CONFERENCE PAPER[1]

The Cash Cows, Dogs, Stars and Problem Children of the South African Agricultural Sector

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ABSTRACT

This paper investigates the development path of different agricultural sectors over the past 10 years in order to identify those subsectors that can contribute significantly towards reducing poverty and increasing national & household food security. The Boston Consulting Group (BCG) matrix was used to analyse growth patterns for different agricultural subsectors and classify them as cash cows, dogs, stars and question marks. The results show that the real average growth for the agricultural sector over the last ten years was 5.64 %. Of the 44 agricultural subsectors, 9 subsectors show a negative growth. The BCG matrix indicates one cash cow industry (sugar cane), eight dogs'(sisal, cotton, tobacco, tea, chicory, mohair, fry peas, dried fruit), fourteen stars (fowls slaughtered, maize, cattle & calves slaughtered, milk, vegetables, deciduous and other fruit, eggs, citrus fruit, wheat, potatoes, hay, viticulture, sheep and goats slaughtered, pigs slaughtered) and twenty one question marks. Institutional intervention by the public-private sectors are therefore necessary to unlock the potential of the problem children, maintain the momentum of the stars, extent the life of the cash cow and decide on the future of the dogs.

KEYWORDS: Development path; growth patterns; South Africa; agricultural industry; cash cow

1. Problem Statement

The South African agricultural sector started liberalising in 1995 and deregulated in 1997. Jooste & Van Zyl (1999:10) explained that previous policy was focused on food self-sufficiency and agricultural subsidies. The liberalisation entails the reform of the agricultural marketing system. This trend was further enhanced by the pressures from GATT negotiations for the abolition of quantitative import controls and the introduction of tariffs. Liberalization of price controls in the food sector was one of the important aspects of marketing deregulation. The agricultural sector traditionally received differential tax treatment from the Receiver of Revenue, but this also changed, with fiscal allocations to agriculture that relatively also declined over the past number of years.

In addition to dealing with the challenges of globalisation and the deregulation of domestic agricultural markets in the 1990s, the South African (SA) producers at farm level also had to adapt to a rapidly changing political environment after 1994. For example: land reform; broad-based black economic empowerment ('Agri-BBBEE'); new labour legislation; minimum wages; property taxes and skills levies have been instituted during the last couple of years.

The SA farmers also face some specific challenges to remain competitive which their equals in many other countries with more business-friendly political environments do not experience (Ortmann, 2005). Apart from increases in production costs, expenses related to electricity and labour will also increase rapidly over next few years. In this regard the BFAP (2010:viii) indicated that electricity's share of total production costs of maize under irrigation is projected to increase from 8% in 2009 to 20% by 2015, while the durability of water rights for irrigation farmers has become less certain. To aggravate this micro-economic level scenario even more, it is estimated that the HIV/AIDS prevalence rate amongst adults in South Africa was 20.1% with up to five million people estimated to be living with HIV/AIDS (Chaminuka *et al.*,2006). The smallholder agriculture sector, relying mainly on labour because of the low levels of mechanisation, has also not been spared by the pandemic. The government extension services has also shifted its focus from serving commercial agriculture to advising mainly these emerging producers. An estimated 90% of the SA agricultural and redistribution programmes are declared a failure (Radebe, 2011:2).

On an international policy level, SA also has most of the World Bank approved macro-economic policies in place to attract investment, but is does not qualify for

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much of the poorest countries' financial assistance schemes, despite being still in many agricultural areas a predominantly developing country (FANRPAN, 2006). Projections relating to the global increases in population tendencies show that agricultural production need to increase by approximately 70% to meet the demand levels by 2050 (FAO,2010:ii). In the country on its own the demands are huge – SA's economy remains one of the most inequitable in the world (40% of national income went to the richest 10% of households), with fewer than 50% of all working-age population has income-generating jobs (international benchmark is almost 67% employment) (Mills, 2011:7). Although South Africa is self-sufficient in terms of a net export of primary agriculture, the sector needs to import a lot of basic foods for example poultry, beef, wheat, soya bean, oil cake, etc.

In the ambit of this the South African agricultural sector is one of the least supported sectors in the world as measured with the Producer Support Estimate by the Organisation for Economic Cooperation and Development. The result of the above is subsectors with diminishing growth rates. Van der Merwe and Otto has argued a number of years ago (1997) that the optimum allocation of agricultural resources; competitive advantages based on natural endowments and unsubsidised markets are important policy issues. Despite the fact that commercial farming has contributed significantly to the country's economic growth in the past, and that it shows the best employment ratio of 19 for every R1 million gross value added in the economy, employment by the sector reduced by 46% from September 2003 and number of commercial farming units reduced by 34% since 1996 (NWPG,2008).

Therefore, on a macro-economic level, many questions are being asked about the sustainability of the subsectors and what must be done to ensure production, self-sufficiency and food security.

2. Objectives

This paper investigates the development path of different agricultural sectors over the past 10 years in terms of average growth and market share. The paper also strategically categorise the South African agricultural subsectors as 'question marks', 'stars', 'cash cows' and 'dogs'.

3. Discussion

Agriculture, machinery and equipment, pharmaceuticals and other chemicals, were indicated as economic sectors in SA that have the highest strategic value, with agriculture as such identified to be one that are most suited to absorb the large pool of unskilled labour. South Africa's recent exports per capita are barely higher than in 1960's and the country's status as a natural resource exporter does not rationalize this performance. Similar countries have all performed much better. One of the important principles in competitive markets relates to comparative advantage which basically proposes that every country would benefit from specializing in what it was relatively best at producing and then engaging in trade for everything else (Moss, 2007:16–19). It led to Paul Samuelson remarking that "*for all its oversimplification, the theory of comparative advantage provides a most important glimpse of truth.*" A country that neglects this will pay a price in terms of living standards and growth.

The Boston Consulting Group (BCG) was responsible for the first analytical breakthrough in corporate strategy in matrix format (Collins & Montgomery (2005:20). The BCG-matrix describes the business position in the market and basically shows areas where a business excel or drag behind. The basic assumption is that businesses that are large enough to be organized in strategic business units face the challenge of allocating resources among these units. Within the context of agriculture, this could increase the capacity for the involved stakeholders to allocate resources more effectively and reduce risks like the improved management of water resources (FAO,2010: 18–22).

The BCG matrix has two important dimensions (determinants of profitability):

- The *growth rate*, which attempts to capture the potential resource usage of a business (industry). A growth rate measures the percentage change in the value of a variety of markets, companies, or operations (a proxy for industry attractiveness). It is also more accurate when a comparison is done between entities to use a growth rate (than the actual numerical value), because the size of economies can be fastly different (Farflex; 2010). Brigham and Ehrhardt (2005: 256) explain that the capital gain through a specific year is the value it gains in a specific year and can be calculated as follows:

$$g = P_1 - P_0/P_0$$

Where: P_1 = Ending Price
P_0 = Beginning Price

The average growth rate for each subsector for the past 10 years was measured as follows:

$$g = \left((P_{2009} - P_{2008)}/P_{2008}\right) + \ldots\ldots\ldots + (P_n - P_n/P_n) + \ldots\ldots\ldots + (P_{2000} - P_{1999}/P_{1999}))/n$$

Where: P_{2009} = Deflated subsector value for 2009
P_{2008} = Deflated subsector value for 2008
P_{1999} = Deflated subsector value for 1999

Market growth is illustrated on the vertical axis in figure 1 and illustrates real growth of the specific subsector.

- The second dimension is the *relative market share* - which is an indication of overall strength and hence the cash generation potential. The average market share for 44 South African subsectors are presented. The market share (a proxy for competitive advantage) of the sectors was calculated as a percentage of the total value of agricultural production for 2009.
- *Matrix compilation* - The matrix was compiled with four quadrants (grids) namely, question marks, stars, cash cows and dogs as illustrated in Figure 1.

[4] South African Rand

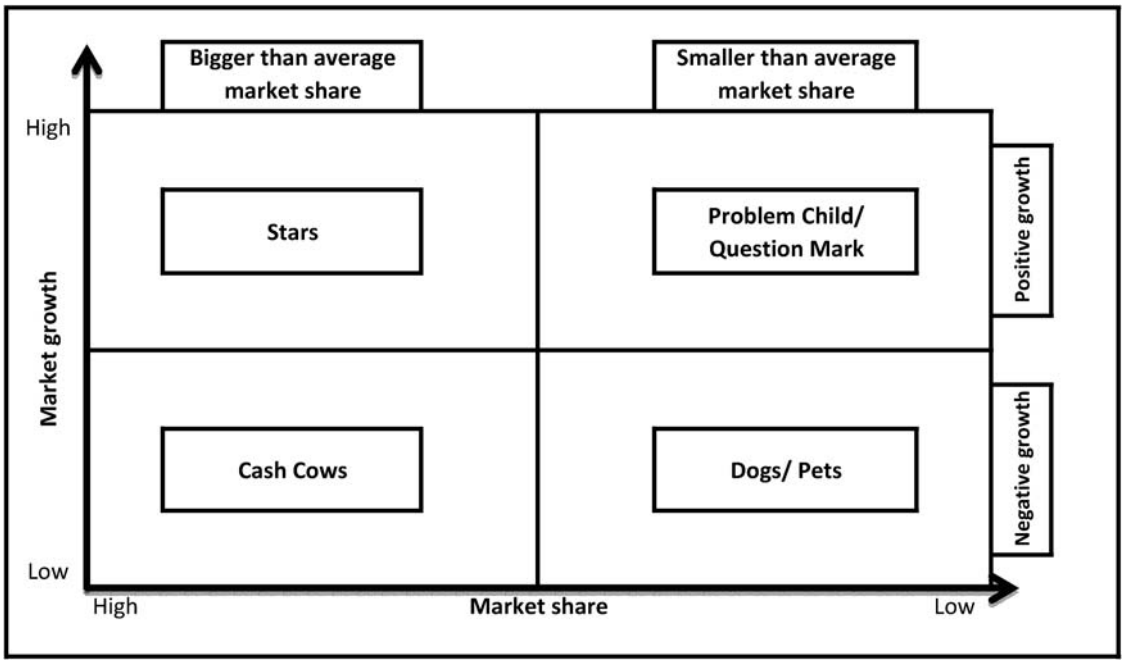

Figure 1. The Boston Consulting Group Matrix
Source: Own calculation based on literature from Thompson & Strickland, 1995

Thompson and Strickland (1995: 218) explain that the BCG methodology distinguishes between different matrix quadrants. Firstly, it is emphasised that a fast growing business with low relative market share would require a lot of cash to grow because of uncertainty about its future performance. Businesses in this quadrant were called *question marks*. The top left quadrant contained the *stars* – high growth-high market share businesses that were users of cash today because of their rapid growth, but whose dominant market position warranted investing in for the time when industry growth slowed and became the next cash cow. Conversely, a business with high relative market share in a slow-growing industry would be very profitable and would require little reinvestment. Since this implied the business would lose a lot of cash or use a lot of resources, business in this quadrant were called *cash cows. Dogs* are the low growth-low market share businesses to be found in the lower right quadrant, at a competitive disadvantage and with little hope of changing that position because of the slow industry growth. In principle the best strategy for this category of business was divestment or harvesting.

4. Results

The agricultural industry is basically divided into three main sectors namely: field crops, horticulture and animal production. Figure 2 shows that the volume of agricultural production for 2008/9 was 0.7% higher than the previous year. The volume of field crop production reflected a 2.4% decrease as a result of a decline in the production of summer grains (DAFF,2010:10). Horticultural production increased by approximately 1% with animal production showing an increase of nearly 3%, mainly because of increases in poultry products; fresh milk production, stock slaughtered and pastoral products.

The challenge for future agricultural production in South Africa is to increase the overall efficiency, resilience, adaptive capacity and mitigation potential of the sector through its various components. Collaborative disease control and increased provision of ecosystem services are examples of this. With increasingly complex supply chains it is becoming more important to increase value added benefits from commercialized activities such as the processing, packaging and transportation aspects to ensure enhanced product qualities and reduced environmental footprints (FAO,2010: i-5).

The average growth for the last 10 years and respective market share for the 2009 production season is illustrated in Table 1:

The results show that the real average growth for the agricultural sector over the last ten years was 5.64 %. Of the 44 agricultural subsectors, 9 of the 44 subsectors show negative growth (see Figure 2). The BCG matrix indicates that the sugar cane industry can be seen as a *cash cow* industry. The *stars* of the agricultural sector are the poultry, maize, beef, dairy, vegetables, deciduous fruit, citrus, wheat, potato, hay, viticulture, mutton and pork industries. The *problem children* of the agricultural sector are the lentil, karakul, lucerne seed, oats, nuts, wattle bark, rye, rooibos, other horticulture, other field crops, ostrich feather, barley, grain sorghum, dry beans, ground-

Table 1. Agricultural sector division, growth rate and market share

Agricultural Sectors	Average growth rate	Market Share
Field crops	6.65%	27.97%
Horticulture	4.58%	24.84%
Animal products	7.00%	47.19%

Source: Own calculation from data from DAFF (2010)

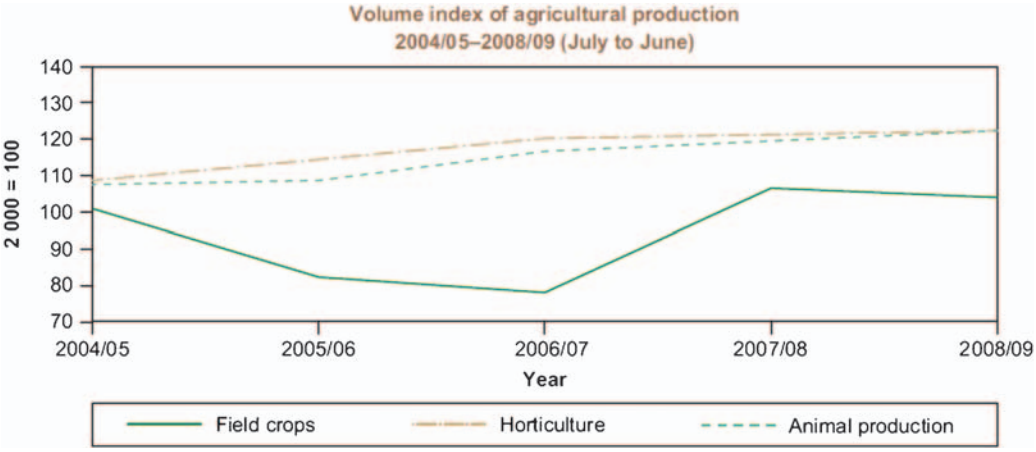

Figure 2. Volume of agricultural production (2004–2009)
Source: DAFF(2010:10)

nuts, flower bulbs, wool, soya bean, subtropical fruit, other livestock products and sunflower seed subsectors. The *dogs* or *pets* of the agricultural sector can be seen as the sisal, cotton, tobacco, tea, chicory root, mohair, dry peas and dried fruit subsectors – see Figure 3.

Although some of these subsectors do not have a big market share they are important in their contribution towards the value of agriculture. It is thus imperative to stimulate and protect these industries, some of which also have a very high labour multiplier and socio-impact.

Stars

	Sub Sector	Avg Growth	Market share
1	Fowls slaughtered	6.93%	17.18%
2	Maize	13.16%	12.51%
3	Cattle and calves slaughtered	10.24%	10.09%
4	Milk	5.48%	6.95%
5	Vegetables	8.28%	6.01%
6	Deciduous and other fruit	4.15%	5.93%
7	Eggs	7.56%	5.05%
8	Citrus fruit	8.86%	4.47%
9	Wheat	10.97%	3.81%
10	Potatoes	4.15%	2.98%
11	Hay	4.12%	2.93%
12	Viticulture	2.94%	2.53%
13	Sheep and goats slaughtered	5.74%	2.37%
14	Pigs slaughtered	11.02%	2.33%

Question Marks/ Problem Children

	Sub Sector	Avg Growth	Market share
1	Other livestock products	9.20%	1.94%
2	Sunflower seed	33.08%	1.82%
3	Subtropical fruit	2.43%	1.60%
4	Soya beans	23.97%	1.26%
5	Wool	6.04%	0.83%
6	Flowers and bulbs	0.53%	0.65%
7	Groundnuts	12.96%	0.55%
8	Dry beans	1.53%	0.41%
9	Grain sorghum	24.11%	0.36%
10	Barley	11.32%	0.34%
11	Ostrich feathers and products	3.52%	0.29%
12	Other field crops	12.08%	0.13%
13	Other horticultural products	21.64%	0.11%
14	Rooibos tea	14.86%	0.11%
15	Rye	111.97%	0.07%
16	Wattle bark	3.24%	0.06%
17	Nuts	3.65%	0.06%
18	Oats	18.10%	0.04%
19	Lucerne seed	80.98%	0.01%
20	Karakul pelts	10.77%	0.01%
21	Lentils	28.86%	0.00%

Real market growth > 0 %

Market share > 2.27%

Market share < 2.27%

Real market growth < 0 %

Cash Cows

	Sub Sector	Avg Growth	Market share
1	Sugar cane	-0.82%	3.38%

Pets/ Dogs

	Sub Sector	Avg Growth	Market share
1	Sisal	-37.96%	0.00%
2	Cotton	-10.92%	0.06%
3	Tobacco	-7.67%	0.20%
4	Tea	-4.17%	0.06%
5	Chicory root	-3.49%	0.01%
6	Mohair	-1.42%	0.16%
7	Dry peas	-0.85%	0.00%
8	Dried fruit	-0.54%	0.33%

Figure 3. BCG matrix for the South African agricultural sector (2009)
Source: Own calculation based on data from DAFF (2009)

However, large-scale investments are required to meet the projected costs of expanding the potential future growth path of agriculture, but, the financial resources for agriculture is indicating increasing gaps. Even the share of agriculture in official development assistance declined from 19% in 1980 to a current average of 6% (FAO,2010:24–25). It is a serious challenge for the state to deal with the problems of poverty and food insecurity (more than 20% have inadequate access to food) through the means of agricultural development (Mkokeli & Shoba,2011:1). The problem is the seemingly lack of consensus regarding the strategic role of SA agriculture in the future economic growth plans if the New Growth Path of the Economic Development Minister (to reduce unemployment to 15% in 10 years), the Planning Commission's Strategic Plan for SA; the IPAP2 in connection with the creation of export markets and the union's SA growth plans' programmes are considered (Radebe,2011:2).

5. Conclusions

It is evident that certain important subsectors struggle to perform and are likely to diminish even further if intervention does not take place. For example the effect of policy on the cotton industry resulted in a decreasing area planted from 90 000 hectares in 1995 to 7 000 hectares in 2009. On the other hand, the current surplus has enabled the maize industry to export a portion of its surplus of 4 million tonne. The government intervened here by finding markets for about 100 000 tonnes of maize in Saudi Arabia and India (Blom, 2011:38) - this after the Competition Commission initially prevented maize farmers from pooling the surplus for export purposes.

Classifying the position of the subsectors in the BCG matrix, must give way to decisions regarding what to do with them (Tutor2U, 2011) - subsectors can move from problem children to stars if the necessary support and action plans can be implemented to make them more competitive. A main concern regarding subsectors is competitiveness. Studies on competitiveness often err by only considering the output side of the agribusiness system (from farm to table) and thereby ignoring the possible impact the input sectors could have on the competitiveness of the agricultural industry. Relating to the matrix findings, and the balance of trade for agricultural products it challenges these subsectors to strategically position themselves according to the trend line and ultimately create and think value chain reaction (Esterhuizen et al: 2001) such as a 'double-positioning' strategy of food products.

The exhibition of different levels of vulnerability in the subsectors as indicated by the BCG matrix, show a real need for collaboration and differentiated policy responses that target these needs. The government should rather ensure an enabling environment for the sector through partnerships that focus on knowledge management and policy actions to perform competitively through private initiative.

This strategic positioning is not an isolated research project – it needs to serve as a basis for further research into the different subsectors to understand the drivers in the value chain to pro-actively react to ensure sustainability. An example in this regard is the fact that the fastest growth in the potato industry during 2003–2007 happened in the processed market expansion. There are many subsectors in the SA context that due to a lack of finances, resources and capacity are performing well below the potential yield that could be achieved. Some of the fundamental issues here are the distortion in some markets (Irish butter in SA retail is cheaper than the domestic product); stagnation in other subsectors like the fruit and vegetable industries (product development basically the same as 30 years ago) and adaption of the export initiative (Duvenhage,2011:1) and the adaptability to climate smart production.

The BCG matrix may serve as a starting point of discussing resource allocation among the various stakeholders. The agricultural sector has large multiplier effects in respect with forward and backward production linkages. Therefore research in this regard must focus on more than just the direct market impacts, but should also research the indirect impacts or the value added in the value chain processes as well because agricultural growth multipliers generally are three times as large as those for non-agricultural growth ((Hausmann & Klinger as cited *in* SACOB, 2007). The South African economy needs a much more aligned strategy in a largely underdeveloped agricultural potential, based on significant market opportunities and establishing an effective market information system.

About the authors

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Christo Joubert (MBA, MSc (Real Estate), BSc Agric-Economics UP, BSc Agric-Economics UFS) started his career in 1997 at Outspan International as a business manager. He then joined Standard Bank and become specialized in agricultural finance, research and product development and grain marketing. After this he started up with colleagues a Grain Portfolio Management business. He joined Senwes in 2005 as a Risk manager and left the company two years later as a grain procurement officer. He continues his career at Absa as an Executive Relationship Manager. In 2009 he accepted a position as Senior Researcher at the Market and Economic Research Center of the National Agricultural Marketing Council (NAMC) in Pretoria. He does research in the "Agro Food Chains" focus area. In his private time he value agricultural properties. He is also a keen knife maker and hunter. He loves nature and is blessed with 3 beautiful daughters. Christo is joint author of one national and four international papers and three published articles in academic journals.

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He has been involved in 33 scientific publications in academic and scientific journals. 17 Contributions have been made in books and technical reports. 68 papers have been presented at conferences, congresses, workshops and symposiums nationally, whilst 34 papers were presented internationally. 38 Popular scientific articles have been published. 59 Research and project reports on a variety of subjects have been completed, and more than 80 popular scientific papers have been presented at farmer's days.

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