NPK Compound Fertilizer

GPCA, Bahrain

Mounir Halim
27 September 2017
Outline

• Global NPK Trade
• Russia, an NPK power house
• Dynamic markets: Ukraine, Thailand, China and Brazil
• Yara focus territories
• OCP, the new (old) kid on the block
• Trade conditions and pricing, all for premiums
Argus, a leading price reporting agency

- World’s largest independently held energy price reporting agency

- Price indexation, news, data and analysis for energy and commodity markets

- Founded in 1970 with more than 850 staff

- In Asia and ME since 1986 with offices in Singapore, Tokyo, Beijing, Sydney and Dubai

- Argus acquired FMB in June 2011 to expand its global coverage to the fertilizer market

- Argus publishes over 350 fertilizer price assessments that are widely used for benchmark pricing in the fertilizer market
Argus Fertilizer Market Services

Argus NPKs, is the first report of its kind and provides readers with up to date information about the international trade of NPKs

- Detailed table on Africa tenders
- Key import/export market commentary
- NPK compound and blend price comparison
- Supply, demand and price updates
- latest deals and related nutrients markets
- Global agricultural and market news
- Dry bulk fertilizers freight assessments

1. Ammonia
2. Sulphur
3. Sulphuric Acid
4. Nitrogen
5. Phosphate
6. Potash
7. NPKs Launched
8. Europe Fertilizer
9. North American Fertilizer
10. NAMS and NAMSA
11. Brazil Fertilizer

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Global and regional market equilibria of the fertilizer industry have completely changed over the last decade: **Finished fertilizer trade flows** are replacing raw materials, increasing market volatility.

Resource scarcity is shifting value towards players with access to low-cost feedstock such as gas, phosphate, potash and sulphur. **Integrated players** becoming larger and more influential.

New downstream business models emerge with focus on end-customer services or regional entry point locking, creating essential **links in regional supply chains**.
Global NPK trade, *key markets*

**West Europe**
- Largest regional supplier, most of NPK comes from Belgium, Norway and Finland
- *Yara, Eurochem, Regional players*

**Latin America**
- Brazil acts as the main gateway for imports taking over 800,000t
  - *Yara and Russian supply*

**Africa**
- Imports in excess of 2mn t with significant growth potential
  - *OCP dominating*

**Russia**
- Accounts for around 29pc of global trade
  - *Phosagro, Acron, Rossosh ...*

**China**
- Over 1 mn t of imports
  - Huge under-utilized capacity
  - Future of exports?
  - *Yara, Russian supply*

**Southeast Asia**
- Thailand accounts for around 45pc of this 2mn t market.
  - Vietnam and Myanmar emerging
  - *Yara and Russian supply*
Top 10 NPK exporters in 2016 account for 76% of global exports

Country

Top 10 NPK exporters:

- Russia (29%)
- Belarus (5%)
- Poland (5%)
- Morocco (5%)
- Belgium (3%)
- Norway (13%)
- Finland (6%)
- Netherlands (3%)
- Austria (2%)
- Brazil (2%)

Global trade in multinutrient fertilizers (excludes DAP/MAP)

- PK
- NP (nitrate)
- NP (non nitrate)
- NPK

Awareness of need for balanced fertilization

Source: Argus NPKs, Argus consulting
The market for NPKs, *Compounds vs. Blends*

- Steam granulation, compaction and blending as routes to NPK, are usually much more local in their reach; and the battle for share between these different types will be a key factor in the market in the coming decades.

- Africa potential for more chemical complex.

- Europe, mature market but continues to see blends pushing down compound share.

- Brazil, potential to complex producers to pushing NPs and PKs.

*Source: Argus consulting*
NPK export growth since 2010, *led by Morocco and Europe*

- The global trade in NPKs grew from 13mn t in 2010 to 16mn t in 2016
- Russia has continued to increase export capacity
- Moroccan NPK exports leapt from 74kt in 2013 to 840kt by 2016
- Belarus NPK exports have also grown strongly from around 250kt in 2009/10 to 800kt in 2016

**Change in NPK exports from 2010-2016**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Exports in 2016 ('000t)</th>
<th>Change in exports 2010-16 ('000t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Russia</td>
<td>4,551</td>
<td>+732</td>
</tr>
<tr>
<td>2</td>
<td>Norway</td>
<td>2,030</td>
<td>+196</td>
</tr>
<tr>
<td>3</td>
<td>Belgium</td>
<td>1,523</td>
<td>+74</td>
</tr>
<tr>
<td>4</td>
<td>Finland</td>
<td>904</td>
<td>+356</td>
</tr>
<tr>
<td>5</td>
<td>Morocco</td>
<td>837</td>
<td>+813</td>
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<tr>
<td>6</td>
<td>Belarus</td>
<td>801</td>
<td>+537</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>495</td>
<td>-172</td>
</tr>
<tr>
<td>8</td>
<td>Poland</td>
<td>385</td>
<td>+39</td>
</tr>
<tr>
<td>9</td>
<td>Brazil</td>
<td>315</td>
<td>-70</td>
</tr>
<tr>
<td>10</td>
<td>Austria</td>
<td>302</td>
<td>+69</td>
</tr>
</tbody>
</table>

*Source: Argus consulting*
Russia, **NPK exports**

- Single largest exporting country with PhosAgro and Acron the two largest NPK producers in Russia
- Key export destinations are
  - Ukraine, 24pc
  - China, 19pc
  - Thailand and Latvia, 6pc
  - Poland, India, Brazil, 4pc
- Majority of volumes are bulk sales of 16-16-16, 15-15-15, 10-26-26, 27-6-6

*Source: Argus NPKs*
Russia, *growth in Brazil*

- Growing NPK imports into Brazil
- Continuous growth from 2015
- Dominated by supply from Yara/Russia
- Integration into downstream key

**Exports to Brazil in kt**

- **Source:** Argus NPKs

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**Russian NPK exports to Brazil, in kt**

- **Source:** Argus NPKs
China, *the wild card?*

Large non utilized capacity but appetite for imports
- Dominated by supply from Yara and Russia, exchanging market shares
- Stable market, for the moment
- When will China export NPKs?
Thailand, Yara and Russian supply 93% share

- Relatively stable market
- Majority of supply from Russia and Yara

Source: Argus NPKs

Source: Argus consulting
Ukraine, and the 33-1-1 blend story

Source: Argus NPKs

Source: Argus NPKs
PhosAgro’s strategy, NPK growth

• Sales Strategy – Focus on NPKs:
  ◦ Why? Margins
  ◦ In 2008, it made only two grades. Now it produces a range of NPK/NPS products
  ◦ 37% growth of P fertilizers since 2012

• Domestic market - Growth
  ◦ Its rail shipments to domestic consumers have grown from around 280,000t in 2013 to almost 600,000t in 2016
Yara 2Q deliveries, by market and product

Key markets

Brazil: Growth and margins
Europe: mature with changing dynamics

Brazil and Europe pulling considerable volumes of Yara NPKs. Focus on Speciality in Brazil for growth and Margins. Watch Europe

China and Thailand remain in the top 5 single NPK importing countries. Yara and Russian products competing for lion’s share

Yara is well positioned in Africa for the anticipated growth

Strong presence
In China and Thailand
Compete with Russia

Historic presence
Well positioned

Source: Yara
OCP, diversification into NPKs and Africa

- Diversification into NPKs
- Focus on Africa but delivers to Europe
- Ethiopia, Nigeria and West Africa with considerable demand

Source: Argus NPKs
Africa NPK Prices, *blends vs. compounds*

- Compounds maintain margin over blends, almost always
- Blends very sensitive to raw materials pricing
- Timing with tender season is critical

Source: Argus NPKs

**Surge in urea prices**
Driving cost of blending
Compound price reacting

Slide 18
Africa NPKs, micronutrients for assured crop response

- Gradual switch from DAP to NPs, with micronutrients.
- Significant growth potential and momentum
- 20017 tender expected to reach 1mn t of NPs
- Fully dominated by OCP supply; Ma’aden gearing up

- 600kt total fertilizer imports, around 140kt NPK
- Main grade being 25-5-5 (accounting for 90kt)
- Supply from Russia
- Some DAP demand – supply both from Morocco and S Arabia

- CMDT tendered for 40kt more than last year.
- Key grade 14-18-18SB. switch from 15-15-15 to 17-17-17
- Number of Blenders: Toguna, DPA and Sogefert.

- 350kt of imported NPKs, typically
- Presidential Fertilizer Initiative for 1mn t of local production
- Reviving blenders; currently 11 blenders producing
- OCP’s T15 finding their way to imports. Expected to continue

Source: Argus NPKs

Source: Argus NPKs and SSA Strategy Report
Producer-importer relationships dominate with fewer traders. Most trade moves under LTC.

NPK pricing is less volatile than other fertilizer products but movements tend to follow raw material pricing with premia.

Weakness across the nutrients in 2016 led to the premium peaking at mid-$90s/t in first half of 2016 but fell to $20-30/t in early 2017. Now recovered to around $40/t.

Source: Argus NPKs
Supply and demand outlook

Supply

• OCP and Ma’aden have the largest projects coming on-stream imminently, targeting Africa which shows great potential.
• Africa and West Europe – blenders are bringing more competition
• Potential removal/reduction of Chinese NPK export tax may change trade dynamics

Demand

• Increasing use of soil analysis has increased demand for more customised grades; opportunities for blenders
• Compound NPK consumption is declining in West Europe
• Increasing focus on sulphur in NPKs

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Selection of new NPK capacity

<table>
<thead>
<tr>
<th>Company</th>
<th>Country</th>
<th>Capacity</th>
<th>Project status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yara</td>
<td>Porsgrunn, Norway</td>
<td>Additional 50,000t/yr, taking total capacity to 2.35mn t/yr</td>
<td>Expected to be completed in 2H 2017</td>
</tr>
<tr>
<td>PetroVietnam Fertilizer and Chemicals Corporation (PVFCCD)</td>
<td>Phu My, Vietnam</td>
<td>250,000t/yr</td>
<td>Commissioning expected mid-Oct 2017</td>
</tr>
<tr>
<td>Vinacm</td>
<td>Long An, Vietnam</td>
<td>100,000t/yr</td>
<td>Commercial production begins in Sept 2017</td>
</tr>
<tr>
<td>Korea-Vietnam Fertilizer (KVF)</td>
<td>Ho Chi Minh City, Vietnam</td>
<td>360,000t/yr</td>
<td>Commissioning expected Sept 2017</td>
</tr>
<tr>
<td>OCP</td>
<td>Jorf Lasfar, Morocco</td>
<td>1mn t/yr</td>
<td>Commissioning expected in Nov-Dec 2017</td>
</tr>
<tr>
<td>Greenstar</td>
<td>Tuticorin, India</td>
<td>400,000t/yr</td>
<td>Commissioning slated for end 2017/early 2018</td>
</tr>
<tr>
<td>Ma’aden/Mosaic/Sabic JV</td>
<td>Ras Al-Khair, Saudi Arabia</td>
<td>3mn t/yr</td>
<td>Estimated to come on stream in 2017 as part of the Wa’ad Al Shamal phosphate project</td>
</tr>
<tr>
<td>Iskenderun Fertilizers</td>
<td>Iskenderun, Turkey</td>
<td>300,000t/yr</td>
<td>Construction to complete end-2017 with commercial production expected 1Q, 2018</td>
</tr>
<tr>
<td>Deepak Fertilizers and Petrochemicals Company</td>
<td>Taloja, India</td>
<td>Additional 300,000t/yr, taking total capacity to 1.1mn t/yr</td>
<td>Commissioning expected by 2H 2018</td>
</tr>
</tbody>
</table>

Source: Argus NPKs, Argus Consulting
Summary

• NPKs earn premium over commodity fertilizers.

• NPK pricing outlook closely related to mainstream fertilizers, combined

• Seaborne exports dominated by a small number of global players, but the dynamic is changing

• Africa has huge potential. Receptive to soil mapping and move to micronutrients, but still significant challenges
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