Chemical Quarterly 2013.Q2

China Fertilizer.
Growing into Compound & Sustainability

The Chinese fertilizer industry is going to face major challenges in the coming years. Though opportunities will be generated from compound fertilizer and sustainable solutions, domestic players urgently need to anticipate changes in international trade flow that may affect not only their export business but also their domestic market. Superior sales & marketing capabilities will become even more critical to defend market share and protect margin.

Agriculture is vitally important in China and the government is increasingly regulating agrochemicals for higher performance and environmental protection. The Fertilizer 12th Five-Year Plan did provide the industry with clear guidelines to consider for execution: upgrade, consolidate and internationalize.

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Steady growth with a push for compound and sustainable solutions

Fertilizers are mainly classified according to three essential crop nutrients: Nitrogen (N), Phosphate (P) and Potassium (K). Each nutrient plays a distinct role in plant development: Nitrogen is a major component of chlorophyll for photosynthesis. Phosphates can promote the development of healthy roots, flowers, and fruits and help plants to mature promptly. Potassium can increase water intake of crops and increase crop resistance to disease and heat.

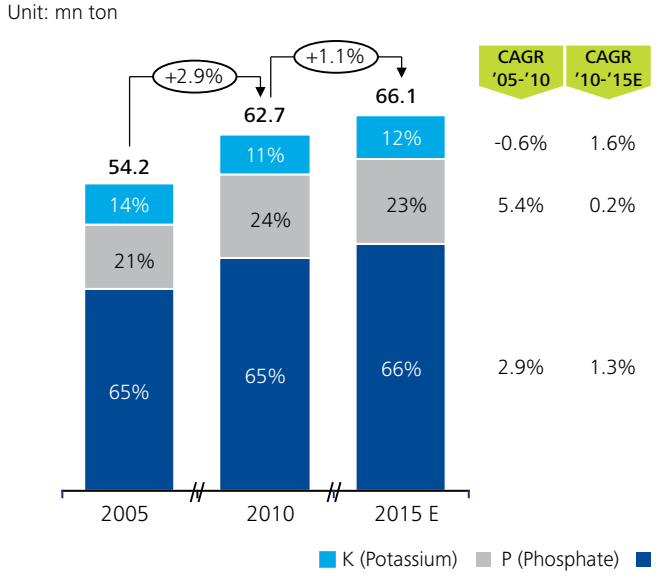
China is the world's largest fertilizer market, producing 63 million tons (mt) in 2010 (out of 170 mt worldwide, according to the International Fertilizer Industry Association, or IFA). After steady growth of 2.9% per annum from 2005 to 2010, domestic consumption is expected to continue to increase, along with rising crop output and farmer income. The NDRC (National Development and Reform Commission) has predicted a slower pace in volume growth between 2010 and 2015, due to urban encroachments on arable land and higher fertilizer performance (Exhibit 1).

The three major nutrients (N, P, and K) display fairly different demand dynamics in terms of penetration, application and price. N fertilizer contributes almost two-thirds of the total volume driven by a high penetration. For example the average use of N fertilizer for corn is 152 pounds/acre in China, as compared with 140 and 50 in the USA and Brazil, respectively. K fertilizer represents only 11% of the total volume, due to its high price and thus low penetration. For example, the average use of K fertilizer in corn (according to PotashCorp) is 6 pounds/acre in China in 2010, as compared to 57 and 47 in the USA and Brazil, respectively.

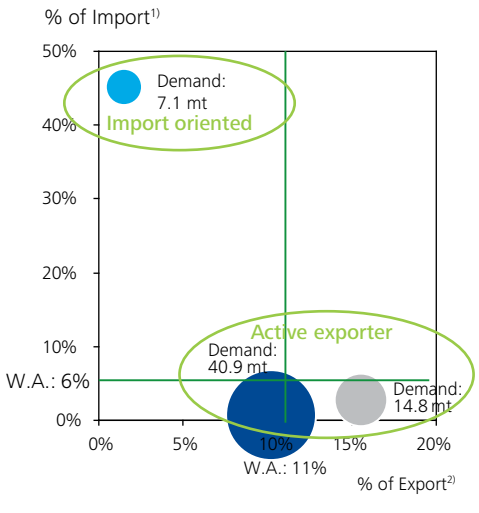
Differences in Chinese penetration rates as compared to international benchmarks were heavily impacted by high price differences: K fertilizer displayed high price levels due to past structural shortages in the domestic supply. According to Wind data in 2012, the average price of K fertilizer was RMB 3,750 /t (potassium sulfate as a proxy), much higher than P fertilizer (3,180 for DAP & 2,540 for MAP) and especially N fertilizer at RMB 2,150 /t (using urea as a proxy). In short Chinese price differences have exacerbated the overuse of N fertilizer, aggravating environmental damage such as water pollution and soil acidification.

Exhibit 1: China fertilizer consumption dynamics

Breakdown by nutrient, 2005-2015E



Import & export balance, 2010



Note: Consumption= Domestic production – Export + Import; 2015 forecast figure by NDRC

Note: 1) % of Import = Import volume/demand volume, 2) % of Export = Export volume/production volume

Source: China Custom, NDRC, broker report, Monitor Deloitte analysis

In complements to single nutrient fertilizers, compounding is developing rapidly in the Chinese market with nearly 30% of the total volume to date. A compound fertilizer contains two or more of the three essential nutrients (N, P, and K) combined with other secondary and micro-nutrients that help to increase fertilizer performance and reduce the cost of labor. The penetration of compound fertilizer is expected to increase due to favorable government policies with a targeted share of 40% in 2015 under the Fertilizer 12th Five-Year Plan (assuming an annual growth rate of 7% between 2010 and 2015).

Contrasted import/export dynamics to monitor by nutrient

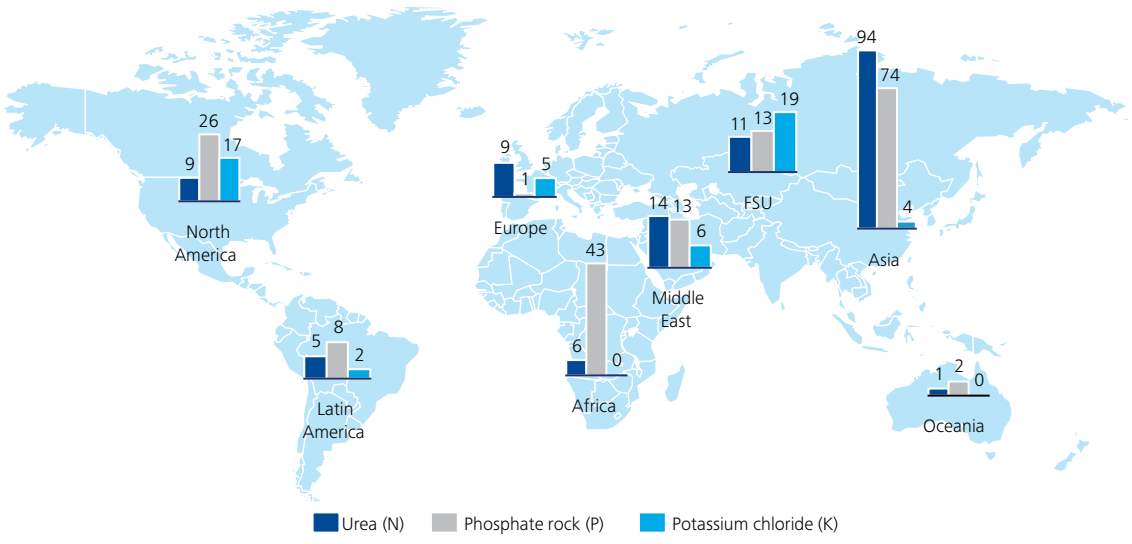
Over the past years, China has developed exports in N and P fertilizers representing respectively 10% (4.6 mt) and 16% (2.7 mt) of domestic production in 2010. In parallel, China still relies heavily on imports of K fertilizer, at 3.2 mt in 2010 (corresponding to 45% of total consumption), mainly from Russia, the United States, and Canada (Exhibit 1).

The Chinese fertilizer import/export balance is part of the global fertilizer supply and demand landscape. The fertilizer production mix varies a lot across different geographies in the world, depending on feedstock access to either natural resources (mining) or gases (NG/SNG). Production hubs or "centers of gravity" exist for given nutrients: N fertilizer in Asia and Middle East; P fertilizer in Asia, Africa, North America; and K fertilizer in North America and the former Soviet Union (Exhibit 2).

Since fertilizer is a global commodity, producers can be increasingly impacted by supply and demand changes in the overall international trade flow. For instance, Chinese N fertilizer players should closely monitor the export risks in regions where significant near-term capacity expansion is expected, with implications not only for their exports, but also their domestic business activity. Historically, the US has been a significant importer of N fertilizer, but shale gas has changed the game and numerous investment projects in urea are in the pipeline. USDA data shows that the US was a net importer of 6.3 mt of anhydrous ammonia and 6.6 mt of urea in 2012, of which nearly half of the urea was imported from the Middle East and 5% from China. Over 10 mt of extra urea capacity has already been announced for the next five years in the US and Canada. This new capacity will likely reduce US imports from the Middle East, which may force Middle Eastern players to look for replacement markets such as India and Thailand. In short, export markets for Chinese N fertilizer producers, such as India, Thailand and the US, can be affected without reference to pressure in their domestic markets.

Exhibit 2: Global fertilizer supply landscape, 2010

Unit: mn ton production



Source: PotashCorp, Company annual reports, Monitor Deloitte analysis; Note: FSU is the former Soviet Union

Highly fragmented supply structure except in K fertilizer

China fertilizer industry is highly fragmented and dominated by domestic players. The top eight players together comprised less than 20% combined market share out of a total value of RMB 507 billion in 2010. The leading league includes various types of players, such as traders (Sinofert in N, P, K), producers (Yihua in N fertilizer, Yuntianhua in P fertilizer, Qinghai Salt Lake in K fertilizer), and compounders (Kingenta).

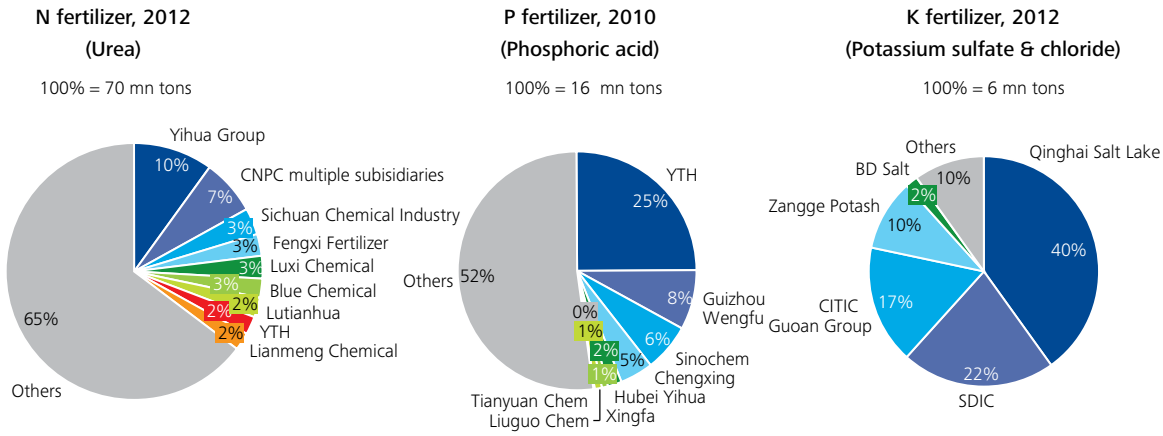
The level of fragmentation varies dramatically across single nutrients, with N fertilizer extremely fragmented and K fertilizer highly consolidated, while P fertilizer is in-between. To anticipate future challenges to the industry, the Chinese government has set differentiated measures within the Fertilizer 12th Five-Year Plan, promoting the consolidation of the N fertilizer sector, and the internationalization of the K fertilizer sector, while limiting the expansion of the P fertilizer sector.

The Chinese N fertilizer sector is consolidating, with numerous M&A initiatives underway. In 2010 players such as Yihua, Jincheng Anthracite Mining, and Shanxi Yangmei initiated this trend. In 2012, the top 9 players for N fertilizer represented 35% of total capacity (using urea as a proxy). In the meantime, production volume has fallen since 2009 due to regulations to promote consolidation by strictly limiting new entrants and the number of N fertilizer producers.

The Chinese P fertilizer sector is also being consolidated by M&A initiatives. Between 2011 and 2012 Sinofert, Liuguo Chemical and Shindoo Chemical undertook major domestic acquisitions in P fertilizer production. Meanwhile, Chinese regulators are forbidding new investment or expansion projects in P fertilizer production.

Unlike N and P sector, the K fertilizer sector is already highly consolidated and is being pushed toward internationalization to gain natural resource access and facilitate the emergence of new entrants. In 2012, the top five players represented 90% of the 6 mt capacity for production of potassium sulfate and potassium chloride. Domestic producers are mainly located in China's Northwest region, including the provinces of Qinghai and Xinjiang, along with the abundant potassium mine reserves there. In addition, some new entrants have appeared as well in import trading. For example, Sichuan Chemical Industries signed contract in 2012 with Prospect Global Resources for a 10-year K fertilizer supply valued at USD 2bn (Exhibit 3).

Exhibit 3: China fertilizer supply structure by type (domestic capacity volume)



Source: Press release, company website, company annual reports, Monitor Deloitte analysis

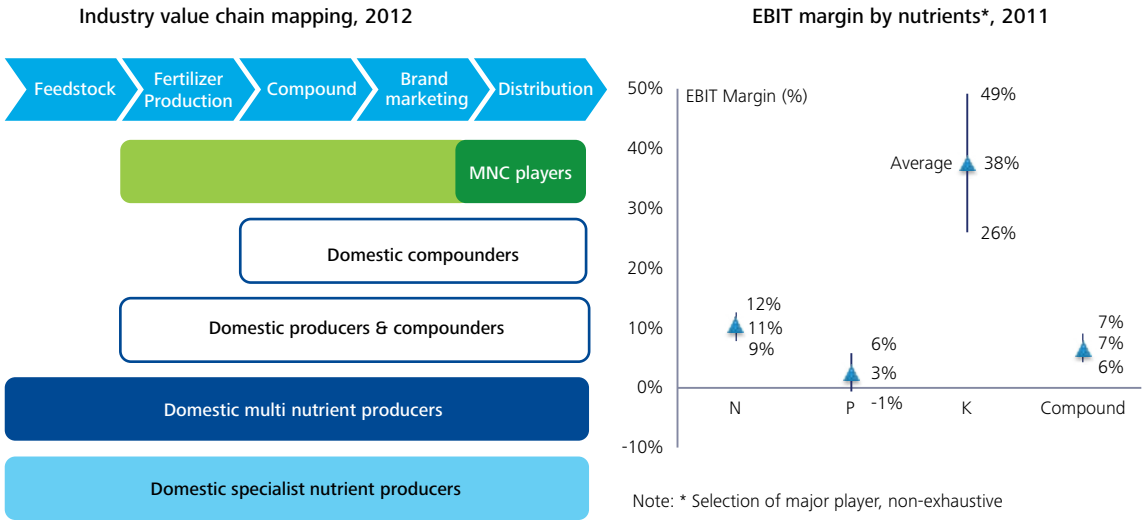
Historically, the presence of foreign fertilizer players in China has been quite limited (in respect of the market size), due to an excessive supply of N and P fertilizers and complex local distribution network requirements. Different collaboration models with Sinofert, the major China platform in agro-chemicals, have been noticed by numerous foreign players, but some options have as well demonstrated their limits. The most common mode of collaboration has been in the form of signing commercial agreements with as sole distributor such as Sinofert (particularly in K fertilizer for players like Canpotex) or other smaller players. Taking a minority share or developing a joint venture is a typical alternative. For example, PotashCorp owns a 22% stake in Sinofert, and Agrium has a minority stake in a Chinese fertilizer distributor. Some foreign players prefer to have more control by setting up a key account team targeting large NPK plants and leveraging a few regional distributors to cover medium-sized NPK plants and/or other end-users.

Differentiated performance by nutrient, market access key to succeed

Major Chinese fertilizer producers are often integrated along the whole value chain, from feedstock access to brand marketing and distribution, not only for multi-nutrient producers such as Luxi Chemical, but also for specialist-nutrient producers such as SDIC Luobupo in K fertilizer. Surfing on the compound fertilizer trend, several players such as Kingenta and Stanley have taken a pure compounding position: they typically source single-nutrient fertilizers externally before converting them into compounds. The major challenge and thus focus of MNCs such as Yara, K+S, Agrium and PotashCorp is related to sales and distribution in China. Only one foreign player to-date (Mosaic) has set up domestic production operations with two bulk-blend fertilizer plants in Qinghuangdao and Yantai (Exhibit 4).

Considering the importance of resource access especially in P and K fertilizer, Chinese players have been actively pursuing overseas opportunities to facilitate backward integration. Laos has been opened to Chinese investments in potash rock in the past years.I 2010, Sino Agri obtained exploitation rights to potash rock for a total reserve of 400 mt, and YunTianHua in 2011 for a total reserve of 800 mt (with an annual target of 50 kt in production). Other overseas investment initiatives in phosphate rock have encountered mixed results. Wengfu Group entered successfully into a strategic alliance with effect from 2009 with Legend Corp to explore and extract phosphate rock in Queensland, Australia (5 mt reserve) with a plan to produce fertilizer onsite and export it to China. Other attempts have been triggered by Minmetal Chongqing with Jordan Phosphate Mine Corp in Jordan and by Sinochem with Kazfosfat Phosphate Enterprise in Kazakhstan, but business terms and principles of collaboration are not yet settled.

Exhibit 4: China fertilizer industry operating model and profitability



Note: * Selection of major player, non-exhaustive

Source: Company website, company annual report, press release, Monitor Deloitte analysis

Overall China fertilizer industry has been quite profitable for single-nutrient and compound fertilizer producers. Compound producers have fair profitability with an EBIT margin between 6% and 7% in the studied sample, but lower capital intensity should be considered (asset light strategy) as well as the push from regulators to promote sustainable solutions.

The profitability level should be differentiated by nutrients, considering the supply and demand balance in China and globally. Considering the 2011 financial data of selected listed players as a proxy, profitability level of nutrient producer in terms of EBIT margin was extremely high for K fertilizer (over 30% due to supply shortage), fair for N fertilizer (in the 10% range) and low for P fertilizer (<5% due to overcapacity). China capacity expansion restriction might help to improve profitability in P fertilizer, while the development of new N fertilizer projects in North America might put pressure on Chinese players and erode profits (Exhibit 4).

Market access is the key success factor for any agro-chemical in China whether fertilizer or pesticide. For instance, Sinofert is the largest fertilizer importer and trader in China. Despite some N, P, and K fertilizer production facilities through wholly-owned and shareholding subsidiaries, Sinofert generates 85% of its revenue from trading. Beyond a strong product portfolio and brand awareness, Sinofert has successfully built the largest fertilizer distribution network, combining its own points of sale and external cooperation network in China. As a result, Sinofert has achieved 19% annual growth over the past three years.

Sinofert Case

Majority-owned by Sinochem Group, Sinofert is the largest all-round fertilizer enterprise in China. Fertilizer trading contributed about 85% of its RMB 41.2 billion in revenue in 2012.

- Diversified and balanced portfolio (revenue in bn RMB: N 14.1, K 9.7, P 9.4, Compound 6.2)
- Strong brand recognition with cross-marketing of total agro-solutions (fertilizer, pesticide, seed) under group (Sinochem) brand in national and local media
- Largest fertilizer distribution network covering approximately 90% of the cultivated land in China, 28 provinces, reaching 49,000 trading clients, including 24,000 in rural areas
- 2,110 points of sale, combining proprietary and external cooperation networks
- New Fert-mart format in villages, selling agri products and solutions (fertilizer, pesticide, seed, equipment, and consumables)

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Acknowledgements

The authors would like to thank Tracy Wang, Lydia Chen, Rachel Chen and William Hillis for their contributions in editing, review and design of this Deloitte Chemical Quarterly report.

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