

**THE CASH COWS, DOGS, STARS AND PROBLEM CHILDREN OF THE SOUTH AFRICAN
AGRICULTURAL SECTOR.**

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Abstract

The South African agricultural sector liberalised in 1995 (complied by 2000) and deregulated in 1997. The South African agricultural sector is also one of the least supported sectors in the world as measured with the Producer Support Estimate by the Organisation for Economic Co-operation and Development (OECD). This created an environment where agribusiness managers, other decision makers in the agro-food chains and policy makers face many new and complex dynamics and challenges. As in many other parts of the world, South Africa faces challenges pertaining to food security and poverty. The agricultural sector can play a vital role in addressing these challenges if one considers that it has some of the stronger forward and backward multipliers (including labour multiplier) in the South African economy. This becomes even more important from a rural development point of view where approximately 60 % of the poor reside.

This paper aims to investigate the development path of different agricultural sectors over the past 10 years in order to identify those sub-sectors that can contribute significantly towards reducing poverty and increasing national food security. This will provide the basis for public-private sector intervention in those sub-sectors that require intervention to unlock potential, while investing more in those sub-sectors that are already making a significant contribution. The Boston Consulting Group (BSG) Matrix was used to analyze the South African agricultural sector. By using this methodology certain patterns in the behaviour of a sub-sector can be deducted. Moreover, sub-sectors are classified as cash cows, dogs, problem children and stars. The outcome of this study can also be use as an important indicator for further sub sector analysis.

The results show that the real average growth for agricultural over the last ten years was 5.64 %. Of the 44 agricultural sub-sectors a total of 9 sectors of the 44 sectors show a negative growth and 10 sectors show a below average growth. The BSC matrix indicates 1 cash cow industry, 14 stars, 21 problem children and 8 dogs. Although some of these industries do not have a big market share the industries is important, it contribute much towards the value of agriculture, it is imperative to stimulate and protect these industries. Some of these industries have a very high labour multiplier and the socio impact can be immense. Therefore it is important to analyse movement of sectors in term of growth and market share.

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1. Introduction

Growth in a sector or at least more than inflation is a result of a healthy and competitive industry. This is also critical for the long-term survival in the agricultural industry. With the agricultural sector in South Africa largely deregulated, producers and other participants in the chain needs to position themselves to be sustainable over the long term and therefore the sub sector business is evolving. How does a participant in the chain position himself if the specific subsector performs negatively due to an unfair global playing field, although the world market is suppose to be controlled?

Many questions are being asked about the sustainability of certain South African agricultural sub sectors. It is imperative to see this study not as isolated research but rather as an instigator for further value chain research.

Another main concern is competitiveness. Studies on competitiveness often make the mistake by only considering the output side of the agribusiness system (from farm to table) and thereby ignoring the possible impact the input sector could have on the competitiveness of the agricultural industry. Both agribusiness practitioners and analysts (and professors!) are challenged to “create and think chain reaction”! (Esterhuizen et al; 2001)

The following chapters will focus on related literature review pertaining to the performance of the agricultural sector. A description on the Boston Consultancy Group (BCG Matrix) methodology will be given, as well as the methodology as how the methodology was applied to the agricultural sector. A discussion of the results will follow.

2. Literature review

2.1. Performance of agriculture

At farm level production, Esterhuizen et al (2001) proofed that some of the South African agricultural chains only have marginal competitiveness and that some are highly competitive as illustrated in table 1. The BCG matrix indicates that some of these sectors actually show growth above inflation like beef and potatoes and the poultry industry. Bear in mind that consumer’s preference and consumption patterns changed drastically over the last 9 years.

Table 1: Farm level production: Competitiveness of primary products in the agro-food and fibre complex.

Competitive (+)	Marginal (=)	Not competitive (-)
Maize; Sugar; Groundnuts; Oranges; Apples; Grapes; Pineapples; Wool	Wheat; Potatoes; Soybeans; Sunflower seed; Tomatoes; Milk; Pigs; Chicken	Beef; Mutton

Source: Esterhuizen, Van Rooyen and Doyer (2001)

Esterhuizen et al (2001) make use of the Revealed Comparative Advantage (RCA) methodology to compare South Africa’s competitiveness and not the methodology of the BCG. Trends are illustrated in table 2.

Table 2: Trends in primary agriculture sector.

Trend in competitiveness 1995 - 1999				
		Increase	Constant	Decrease
Competitiveness in 1995	Competitive	Winners: Sugar; Groundnuts ; Oranges; Apples; Grapes; Wool	Steady high performers: Pineapples	Declining high performers: Maize
	Marginal	Rising moderate performers (catch-up): Potatoes; Sunflower; Tomatoes; Milk Soybeans	Steady moderate Performers: Pigs, Chickens	Declining moderate Performers:
	Not Competitive	Turnaround: Wheat	Steady underperformers: Cattle	Chronic underperformers (losers): Sheep (mutton)

Source: Esterhuizen, Van Rooyen and Doyer (2001)

They also describe trends in the form of a matrix illustrated in table 2 as the winners and losers of the primary agricultural sector. The matrix is divided into six blocks. The competitiveness of the products, in 1995 as the base year for comparison, is shown on the vertical axis and the trend in competitiveness for the period 1995 to 1999 on the horizontal axis.

2.2. Value of production

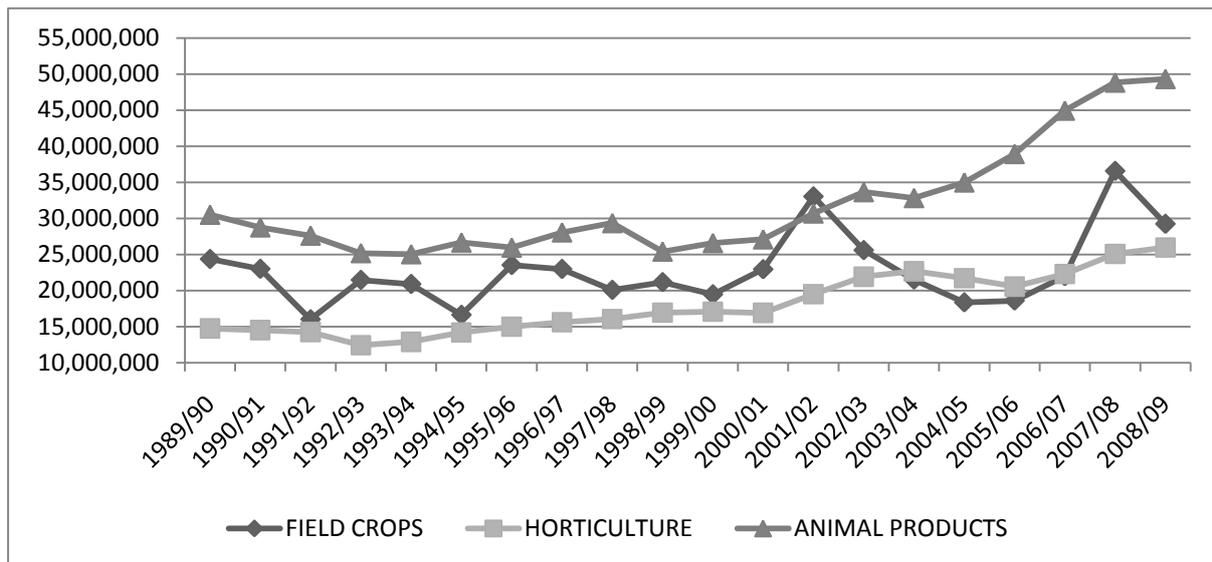
The division of the agricultural industry into different sectors with average market share and growth rate is illustrated in table 3.

Table 3: Agricultural sector division

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

Source: Own calculation from data from DAFF 2010.

The average growth rate for real agricultural production for the past 10 years industry is 5.64%. The total real value of production of the agricultural industry for the last 10 years increases dramatically as illustrated per sector in figure 1.

Figure 2: Real growth of the agricultural sectors.

It is evident that biggest growth incurred in the animal sector. A detailed discussion will follow.

2.3. BCG Matrix

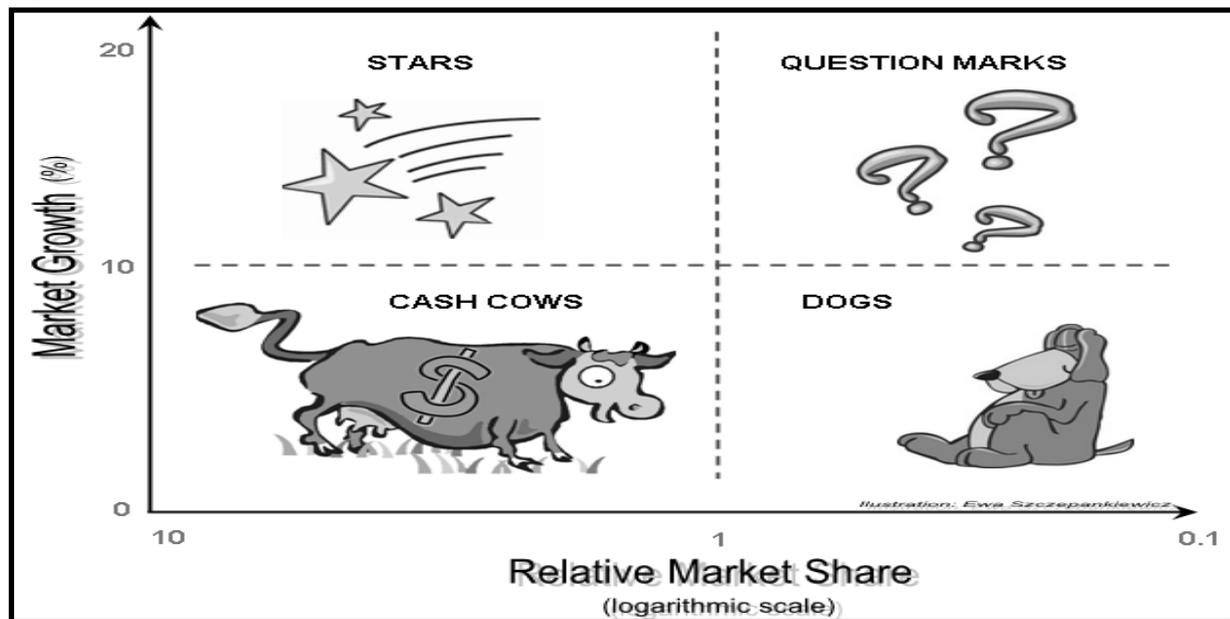
In the seventies the major source of ideas about corporate strategy shifted from academic world to management consulting firms. Specialist firms, such as the Boston Consulting Group (BCG), emerged to challenge the strategy practices of the traditional management consulting firms. BCG was responsible for the first analytical breakthrough in corporate strategy (Collins and Montgomery; 2005:20).

Thompson and Strickland (1995; 217) are of the opinion that the most revealing indicators to construct a business portfolio matrix is industry growth rate, market share, long term industry attractiveness, competitive strength and a stage of product/ market evolution. Usually one dimension of the matrix relates to the attractiveness of the industry environment and the other to the strength of a business within the industry. The matrix is formed using the industry growth rate and relative market share as the axes. Each business unit in a portfolio appears as a “bubble” on the four-cell matrix, with the size of each bubble or circle scaled the present of revenue it represents in the overall portfolio.

Early BCG methodology arbitrarily placed the dividing line between “high” and “low” industry growth rates at around twice the real GNP growth rate plus inflation, but the boundary can be set at any percentage. Units growing faster than the economy as a whole should end up in the “high-growth” cells and those growing slower, in the “low-growth” cells (“low-growth” industries are those that are mature, aging, stagnant, or declining). If an industry generates cash then it will become bigger and market share will increase over time. Relative market share can be measure as a ratio of the share of the business unit towards the total value of the market.

Their so called growth share matrix, best known for its cow and dog metaphors (see figure 3) became the tool for resource allocation.

Figure 3: The BCG Matrix



2.3.1. Cash cows, described by Thompson and Strickland (1995; 220) are sectors or units with high market share in a low growth rate. A cash cow business generates substantial cash surpluses over what is needed for reinvestment and growth. There are two reasons why a business can be seen as cash cows namely:

- Because of the business's relative high market share and industry leadership position, it has high sales volumes and reputation to earn attractive profits.
- Because it is in a slow-growth industry, cash flows from current operations typically exceed what is needed for capital reinvestment and competitive manoeuvres to sustain its present market share.

Many of today's cash cows are yesterday's stars. Cash cows, though less attractive from a growth standpoint are, valuable businesses. Every effort is needed to keep cash cows in a healthy condition to preserve their cash generating capabilities over the long term. Weakening cash cows may become candidates for harvesting and eventually divesture if stiffer competition or increased capital requirements cause cash flow surpluses to dry up or, in worst case become negative.

2.3.2. Dogs, or more charitably called *pets*, are units with low market share in a mature, slow-growing industry. These units typically "break even", generating barely enough cash to maintain the business's market share. Weak dog businesses often cannot generate attractive long term cash flows. BCG prescribes that weaker-performing dog business be harvested, divested, or liquidated, depending on which alternatives yields the most cash.

2.3.3. Question marks (also known as problem children) are business units in the upper right quadrant of the growth-share matrix. Rapid market growth makes such business units attractive from an industry standpoint. But their low market share raises a question about whether they have the strength to compete successfully against larger, more cost-efficient rivals – hence the question mark or problem child designation. Question mark businesses moreover are typically "cash hogs" – labelled because their cash needs are higher and their internal cash generation is low (owing to low market share, less access to experience curve effects and scale of economics, and consequently

thinner profit margins). A question mark/cash hog business in a fast-growing industry may require large infusion of cash just to keep up with rapid market growth – and even bigger cash infusion if it must outgrow the market and gain enough market share to become an industry leader. The parent of a cash hog/question mark has to decide whether it is worthwhile to fund the perhaps considerable investment requirements of such a business. BCG has argued that the two best strategic options for a question mark business are:

- An aggressive investment and expand strategy to capitalize on the industry's rapid growth opportunities or
- Divestiture, in the event that the cost of expanding capacity and building market share outweigh the potential payoff and financial risk

Pursuit of a fast growth strategy is imperative any time an attractive question mark business is in an industry characterised by a strong experience curve effect; in such cases it takes major gains in market share to begin to match lower cost with greater cumulative production experience and bigger market share (Thompson and Strickland, 1995; 217)

2.3.4. Stars are units with a high market share in a fast-growing industry. They offer excellent profit and growth opportunities. They are the business units an enterprise depends on to boost overall performance. Stars typically require large cash investment to expand production facilities and meet operational capital need. Stars also tend to generate their own large internal cash due to low-cost advantage of scale of economics and cumulative production experience. Stars businesses vary as to their cash hog status. Some can cover their investment needs with self-generated cash flows; others require capital infusion from their corporate parents to stay abreast of rapid industry growth (Thompson and Strickland, 1995; 217).

The **BCG Matrix** has two dimensions namely industry growth rate, which attempted to capture the potential cash usage of a business, and relative market share, which was a surrogate for overall competitive strength and hence the cash generation potential. A fast growing business with low relative market share would require a lot of cash to grow; because of uncertainty about their future performance, businesses in this quadrant were called question marks. 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 it would lose a lot of cash or use a lot of resources, businesses in this quadrant were called *cash cows*. *Dogs* were 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. The top left quadrant contained the *stars* – 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* (Thompson and Strickland, 1995; 218).

The first prescription of the matrix concerned resource allocation. *Dogs* would receive no investment unless they could demonstrate a very rapid payback. In contrast, *stars* would receive funding even though their current profitability might be low or negative. As a particular industry matures and its growth slows, all business units become either *cash cows* or *dogs*. The natural cycle for most business units is that they start as *question marks*, then turn into *stars*. Eventually the market stops growing thus the business unit becomes a *cash cow*. At the end of the cycle the cash cow turns into a *dog* (Thompson and Strickland, 1995; 218).

2.4. Market growth rate or capital gain

A growth rate measures the percentage increase in the value of a variety of markets, companies, or operations. One of the factors in evaluating whether to recommend that investors purchase, hold, or sell its shares in a company depends on the growth rate. It is also more accurate when comparison is done between entities to use a growth rate than the actual numerical value, because the size of economies can be fast different (financial dictionary; 2010).

Brigham & Ehrhardt (2005: 256) explain that the capital gain through a specific year is the value it gains in a specific year and it can be calculated as follow:

$$g = \frac{P_1 - P_0}{P_0}$$

where:

P_1 = Ending Price

P_0 = Beginning price

2.5. Critical Evaluation

The matrix ranks market share and industry growth rate, and only implies actual profitability the purpose of any business. (It is certainly possible that a particular *dog* can be profitable without cash infusions required, and therefore should be retained and not sold.) The matrix also ignores other elements of industry. With this or any other such analytical tool, ranking business units has a subjective element involving guesswork about the future, particularly with respect to growth rates. Unless the rankings are approached with rigor and scepticism, optimistic evaluations can lead to a *dot.com* mentality in which even the most dubious businesses are classified as "*question marks*" with good prospects; enthusiastic managers may claim that cash must be thrown at these businesses immediately in order to turn them into stars, before growth rates slow and it's too late. Poor definition of a business's market will lead to some *dogs* being misclassified as *cash cows* (Thompson and Strickland, 1995; 219).

2.6. Draw backs

Squidoo (2010) elaborates on the weaknesses of the BCG matrix namely:

- Market growth rate is only one factor in industry attractiveness, and relative market share is only one factor in competitive advantage. The growth-share matrix overlooks many other factors in these two important determinants of profitability.
- The framework assumes that each business unit is independent of the others. In some cases, a business unit that is a "*dog*" may be helping other business units gain a competitive advantage.
- The matrix depends heavily upon the breadth of the definition of the market. A business unit may dominate its small niche, but have very low market share in the overall industry. In such a case, the definition of the market can make the difference between a *dog* and a *cash cow*. While its importance has diminished, the BCG matrix still can serve as a simple tool for viewing a corporation's business portfolio at a glance, and may serve as a starting point for discussing resource allocation among strategic business units.

3. Methodology used

3.1. Growth rate

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

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

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

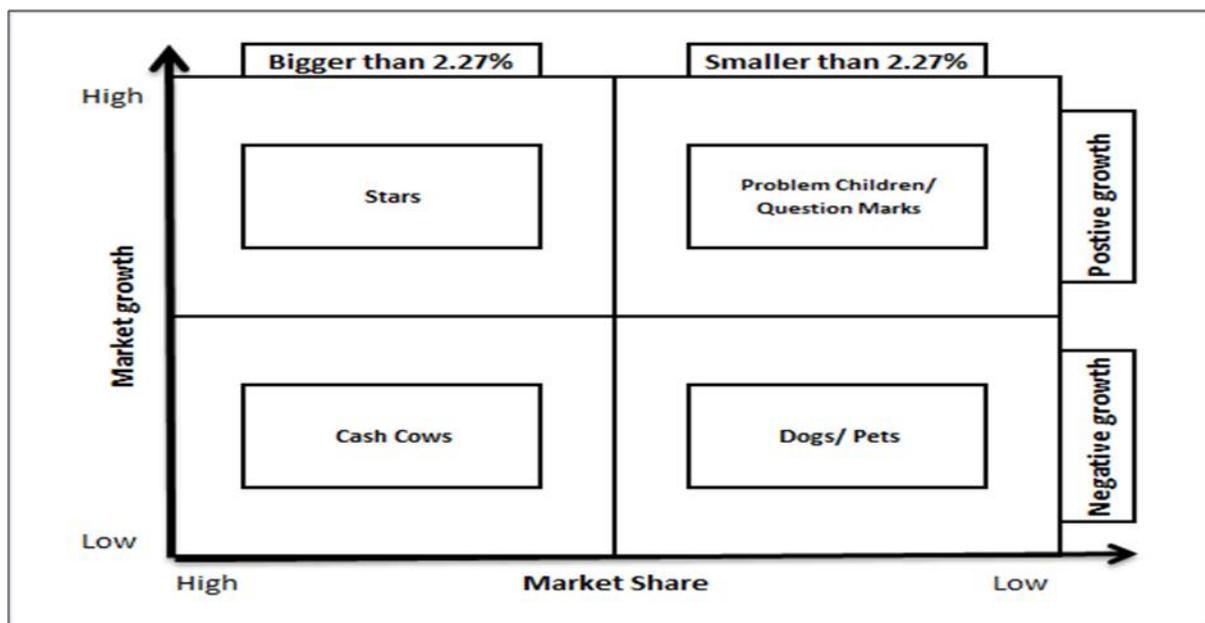
3.2. Market share

The market share per sector was calculated as a percentage of the total value of agricultural production for 2009.

3.3. Matrix compilation

The matrix was compiled with 4 quadrants namely, *stars*, *problem children* or *question marks*, *cash cows* and *dogs* or *pets* as illustrated in figure 4. Market growth is illustrated on the vertical axe and illustrates real growth of the specific sub sector. The vertical axe presented an average of 2.77 % markets share for the 44 sub sectors.

Figure 4: The Boston Consultancy Matrix



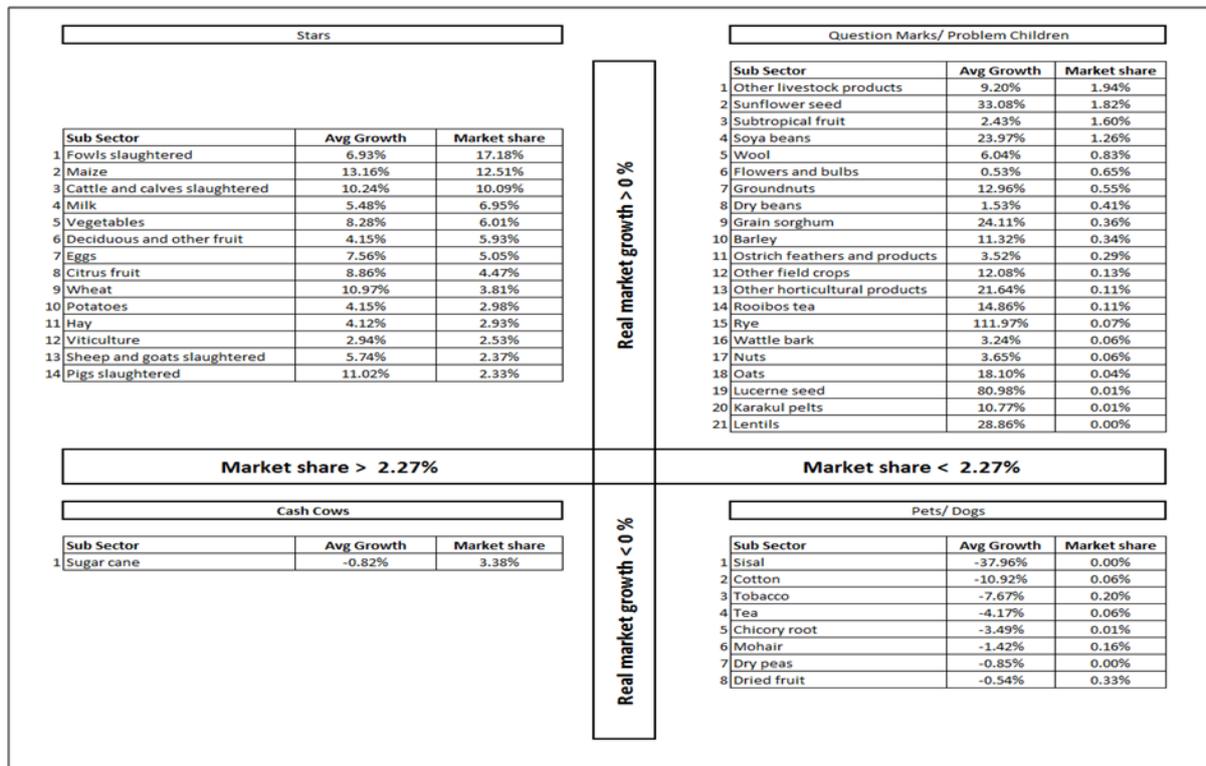
4. Results

South African (SA) farmers are in a relatively unique situation in that, in addition to dealing with globalisation and the deregulation of domestic agricultural markets in the 1990s, they also have to adapt to a rapidly changing political environment. For example, land reform, black economic empowerment in agriculture (AgriBEE), new labour legislation, minimum wages, property taxes and

skills levies have been instituted during the last 10 years. The government extension service has also shifted its focus from serving commercial agriculture to advising mainly small-scale (emerging) producers, while the durability of water rights for irrigation farmers has become less certain. SA farmers, therefore, face some specific challenges to remain competitive that farmers in many other countries with more business-friendly political environments do not experience (Ortman; 2005).

Figure 5 illustrates the BCG matrix of the South African Agricultural sector for 2009.

Figure 5: BCG Matrix for the South African Agricultural Sector



The results show that the real average growth for agricultural over the last ten years was 5.64 %. Of the 44 agricultural sub-sectors a total of 9 sectors of the 44 sectors show a negative. The BSC matrix indicates that the sugar cane industry can be seen as a cash cow industry. The *stars* of the agricultural sector is the poultry, maize beef, dairy vegetables , deciduous fruit citrus , wheat , potato, hay viticulture , mutton and pork industries.

The *problem children* of the agricultural sector is the lentil, karakul, lucerne seed, oats, nuts, wattle bark, rye, rooibos, other horticulture, other field crops, ostrich feather, barley, grain sorghum, dry beans, ground nuts, flower bulbs, wool, soya bean, subtropical fruit, sunflower seed and other livestock products.

The *pets* or *dogs* of the agricultural sector can be seen as the sisal, cotton, tobacco, tea, chicory root, mohair, dry peas and dried fruit sub sectors.

Although some of these industries do not have a big market share the industries is important, it contribute much towards the value of agriculture, it is imperative to stimulate and protect these

industries. Some of these industries have a very high labour multiplier and the socio impact can be immense.

5. Conclusion

Van der Merwe and Otto (1997) is of the opinion that optimum allocation of agricultural resources in South Africa, competitive advantages based on natural endowments and unsubsidised markets have become important policy issues. The result of the above is sub sectors with diminishing growth. The question to be asked what about food security and self sufficiency versus a free and deregulated market. The agricultural sector has already lost 46 % of its work force from September 2003 and 34 % of the commercial farming units from 1996. It seems that policy makers do not understand or realize the effect of certain policies on certain sub sectors.

The main objective of this was to take account in terms of the different agricultural sub sectors and to determine if they show sustainability. Nine agricultural sub sectors show real negative growth. Twenty one agricultural sectors can be seen as problem children. Sustainability in any business is important but government intervention is imperative to support an industry and ensure its long term viability.

It is also evident that certain important sub sectors struggle to survive and probably will diminish if government intervention did not happen. For example the effect of policy on the cotton industry resulted a decreasing area planted from 90 000 hectares in 1995 to 7 000 hectares in 2009, The area planted under tobacco decrease from 15 600 hectares in 2000 to 4 000 in 2009.

This study also needs to serve as a basis for further research into different sub sector and to determine the drivers influencing the sustainability thereof.

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