Structure of the South African Fertiliser Industry: market concentration, trade and price

Corné Louw
Grain SA
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Contents

• Background & Introduction
• International fertiliser industry
• Local fertiliser industry
  – Structure of the fertiliser industry
  – Domestic supply and trade
  – Domestic price trends
• Price transmission between international and local fertiliser prices
• Recommendations
Background & Introduction
Fertiliser as production input contributes on average between 30% and 50% to a grain and oilseed producers’ variable production costs in South Africa.

- Seed 9%
- Fertiliser & Lime 30%
- Fuel 13%
- Other cost 20%
- Interest on production credit 7%
- Permanent labour 5%
- Repairs & parts 9%
- Weed control 7%
Background & Introduction

• International and local fertiliser prices began a gradual increase from early 2007 until the beginning of 2008, after which prices increased substantially to peak during mid to end of 2008

  - Ammonia – 229% ; Urea – 213%;
  - DAP – 380%; KCL – 598%

• Local prices during the same time period:

  - LAN (28) – 171%; Urea – 172%;
  - MAP – 313%; KCL – 271%;
Due to these increases + fertiliser costs contributing so heavily to production costs + grain producers not being able to pass these increases to consumers and the fact that market commentators could not agree on the reasons for the increases, Grain SA decided to do an in-depth study on international and local fertiliser industry.
International fertiliser industry
International fertiliser industry

• Research showed that the sharp rise in fertiliser prices could not be pinned to 1 specific factor but was caused by a few global economic factors converging – causing a “perfect storm”.

• On the supply side, it was low fertiliser stocks and production cost items (ammonia, natural gas, oil, sulphur) increasing in costs that had an impact on prices.

• On the demand side, it was the expansion of crop plantings that caused fertiliser prices to rise.
As indicated many factors could have had a impact on international fertiliser prices, but in most instances the exact relation is not entirely clear. Was decided to determine if any statistically relation exist between these factors and the price movement of fertilisers.

The statistical analysis showed:

- **Supply side drivers:** Prices of ammonia, natural gas, Brent crude oil, Sulphur, phosphate rock and available stocks of fertiliser were all statistically significant.

- **Demand side drivers:** only change in income measured by world GDP growth rate had a significant effect. Not USA Maize prices as expected.
Local fertiliser industry
Local fertiliser industry

Structure of the fertiliser industry in SA

• Since 1903, the start of the fertiliser industry in SA, the industry has seen major developments and restructuring. The fertiliser industry, without supporting measures since 1984, should be able to compete globally and one can postulate that structural changes were aimed at achieving this.

• This however, also resulted in a highly-concentrated fertiliser supply chain.
In 2008, according to Frost & Sullivan (2008), 86% of the market share in terms of revenue was shared by only 3 companies.

- Sasol 31%
- Omnia 36%
- Sasol 31%
Local fertiliser industry

Structure of the fertiliser industry in SA

• In 2009, the Competition Tribunal confirmed settlement reached between the Competition Commission and Sasol, for uncompetitive behaviour. Remedy for Sasol’s alleged abuse of dominance Sasol in 2010 undertook to divest from five of its regional fertiliser plants, which meant that Sasol would stop selling fertiliser on retail level directly to farmers after July 2011.

• Expected that this decision would change the concentration within the local fertiliser industry dramatically. As it is already seen that many smaller blending plants / companies are being set up.
Domestic supply and trade

- Statistics show that SA is becoming more and more dependent on imports. This situation presents a considerable risk to grain producers – could cause more and more price volatility; possible shortages that could result in pressure on food security.

![Chart showing % Imports to satisfy local demand from 1961 to 2008]

- 1990 - Less than 20%
- 1999 - 40%
- 2008 – more than 65%
Domestic price trends

- Due to the fact that SA imports over 60% of its local demand and operates in the free market, international price trends will filter into the SA market.
- Correlation estimates to determine the relationship between local and international prices showed that local fertiliser prices are highly correlated with their international fertiliser products. This confirmed our a priory expectations due to high import quantities.

<table>
<thead>
<tr>
<th>Prices compared in correlations</th>
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<tbody>
<tr>
<td>International ammonia price (fob Middle East)</td>
<td>Local LAN price (average pricelist)</td>
<td>+0.90</td>
</tr>
<tr>
<td>International urea price (fob Eastern Europe)</td>
<td>Local urea price (average pricelist)</td>
<td>+0.97</td>
</tr>
<tr>
<td>International DAP price (fob US Gulf)</td>
<td>Local urea price (average pricelist)</td>
<td>+0.99</td>
</tr>
<tr>
<td>International potassium chloride price (fob CIS)</td>
<td>Local potassium chloride (average pricelist)</td>
<td>+0.97</td>
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</tbody>
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In order to determine a proxy for margins in the local fertiliser industry, an import parity price approach was used.
Domestic price trends

• A noteworthy issue that emerged from the analysis was the difference between the calculated margins of LAN and MAP.

• The reason is that the a priori expectation was that these margins will be more or less in the same order in the light of the fact that both products are produced locally.
  – Average margin for LAN (-5%); which is expected.
  – Average margin for MAP (17%); same as urea.

• The local price structure of MAP as well as the phosphate value chain therefore needs further investigation.
Price transmission between international and local fertiliser prices
Price transmission between international and local fertiliser prices

- Results from correlation estimates already confirmed that there is a relation between local and international fertiliser prices. But one still needed to better understand the nature of this relation since it will provide valuable insight into how price formation takes place.
- For example, is international price transmission symmetric or asymmetric?
- Symmetric, indicates that local prices respond similarly to both upward and downward movements in international fertiliser prices. However, when asymmetric, local prices react differently to increases than to decreases in international prices.
Price transmission between international and local fertiliser prices

• Results from the analysis show that price transmission between international and local fertiliser prices are incomplete, which means that changes in international fertiliser prices are not completely passed through to local fertiliser prices.

• Much of the differences in price changes was caused by non-policy factors such as market power, transport and storage, lack of market information and the exchange rate.

• The results further showed that price transmission between international and local prices is asymmetrical, in other words local prices respond differently to upward than downward movement in international prices.
Urea – impulse response analysis from international price shock

Local prices respond more quickly to international price increases or the depreciation of the value of the rand than vice versa.

This means that fertiliser companies react more quickly to changes in international fertiliser prices that put their profit under pressure than to international price changes that stretch them.
Recommendations
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Recommendations to Government

- Due to the fact that the Competition Commission has already pointed out irregularities in the local market and that there are still investigations ongoing, monitoring the industry should be a continuous process – CC or industry regulation.

- Old primary fertiliser production infrastructure – Government (IDC) consider mechanisms to revitalize the industry.

- Transport infrastructure – Department of Transport and Public Works.

- Lack of transparent information – NAMC should consider mechanisms.
Recommendations

Recommendations needing further investigation

• Anecdotal evidence suggests that co-ops and agribusinesses demand a 3% to 8% commission on top of normal finance costs for transactions being financed through them – the composition and structure of commission requires further analysis.

• Local price structure within the whole phosphate value chain requires further investigation.

• The fact that results showed that the local LAN price doesn’t react the way expected to changes in the Ammonia price emphasizes that the structure and conduct in the local nitrogen chain needs further investigation.
Thank you!