	Sheep and goats slaughtered	1,988,572	2.8	85.6
14	Wheat	1,961,259	2.8	88.4
15	Other livestock products	1,572,178	2.2	90.6
16	Subtropical fruit	1,496,405	2.1	92.7
17	Pigs slaughtered	1,294,450	1.8	94.5
18	Sunflower seed	931,309	1.3	95.8
19	Flowers and bulbs	760,375	1.1	96.9
20	Wool	691,532	1.0	97.9

Source: National Department of Agriculture (2007)

3. Research methodology and data

Obtaining information from private firms on confidential matters such as procurement processes, sources of supply and contractual arrangements is always problematic. Traditional research methods will thus not always provide one with all the information and data needed. A semi-structured survey in combination with a personal interview was therefore adopted to accommodate a case study approach for every respondent to obtain quantitative and qualitative data, as well as to investigate a wider range of factors that influence the structure, dynamics and issues confronting South African agribusiness supply chains.

The data were obtained in a number of stages as follows: First, the compilation of an initial database of food manufacturers, processors and retailers

(company name, contact details, final products and relevant raw commodities), based on the National Agricultural Directory South Africa 2004/5, in-store product surveys of manufacturers and their details indicated on packaging material, Internet searches and literature searches.

Second, a phone survey with the objectives to locate the appropriate procurement contact persons at the various companies, gather the contact information of these contact persons, establish whether the company is involved in contract farming and establish their willingness to participate in the survey by completing and returning the questionnaire by fax or e-mail. The main purpose of the phone survey was to establish a long-term database, as well as to elicit confidential data, establish trust and ensure the return of the questionnaire. Third, the distribution of questionnaires by means of fax and/or e-mail, followed up by four rounds of follow-up phone calls to increase response rates. Fourth, telephonic investigations of certain industries (cotton, beef, pork, sugar cane, tobacco); and fifth, follow-up phone calls to selected companies with higher levels of involvement in contract farming.

The database established through the initial steps of the data-gathering process contained the names and contact details of 89 agro-processing companies that were contacted. Out of these a total of 61 firms completed the questionnaire and participated in the interview (69% response rate). A summary of the main characteristics of these firms is presented in Table 3 below, remembering that their identities are not revealed for the sake of confidentiality. We have deliberately excluded the bulk commodities such as maize, wheat, sunflower, wool, mohair and sorghum, since these are all bought in bulk on the spot markets with very few alternative coordination mechanisms practised.

Each respondent was asked to briefly describe the agro-processing supply chain, including a description of the raw commodity procurement arrangements. The information obtained includes the volume of the raw commodity processed, the volume contracted out in total, the volume contracted out to black farmers, and details of the number of (white) commercial and black farmers in the supply chain. Table 4 provides an overview of the survey coverage, expressed as a percentage of the annual volume of various commodities procured for processing at a national level.

The paper has a specific focus on contracting arrangements in the procurement process and has, as such, explored the nature and extent of contracts used by agribusiness firms. This was done with the objective to determine the suitability of contract farming (defined in its widest sense, inclusive of marketing and production contracts and outgrower schemes) as an

institutional vehicle for linking small farmers to agribusiness supply chains. The respondents were therefore also asked to describe the nature of the principle clauses in the contracts that they have with farmers. These clauses include the duration of the contract, the contract price and delivery date, and how quality is enforced. Because of the qualitative nature of this data, the study had to employ, as discussed earlier, a qualitative multiple-case-study methodology, combined with some descriptive statistics in order to describe the collective experience of the sample of agro-processing companies and as a basis to test the research questions.

The information contained in Table 4 provides a useful second best (but well-informed) estimate of the extent of contracting arrangements in South African agribusiness knowing that all the major processing companies have reported information through the survey.

Table 3: An overview of agribusiness firms included in the survey

Sector	Commodities	Final products	Number of companies contacted	Number of responding companies & number of companies involved in CF
Fruit	Apple, apricot, fig, ginger, grape, guava, lemon, mango, melon, naartjie, nectarine, orange, peach, pear, pineapple, plum, pomelo, prune, strawberry	Canned, dried, glazed, juice, concentrate, atchar, jam, preserve, sauce, fresh	42	30 * 16 involved in CF
Vegetables	Baby marrow, bean, beetroot, brinjal, butternut, cabbage, carrot, chilli, cucumber, durum wheat, mushroom, onion, pea, pepper, potato, sweet corn, tomato	Canned, dried, frozen, sauce, salad, pickle, soup, baby food	17	10 * 6 involved in CF
Nuts	Groundnuts	Snack nuts, peanut butter	Snack nuts: 4 Peanut butter: 2	Snack nuts - 1 * 1 not involved in CF Peanut butter - 2 * 2 involved in CF
Crisp chips	Potatoes, maize	Crisp chips from potatoes and maize	2	2 * 2 involved in CF
Chillies	Piquant peppers, chillies	Fresh, processed	2	2 * 2 involved in CF
Herbs & Spices	Herbs and spices	Herbs & spices	4	2 * 2 not involved in CF
Beer brewing	Barley, hops	Barley, Hops	2	2 * 2 involved in CF
Sugar cane	Sugar cane	Sugar cane	1 industry organisation	Detailed description from industry organisation

Grains	Various	Breakfast cereal, corn syrup	2	2 * 2 not involved in CF
Eggs	Egg	Egg	4	3 * 3 involved in CF
Red meat	Red meat	Red meat	4	3 * 1 involved in CF
Poultry	Poultry	Poultry	4	3 * 2 involved in CF
Retailers	Various	Various	6	4 * 3 growing programmes * 1 verbal agreement
Tobacco	Tobacco	Tobacco	1 industry organisation 2 companies	3 * Detailed description received from industry organisation * 2 co's involved in CF
Cotton	Cotton	Cotton	1 industry organisation	Detailed description received from industry organisation

Notes:

1. The sum of the figures in the column "number of companies contacted" is greater than 89, since many food processing companies operate in more than one category.
2. CF refers to "contract farming".

Table 4: The survey coverage expressed as a percentage of the annual volume of the various commodities procured for processing at a national level

Category		Number of responding companies in category	Annual national aggregate volume procured for processing ¹ (tons) (1)	Annual volume procured for processing by responding companies (tons) (2)	Survey coverage (2) as % of (1)
Processing type	Commodity				
Dried & glace fruit	Apple (fresh)	5	800	120	15.0
	Pear (fresh)		5 440	486	8.9
	Apricot (fresh)		6 000	1 865	31.1
	Peach (fresh)		6 778	685	10.1
	Ginger (fresh)		-	30	-
	Green fig (fresh)		-	12	-
	Melon (fresh)		-	35	-
	Orange (fresh)		-	15	-
	Pineapple (fresh)		-	27	-
	Prune (fresh)		-	1 328	-
	Strawberry (fresh)		-	2	-
	Pear, peach, apricot, nectarine, prune (dried)		-	400	-
	Raisin (dried)		-	2 500	-

Fruit canning & jam	Apricot	9	43 800	24 581	56.1
	Peach		117 000	69 877	59.7
	Pear		90 000	36 850	40.9
	Pineapple		128 041	100 000	78.1
	Apple		-	2 346	-
	Fig		-	416	-
	Grape		-	2 932	-
	Guava		-	735	-
	Lemon		-	15	-
	Melon		-	491	-
	Orange		-	506	-
	Pomelo		-	3	-
	Strawberry		-	801	-
Fruit juice and concentrates	Apple & pear	17	342 226	255 750	74.7
	Apricot		74 742	1 500	2.0
	Guava		14 556	4 775	32.8
	Lemon		66 401	10 000	15.1
	Peach		172 413	6 000	3.5
	Plum		2 545	1 000	39.3
	Strawberry		1 550	200	12.9
	Grape		74 700 ²	74 700	100.0
	Mango		57 925	6 000	10.4
	Naartjie		119 597	2 500	2.1
Peanut butter	Groundnuts	1	-	6 000	-
Processed vegetables	Various, excluding potato	7	957 000	175 098	18.3
Crisps chips	Potato	2	96 987	78 067	65.6
French Fries	Potato	1	116 331	98 881	85.0
Poultry	Broiler	2	897 000	462 341	51.5
Eggs	Egg	3	339 000	50 011	14.8
Pork	Pork	6	128 800	90 160	70.0

¹ Sources: NDA, OABS, PPECB; USDA 2002; Volume delivered to processors 2002; Abstract of agricultural statistics, volume purchased for processing 2003/04 and total volume of fruit produced 2003/04.

²According to the Abstract of Agricultural Statistics, the volume purchased for processing in 2003/04 was 2530 t. However, according to Oranjerivier Wynkelder, they process about 74 700 t of grapes per annum into single-strength grape juice.

4. Agribusiness procurement systems in South Africa and the incidence of contracting arrangements

This section provides evidence of how South African agribusiness companies have responded to documented changes in world agricultural supply chains, based on a survey of the raw commodity sourcing arrangements of South African agro-processing companies. In particular, this section provides a comprehensive overview of the raw commodity procurement systems and specifically the nature and extent of contracts used by the companies. In addition, the issues constraining the source of supply of these raw commodities are discussed in order to further investigate the potential factors that currently retard the inclusion of small-scale farmers in these supply chains. The discussion is based on four different sectors: (1) fruit and vegetables, (2) raw commodities in the snacks industry, (3) red meat, poultry,

eggs and milk, and (4) sugar cane, timber, tobacco and cotton. Due to the confidential nature of the information that was acquired, this paper does not reveal specific company details.

Table 5 summarises the different procurement systems utilised by the agribusiness firms included in our survey. In the text below we provide a comprehensive overview of the procurement systems and specifically the nature and extent of contracts used by the firms in each of the four sectors.

4.1 Fruit and vegetables

Fresh fruit and vegetables are procured from farmers mainly for four different sectors: (1) fresh produce sales in the retail sector, (2) juice industry, (3) canning industry, and (4) drying industry. A different but related sector that is also discussed in this section is the sourcing of dried tree and vine fruit for further processing.

The main procurement sources for South African agribusiness firms are the wholesale markets (national fresh produce markets or NFPMs) and direct purchasing from producers. According to calculations based on the Abstract of Agricultural Statistics (National Department of Agriculture, 2005), fruit sales for 2003/04 consisted of 34.5% export, 13.4% sold at the NFPMs and 21.3% directly purchased by processing companies. The remaining 30.8% mainly accounted for direct procurement by supermarkets. For vegetables, fresh markets were dominant: 51% were sold at the NFPMs, while exports were estimated at about 6% and the estimated volume of vegetables procured by processing firms at about 12%. The remaining 31% mainly accounted for direct procurement by supermarkets.⁶

During the 2004/2005 season an estimated 18% of deciduous fruit, 8% of citrus fruit, 39% of tropical fruit, 66% of subtropical, 48% of potatoes, 57% of tomatoes and 54% of all other commercially produced vegetables were distributed through NFPMs to a number of end markets (calculations based on the Abstract of Agricultural Statistics (National Department of Agriculture (2006)). The importance of specific fruit types sold via the NFPMs is shown in Table 6, while the important vegetable categories are shown in Table 7.

Since the deregulation of the South African agricultural marketing systems in 1996/1997, very little volume growth has occurred on the NFPMs (as illustrated in Table 8). However, over the same period, overall production of fresh produce in South Africa has increased substantially (National

⁶ Vegetable data estimated based on survey data, in combination with data from the Abstract of Agricultural Statistics, NDA (2006).

Agricultural Marketing Council, 2006), suggesting a general market share loss of the NFPMs. The general trend towards a loss of market share by the NFPMs in the fruit and vegetable sector is a clear indication that these products are increasingly marketed outside spot markets. A study by the National Agricultural Marketing Council (National Agricultural Marketing Council, 2006) revealed some critical findings regarding the decreasing share of fresh produce marketed through the NFPMs. The most significant impact occurred in the fruit sector, where fruit sales have a contribution of about 30% to the commission income on the NFPMs. This is also illustrated by specific examples in Table 9 and Figure 1. Furthermore the fresh produce categories that are more severely affected by reducing market shares on the NFPMs are generally the high value crops.

A major contributing factor to the market share loss of the NFPMs is the increase in direct sales of fresh produce in South Africa, strongly linked to increased direct procurement by processors, as well as direct procurement by the growing South African retail sector. According to the National Agricultural Marketing Council (Louw *et al.*, 2006) the main general trend in fresh produce marketing around the world (especially in the UK, South America, USA and Asia) is characterised by tremendous growth of retailers with rapidly increasing market shares. These retailers are usually integrated into complex supply network and employ direct procurement mechanisms, bypassing Fresh Produce Markets. South Africa is expected to follow this trend, since “traditional markets are not considered an integral part of the ‘food distribution network and quality of life’ as is the case in some parts of Europe, and neither does the country have wet markets which form part of its culture and heritage, as is the case in Asia”. There are numerous driving forces behind the increased incidence of direct marketing, such as security of payment, lower marketing costs, better bargaining positions for producers, lower prices for wholesalers and retailers, convenience, less handling of produce, better quality, freshness and the availability of specialised farmers’ facilities (National Agricultural Marketing Council, 2000).

The decreasing role of the NFPMs is even more pronounced if we account for the important role played by the informal traders in the spot markets. On the two largest NFPMs in South Africa, in Johannesburg and Pretoria, purchases by informal traders represent about 50% and 29% of fresh produce trade respectively⁷. This means that purchases by other NFPM customers, such as agro-processors and retailing firms, declined drastically.

⁷ Personal interviews with the senior manager of commission business at the Johannesburg Fresh Produce Market and with the marketing manager of the Tshwane Fresh Produce Market in August 2004 for the Regoverning Markets project.

Table 5: Agribusiness procurement arrangements for selected agricultural commodities*

Raw Commodity	The process of sourcing the raw commodity	Issues
Fruit and vegetables (fresh fruit, dried fruit, fresh vegetables for direct consumption, canning, processing)	<ol style="list-style-type: none"> 1. Purchased on spot market basis 2. Purchased on seasonal production or marketing contract basis 3. Formal supply contract (long-term) 4. Procured by seasonal "handshake type" contracting arrangement 5. Procured from own estates 6. On-farm purchasing, agents, other processors, imports 	<p>Cheap imports, strong Rand; finance; Trust essential, high cost of compliancy (EUREGAP), training, integration of quality and safety; Ethics of producers, labour cost, limited information; Procurement cost higher from emerging farmers; Inadequate demand, non-aligned supply chains, insufficient information; Capital, water, transport, knowledge, information, Finance, expertise, labour cost</p>
Potato, maize, peanuts for the snacks industry	<ol style="list-style-type: none"> 1. Procured by one-year production contract 2. Procured by spot buying on farms and through the national fresh markets 3. Procured from a single supplier who contracts with farmers by one-year production contract 4. Procured by agent; sometimes agent engages in own production and contracts with other peanut growers 	<p>Opportunism, greed, grower profile; Expertise</p>
Egg, poultry, meat	<ol style="list-style-type: none"> 1. Procurement of eggs by a seven-year production contract. 2. Procurement from own estates (eggs and poultry) 3. Procurement of poultry by a three-year production contract 4. Long-term verbal arrangement for a weekly supply of pork 5. Beef procured on daily tender basis from local farmers 6. Beef procured from own feedlots 7. Beef procured from supplier by long-term contract 	<p>High set-up cost; Environmental impact study needed; Finance, local demand, expanding cheap imports; Small number of processors, cost of compliance high; Presence of trust important; Maintaining consistent quality</p>
Tobacco, sugar cane, cotton, timber	<ol style="list-style-type: none"> 1. Tobacco No-Contract Farming – farmers deliver to co-op or company; co-op/company processes; farmers share in profit when sales made to cigarette companies 2. Procured from own estates (sugar cane, timber) 3. Procured by long-term production contract (sugar cane, timber); contract duration from 1-10 years and specifies volume, price, date (contract highly regulated) 4. Cotton System 1: 40% farmers produce/process/market own supply 5. Cotton System 2: 30% farmers produce; 	<p>Financing, labour intensive, adverse weather; Economies of scale needed; Negative business sentiment; SA tobacco not competitive on world markets, industry currently restructuring; Financing, knowledge, water, weather, location; Trust has important impact on transaction cost; Volatility of world prices and markets, land tenure issues; Small-scale farmers generate high levels</p>

	processors charge; farmers market own supply 6. Cotton System 3: 30% farmers produce and sell to processors through interlocking contracts	of transaction cost; Price, cheap imports, macro-economic factors; Limited growing areas, rainfall
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*Source: Telephonic-electronic survey

Table 6: The most important fruit types produced in South Africa with marketing through the national fresh produce markets

Fruit type	Total fruit production volume marketed through FPMs, 2003/04	Total fruit value marketed through FPMs, 2003/04
Apple	181 004 t	R 449 070 924
Banana	165 411 t	R 440 324 082
Orange	114 978 t	R 121 416 768
Grape	29 927 t	R 119 169 314
Pear	45 170 t	R 103 936 170
Peach	20 734 t	R 98 963 382
Avocado	17 016 t	R 74 479 032
Mango	17 027 t	R 64 174 763
Litchi	2 778 t	R 18 807 060
Apricot	2 085 t	R 6 676 170

Source: Calculations based on data in the Abstract of Agricultural Statistics of the National Department of Agriculture (2005)

Table 7: The most important vegetable types marketed through the national fresh produce markets

Vegetable type	Share of total vegetable production volume marketed through FPMs, 2003/04	Share of total vegetable production value marketed through FPMs, 2003/04
Potato	42.9%	38.3%
Onion	13.6%	10.4%
Tomato	12.1%	15.4%
Cabbage	7.6%	2.7%
Carrot	4.4%	2.8%
Pumpkin	3.4%	1.3%
Beetroot	1.6%	1.2%

Source: Calculations based on data in the Abstract of Agricultural Statistics of the National Department of Agriculture (2005)

Table 8: Changes in the total aggregate turnover, volume handled and value (Rand per ton) of the national fresh produce markets in South Africa, 1997/98 to 2005/06

Year	Turnover	Volume (t)	Rand per ton
1997/98	R3 202 177 674	2 848 498	1 124
2000/01	R3 766 546,222 (15.0% ↑ from 1997/98)	2 848 438 (similar to 1997/98)	1 322 (15.0% ↑ from 1997/98)
2005/06	R6 076 854 110 (38.0% ↑ from 2000/01)	2 859 880 (0.4% ↑ from 2000/01)	2 125 (37.8% ↑ from 2000/01)

Source: National Agricultural Marketing Council, 2006

Table 9: Trends in terms of marketing through the national fresh produce markets for some important fruit and vegetable types

Fruit type	Average of total harvest marketed through NFPM (1990/91 to 2003/04) (percent)	Standard deviation of total harvest marketed through NFPM (1990/91 to 2003/04) (percent)	Trend in share of total harvest marketed through NFPM ((1990/91 to 2003/04)
Peach	15.9	4.3	Decrease of 51% ⁸
Mango	40.9	6.9	Decrease of 42%
Potato	58.4	4.1	Decrease of 17%
Onion	71.7	5.4	Decrease of 4%
Tomato	58.8	5.2	Relatively constant ⁹

Source: National Department of Agriculture (1999, 2001, 2005)

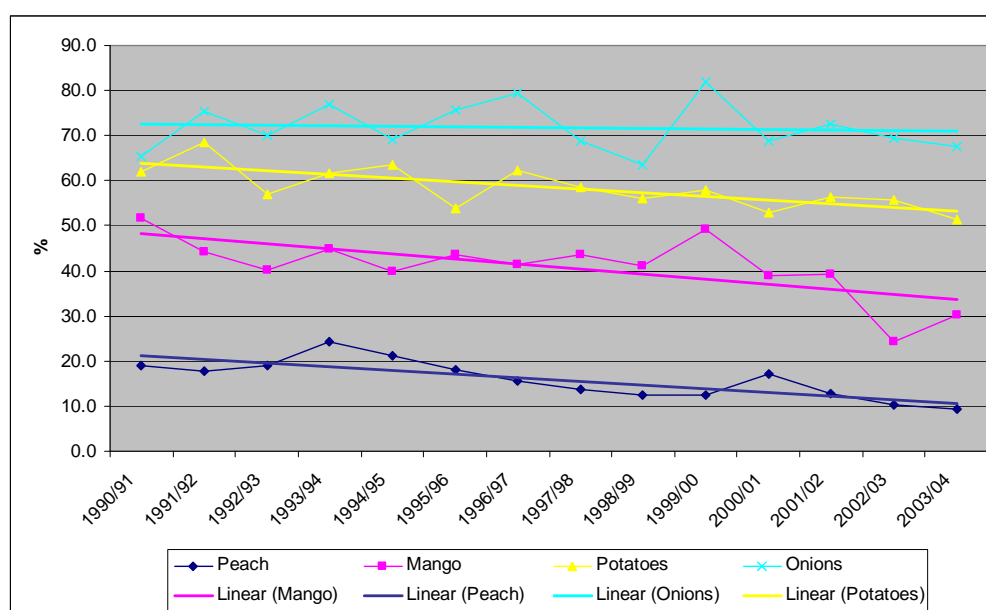


Figure 1: Share of total production of selected fruits marketed through the national fresh produce markets, for important fruit and vegetable types

Source: National Department of Agriculture (1999, 2001, 2005)

Retail sales

The interviews with the large retail groups revealed that most of them source the majority of their fresh produce directly from farmers. The retailers argue that they do not issue contracts to farmers, but on closer inspection all of them issue ‘growing programmes’ to the growers as a mechanism to coordinate volume and quality of supply. Continuity is extremely important to most of

⁸ Peaches are a striking example as processing accounts for 70.6% of total production while export accounts for only 0.4%, the balance being shared between local market fresh consumption (21.6%) and drying (3.7%).

⁹ In South Africa, only four tomato producers account for 80% of the tomato volumes. The largest producer, ZZ2, is a strong supporter of the national fresh produce market system.

these retailers and they are therefore prepared to offer longer term (three to 10 years) agreements or 'commitments to purchase' to producers. The growing programmes provided in writing to growers specify the detailed product description, packaging description and delivery volumes.

More specific volumes are communicated to growers on a weekly basis. These volumes are determined by the predicted sales of stores for the following week. Price negotiations are undertaken on a weekly basis. The retailers that utilise the growing programmes as 'coordination instruments' usually implicitly undertake as part of the agreement to purchase the production of the farmer specified in the growing programme, subject to the predicted weekly demand in the stores. In addition, the farmer is not forced to deliver the produce to the retailer. However, if a farmer does not deliver due to reasons falling within the liability of the farmer, the farmer can be penalised and/or removed from the retailer's supplier base. The details and specifications in the growing programme and the degree of enforceability, etc. differ between retailers. Table 10 summarises the fresh produce procurement practices of the major South African retailers.

Table 10: Retail procurement practices for fresh produce*

	Sourced directly from farmers	Sourced from agents or fresh produce markets	Form of agreement with farmers
Retailer 1	90%	10%	Growing programme with detailed commodity specifications
Retailer 2	70%	30%	Agents, verbal agreements on growing programme
Retailer 3	100%		Growing programme with detailed commodity specifications as well as seeds and seedlings sometimes provided
Retailer 4	80%	20%	Growing programme with detailed commodity specifications

*Source: Telephonic-electronic survey

Processing

The fruit and vegetable processing companies surveyed (including canners) make use of a combination of spot market purchases and contracting sources for most of their raw materials. Fruit processors typically contract out their raw commodity requirements or, alternatively, purchase from other processors or importers. In the canning industry a seasonal (three to four months) to one-year production or marketing contract is often used to procure fresh fruit and vegetables. In the case of a marketing contract, sometimes called a market specification contract, the producer sells the raw commodity to the processor at a specified price, quality and time. In this type of contract, the producer has full autonomy regarding production decisions, while in a

production contract the processor has some degree of management control over the producer's operations (Rehber, 1998). Some canning companies make an estimate of their anticipated raw commodity requirements for the season ahead and then go into the production areas to select farmers who are willing and capable of supplying a specific tonnage. A seasonal production contract is then established that specifies the price, quantity, quality and volume to be supplied. A similar seasonal production contract is also used by many fruit and vegetable processors. The balance of fresh fruit and vegetables procured by processors and the canning industry is normally obtained through spot purchases, the national fresh produce markets, other processors or imports (such as in the case of fruit concentrates).

Dried fruit

The bulk of the procurement of dried tree and vine fruit is obtained from seasonal or one-year production contracts. In certain instances a "handshake" seasonal agreement is employed to establish the delivery date, quality, price and volume. When the farmer makes a delivery, the quality is tested before a previously agreed price is established. No formal penalties exist, but if the conditions of the agreement are broken, the contract may not be renewed. In addition, certain company estates also produce a smaller volume of dried fruit.

Summary

The analysis in Table 11 of the procurement arrangements for 39 types of fresh fruit and vegetables suggests that the majority (78.5%) is sourced through some form of contracting arrangement. Less than 22% of the total volume is procured through a combination of the open market, own estates, agents or imports. It is only in the case of potatoes, onions, beans and peanuts that stronger reliance on the spot market is evident.

Table 11: Incidence of contracting arrangements in the sourcing of fresh produce

Number of companies responding in commodity category	Commodity	Annual volume of commodity procured by responding companies (tons)	Annual volume of commodity procured through contracted farmers (tons)	% Volume contracted out	Number of contracted farmers	Number of black contracted farmers	Annual volume of commodity procured through contracted black farmers (tons)
6	Apples	98 506	18 466	18.7	250	1	40
9	Apricots	28 066	26 508	94.4	483	6	86
3	Carrots	7 207	6 994	97.0	12	0	0
1	Dried fruit	400	267	66.7	6	0	0
2	Mangoes	9 800	9 200	93.8	170	90	900
3	Ginger, figs	54	49	90.7	37	5	1
2	Grapes	2 932	2 932	100.0	44	0	0
3	Groundnuts	9 000	4 500	50.0	50	0	0
5	Guavas	5 377	2 877	53.5	20	0	0
2	Lemons	10 015	10 015	100.0	171	0	0
2	Melons	526	526	100.0	6	0	0
7	Naartjies, oranges	3 021	3 021	100.0	179	25	123
7	Peaches	76 622	72 053	94.0	566	4	496
6	Pears	86 086	45 939	53.4	397	4	1 050
2	Pineapples (fresh)	100 027	100 027	100.0	38	0	3 000
1	Plums	2 328	2 328	100.0	225	0	0
3	Guavas, figs	1 104	1 104	100.0	41	5	58
2	Raisins	17 665	17 405	98.5	631	66	334
4	Strawberries	17 668	17 408	98.5	898	71	334
1	Baby marrows	50	25	50.0	4	0	0
1	Beans	350	0	0	3	1	0
2	Beetroot	5 887	5 887	100.0	9	0	0
2	Brinjals, butternut	113	75	66.4	15	7	19
1	Cabbages	91	46	50.5	3	0	0
2	Chillies	622	538	86.5	70	2	7
2	Cucumbers	1 687	1 664	98.6	29	4	169
1	Mushrooms	30	30	100.0	3	0	0
3	Onions	1 286	554	43.0	14	0	0
1	Peas (fresh)	4 358	4 358	100.0	50	0	0
3	Peppers	5 324	4 902	92.0	70	17	300
2	Potatoes (canning)	1 224	0	0	n/a	n/a	n/a
2	Potatoes (crisps)	78 067	63 629	81.5	31	0	0
1	Small white beans	8 642	8 642	100.0	n/a	n/a	n/a
1	Sweet corn	10 940	10 940	100.0	16	0	0
3	Tomatoes	127 047	123 973	97.6	182	75	19 663
	TOTAL	722 122	566 882	78.5	4723	455	26 580

*Source: Calculated based on the data from the telephonic-electronic survey

4.2 The snack food industry

The procurement of commodities by the companies in the snacks industry largely takes place through spot purchasing and purchasing from cooperatives and agents, as well as by means of production contracts issued to selected commercial farmers only. In the potato crisp industry, for example, 20% of potatoes are acquired on the open market, whilst 80% are secured by way of contracting. On the other hand, peanuts, an important snack line in this sector, are typically purchased through a single agent who both produces and contracts with farmers for the balance of its requirements. Maize for this sector of the food industry is also purchased through a cooperative. Therefore, it would appear that the majority of the procurement of raw commodities for the snacks industry also bypasses the open market, except for the procurement of potatoes.

The contractual arrangements in the snacks industry appeared to be limited to production contracts, spot market buying, using an agent, or buying from the national fresh produce markets. The procurement of potatoes for this sector is largely managed by a one-year production contract, as well as by spot market buying on farms and from the national fresh produce markets. The maximum duration of contracts, however, appeared to be a year, and no long-term contracts appeared to be employed. The companies in the snacks industry appeared to source maize (e.g. GM-free, other) by utilising an agent or cooperative who acts as an intermediary between the processor and the farmers. These intermediaries typically establish a production contract with farmers to supply maize for the specific end user. The price paid for maize was mostly SAFEX based. Finally, certain snack producers appear to favour the use of a single agent to manage the procurement of peanuts. The agent, in turn, acquires peanuts from their own farms or from other peanut growers. Furthermore, the agent often engages in the initial stages of peanut processing.

4.3 Red meat, poultry and eggs

The procurement of meat, poultry and eggs appears to favour vertical integration (and in some cases own production), medium- to long-term contracts and long-term “informal” supply arrangements with selected groups of farmers. Details for the different commodities are provided below.

Beef

Since deregulation of the controlled marketing system in 1997, the South African beef supply chain has become increasingly vertically integrated, with the abattoir sector fulfilling an integrated wholesale function by sourcing

animals on the hoof and directly selling carcasses and meat cuts to the retail sector. Almost 60% of cattle in South Africa are finished for slaughter in feedlots. The other 40% of South African cattle are raised on natural pastureland. Feedlots normally buy weaner calves with a live mass of 230 kg from extensive cattle farmers and add 105 kg carcass mass through intensive feeding for about 100 days, eventually slaughtering an animal at 215 kg carcass weight. The main feedlots (Karan Beef, Kolosus, Sparta Beef, SIS, Beefcor, EAC, Crafcor, Chalmar Beef and Beefmaster account for 70% to 80% of the cattle in the feedlot industry) all have teams of buyers that visit breeders and farmers and carefully select weaner calves for purchase according to strict criteria applied by the feedlot or meat company (many of the larger meat companies have a vertically integrated process of feedlot, slaughter, packaging and distribution). There is usually a long-term relationship between the feedlot and the breeder/farmer, with the farmers freed of the inconvenience and cost of transporting their cattle to auction and having to pay auctioneers' commissions. Although the beef supply chain largely ignores contract farming as an option, it mostly bypasses classical open market purchasing because animals are procured from own feedlots and the balance from long-term spot purchasing arrangements with selected farmers only.

The spot purchase arrangement appeared to be offered by the companies to (selected) farmers on a specific day for a specific volume of beef. In other instances, food manufacturers (prepared food) that are linked by long-term contracts to retailers prefer to employ a long-term contract with a single supplier of beef, who guarantees the consistency of quality. In this relationship the retailer (sometimes) exercises managed control over the selection of beef suppliers to the manufacturer, because of the need to ensure the quality and safety of its products. The difficulty of establishing a contract price, as well as the quality-specific nature of the product, appeared to limit the utilisation of contracting in the beef industry.

Pork

According to the South African Pork Producers' Organisation, the South African pig industry boasts a national breeding herd of 125 000 sows and 7 000 boars owned by 600 pig farmers. The larger pig producers have their own breeding studs, artificial insemination units and feed mills. Their marketing channels include production contracts with meat processing companies, spot transactions, shareholdings in abattoirs, and contract slaughtering by abattoirs combined with collective marketing actions (such as a group of pig farmers in Piet Retief in KwaZulu-Natal). They usually do not secure their entire production for contracting, so that they are able to utilise unexpected market opportunities when applicable.

Fresh pork destined for the retail market is derived from pigs with a carcass mass of 65 kg to 80 kg (usually porkers, cutters and small baconers). Pigs destined for the processed products market usually have a carcass mass of 65 kg and higher (usually larger baconers, heavy baconers and sausagers). According to a representative of Premier Pork Producers (the largest provincial pork association in the country, representing close to 60% of the sows in the country), about 60% to 65% of all pork produced in South Africa is processed, while the balance is sold as “fresh” pork by retailers and traditional butcheries.

All carcasses sold in the retail market are bought directly from the abattoirs and there are, therefore, no wholesalers involved. The percentages of “fresh” pork sold by retailers and traditional butcheries are unknown.

In the processed pork market, six companies (Enterprise, Eskort, Bullbrand, Debsteer, Vereeniging Meat Packers and RTV) account for up to 70% of the value adding activities. Vertical integration and/or contract procurement are common practices amongst these large pork meat processing companies. A number of companies, such as RTV and Seemans, process for the niche market which supplies mainly German butcheries. The large abattoirs procure pigs through a combination of contracts with farmers and spot buying (usually about 75% and 25% respectively). Large processors like Enterprise and Eskort engage with a small number of contracted farmers (usually three to five farmers), for a number of reasons. In order to produce consistent processed pork products (in terms of product characteristics, quality and food safety associated with the specific brands of these companies), very stringent specifications are imposed on contracted farmers. These specifications lead to high entry barriers to pig farmers. Furthermore, these processors prefer to engage in long-term relationships with farmers supplying them with pigs. The contract specifications include the following:

- Contract duration: three months or six months or 12 months.
- Technical specifications include product characteristics, quality and food safety/biosecurity.
- Delivery date.
- Quantity.
- Price: some companies base price on input costs while other companies take additional factors, such as historical price trends, the exchange rate, the volume of imports and the Safex maize price, into consideration. Supply and demand also affect price determination.

Poultry and eggs

There are three large broiler companies that operate fully integrated broiler production systems, which breed and rear their own poultry. They process the chickens and market fresh, frozen, value-added and further processed chickens nationally and internationally. These companies also have contracted growers who supply chickens reared according to specifications set out by the large companies in a three-year production contract. These firms often supply the chicks, feed and other inputs (like veterinary inputs) to the 'outgrowers', with the costs eventually being deducted from the farmer's gross receipts. These costs are estimated at about R7 per bird. Only established poultry farmers are usually selected as suppliers, since it is required that the contracted farmers should have the necessary infrastructure in place for the poultry rearing activities required in terms of the contract. High levels of control by the processor ensure that contracted farmers comply with the necessary conditions of supply, including the type of birdhouse and equipment that is employed. Furthermore, the processor undertakes performance evaluation of the contracted farmers, who could pay a penalty or be paid a bonus. The price paid for poultry is usually set for a one-year period and depends on the bird's age and weight. These farmers supply a total of 40% to 50% of the total number of birds processed by the processing companies. If one considers the vertically integrated production processing and the contract rearing jointly in the commercial sector, they represent around 81% of total poultry sales in the country, while SMMEs contribute about 2% of total poultry sales in the country. The rest of the market is based on spot sales at local markets, which take place mainly in rural areas and in smaller urban settlements, where sales of live chickens are still popular among members of the black community.

In a similar fashion to poultry, the procurement of eggs is managed by a combination of own production on large company estates and production contracts with egg-producing poultry farmers. According to a representative from the poultry industry, these farmers supply about 25% of the total number of eggs procured by these companies. The incorporation of emerging farmers is usually done through the distribution of empowerment shares to farm workers in the egg industry. The time period relevant to these contracts varies from seven years to contracts with an open duration. These contracts specify volumes to be supplied, price ranges, as well as quality and delivery dates.

One important fact established here is that the procurement of poultry and eggs completely excludes the open market and is largely procured by vertical integration or long-term production contracts. The spot market is only relevant in the informal and niche markets.

4.4 Tobacco, sugar cane and cotton

The procurement of tobacco, sugar cane and cotton is analysed for the entire industry rather than on the basis of individual companies. These commodities are mostly produced on company estates or purchased from contract farmers and farmers' cooperatives. In the tobacco industry, for example, cooperatives and a number of companies secure the supply of air-cured tobacco by a long-term production contract that specifies the quantity, quality, price and window period of supply. Action can be taken against a contracted farmer if delivery volume is 10% less than the agreed volume. In addition, a range of quality measures are stipulated and farmers' prices are fixed for the season with respect to each grade of tobacco leaf delivered. A significant proportion of farmers engage in on-farm fermentation in order to capture some of the value added activities. The farmers, moreover, have to deliver between March and October. Similarly, in the flue-cured tobacco leaf sector, cooperatives (and some tobacco companies) are partly owned by commercial farmers, who deliver to their cooperative and share in the profits when the cured leaves are sold to the cigarette companies.

In the highly regulated sugar industry, sugar cane is either supplied by the milling company estates or by contracted large and small-scale cane growers. A detailed long-term specification contract engages both commercial and emerging farmers, who are paid at a price that is regulated by the industry because of the monopsonistic nature of the sugar industry. The millers exercise high levels of control over the terms and conditions of supply and a range of interlocking factors promote contract enforcement. In this sector over 50 000 small farmers form part of the supply chain. Finally, the cotton sector employs three different institutions to secure the supply of cotton. Firstly, 40% of South Africa's cotton production is supplied by groups of farmers who produce, process and sell their own output. Secondly, farmers grow cotton, pay to have it processed and then sell the processed product (30%). Finally, farmers sell the raw commodity on contract to Clark Cotton, who process and market the final product (30%).

5. Conclusion: is South Africa moving away from open market procurement?

In summary this paper estimates that 78.5% of the total volume of fruit and vegetables procured by agribusiness companies for processing is based on some form of contracting arrangement, while the balance is procured through a combination of the open market, own estates, agents or imports. In terms of fresh fruit and vegetables, South African retailers source between 70% and 100% of their fresh produce directly from farmers (usually through growing

programmes). The procurement of meat, poultry and eggs appears to favour vertical integration (and in some cases own production), medium- to long-term contracts and long-term “informal” supply arrangements with selected groups of farmers. Thus, there is overwhelming evidence that the procurement of raw commodities in South Africa such as fruit, vegetables, beef, poultry, eggs and sugar cane has moved away from the open market towards a system of closed market supply, especially utilising contractual arrangements to source raw commodity supplies in a similar fashion to the US and Europe.

Although black farmers are contracted in many sectors, the volume of supply from this source is limited; for example, our analysis of the statistics on the procurement of fruit and vegetables, suggests that black farmers supply less than 5% of the total volume procured. At present, only 3.6% of fruit and vegetables are supplied by 455 black contract farmers, whilst 73.9% is supplied by 4 723 commercial farmers. The majority of surveyed respondents indicated they had plans to expand smallholder supply and many larger companies were in the process of expanding their procurement from mostly commercial farmers to a larger number of small-scale black farmers. Sectors that did not have such plans, however, included the snacks- and dried fruit industries.

The results documented in this paper also indicate the need for agricultural economists in South Africa to expand their analysis to the characteristics and theoretical study of the various forms of contracting arrangements. This is clearly a vast opportunity for future research.

Acknowledgements

This research was funded by a grant from the Food, Agricultural and Natural Resources Policy Analysis Network (FANRPAN) for Southern Africa under the research programme “Potential of contract farming as a mechanism for the commercialisation of smallholder agriculture in Southern Africa”, reference number 049/11/04.

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