Global Fertilizer Market Outlook

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OUTLINE OF THE PRESENTATION

Agriculture/fertilizer demand outlook
Nitrogen outlook
Phosphate outlook
Potash outlook
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Agriculture/fertilizer demand outlook

Nitrogen outlook
Phosphate outlook
Potash outlook
Global fertilizer demand overview
Stagnant in 2016, but set to accelerate in 2017 and beyond

Fertilizer demand (million product tonnes)

Issues in key consuming countries in 2016

CRU fertilizer affordability index

Fertilizer affordability index in its best position since 2004!

Data: CRU Urea, Phosphate fertilizer and Potassium Chloride Market Outlooks, IGC, Fertilizer Week
South East Asia – El Niño bites in 2016

Pending weather for the rest of the year, expecting a sharp rebound in 2017

- Sales of fertilizer are down sharply – 40% in some countries
- Rice plantings restricted
- Palm oil output set to drop
- SE Asia a key long term growth market for fertilizer, particularly P & K

WATER AVAILABILITY

RICE PLANTINGS

PALM OIL OUTPUT

AG PRICES
India – the curse of 2015

Imports in 2015 were overdone. Stocks need to be drawn down.

• India imported high volumes in 2015...

• But the second half of the monsoon season failed, lowering farm demand

• While the outlook for farm demand is improving, high stocks are hindering imports

• Longer term – despite all the seasonal difficulties, India remains a key growth market

Data: CRU, FAI
Brazil – Strong fundamentals masking low confidence
Import demand for urea and KCl good, but challenges remain.

Domestic crop prices
- Sugar (BRL/50kg)
- Soy (BRL/60kg)
- Corn (BRL/60kg)

Soybean barter ratio
- MAP
- KCl

Nutrient demand (million tonnes)
- N
- P
- K

Plenty of upside in 2016!

Data: CRU, Agrolink
The stars align for demand in the United States
More corn, good planting conditions and improved crop prices

• More corn despite low prices and tight margins

• Best direct application ammonia season on record?

• Demand for summer fill expected to be strong.

• Longer term: More competition!

Data: CRU Phosphate Fertilizer Market Outlook, USDA
China demand lowered by agricultural reform
This could have a major impact on the global S&D balance

- Government aiming to restrict growth in fertilizer consumption
- Tightening farm margins - lower crop support prices
- Growth in potash remains – but burdensome inventories in 2016
- More Chinese product on the domestic market?

Data: CRU, IGC, Bloomberg
Demand will improve
Grain and oilseed prices: 5-year price projections

Price history/forecast, $US/tonne

Data: CRU, IGC, IMF, World Bank, EIU
How geopolitical risks impact agriculture?
OUTLINE OF THE PRESENTATION

AGRICULTURE/FERTILIZER DEMAND OUTLOOK

Nitrogen outlook

PHOSPHATE OUTLOOK

POTASH OUTLOOK
Urea market is heavily oversupplied
FOB Black Sea is falling below $200/t and China is the marginal supplier

Source: CRU Urea Market Outlook
To balance the market China needs to close ~15 mn t
Assuming 1.5 mn t/y wastage, net capacity additions will reach ~5.7 mn t/y
15 mn t/y should be achievable, but the pace is key
How and why are closure being resisted?

1. Position on cost curve
2. Strength of balance sheet
3. % of sales on long-term contract or hedged
4. Product premiums and value of local market
5. Government protection of local industry
6. Shutdown and restart costs
Coal was getting cheaper, but power more expensive
Main differentiator is power consumption!

$/tonne

- **Fixed costs**
- **Labour**
- **Consumables/packaging**
- **Steam**
- **Electricity**
- **Coal**

**Anthracite based**
Nitrogen - in summary

1. China is delaying closures and rationalisation with cheap coal, state ownership and subsidised capital...

2. ...but large-scale closures cannot be put off forever. We anticipate these tactics are not sustainable beyond 18 months.

3. For a more balanced and positive pricing market CRU believes 12 mn tonnes of closures are needed by 2018
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How did we get to where we are today?

FOB TAMPA DAP Price, US$/tonne, Jan ’15-May ‘16

- Indian Monsoon tanks
- Chinese introduce VAT
- China Inc exports 811 k tonnes to India
- OCP starts up JPH1
- Indian DAP/NPK stocks concerns grow
- MGA Contract for Q1 agreed
- OCP sells 100 k t DAP to India
- Late rains damage Indian rabi crops
- Americas demand firms
- Mosaic, YUC announce cutbacks
- Mosaic repurchases barge
- Demand improves in the Americas
- Anglo Fosfatos bought by CMOC

Source: CRU Phosphate Fertilizer Market Outlook ; FW
India: the swing DAP consumer

Indian DAP demand vs RoW, m tonnes P$_2$O$_5$

India’s stock position to play a role

Source: CRU Phosphate Fertilizer Market Outlook; GTIS; FAI; IFA
How is India’s demand satisfied?
Indian imports of DAP, MGA & ROCK, M T P₂O₅

GROWTH BASED ON ADDITIONAL DAP IMPORTS

MGA/ROCK SHARES MORE STABLE

Source: CRU Phosphate Fertilizer Market Outlook; CRU Phosphate Rock Market Outlook; IFA; GTIS; FW; FAI
... and how this breaks down by supplier

Indian imports of DAP, MGA & ROCK, M T P₂O₅

Source: CRU Phosphate Fertilizer Market Outlook; CRU Phosphate Rock Market Outlook; IFA; GTIS; FW; FAI
Our base case sees DAP squeezed
Indian imports of DAP, MGA & ROCK, M T P$_2$O$_5$

Source: CRU Phosphate Fertilizer Market Outlook; CRU Phosphate Rock Market Outlook; IFA; GTIS; FW; FAI
What’s the impact on the suppliers side?
Quarterly concentrate phosphate production: East Asia

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Capacity: Japan, South Korea, China

mil. P2O5 tonnes
How low can China go? Exporters will be aggressive
US & Chinese DAP prices, US$/tonne
OUTLINE OF THE PRESENTATION

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- Phosphate outlook
- Potash outlook
Big MOP greenfield additions are yet to come

Greenfield projects
includes K+S, Belaruskali, Turkmenistan, EuroChem

Effective capacity
includes voluntary curtailments

Brownfield additions
Greenfield additions

Nameplate capacity
sites built before 2000

Nameplate capacity
sites built after 2000

million tonnes MOP

<5Mt

<16Mt!
Will capacity closures impact the market?

- **FORCED CLOSURE**
  - Uralkali / 2014 / 2.3Mt

- **FORCED CLOSURE**
  - K+S / 2020 / 0.5Mt

- **FORCED CLOSURE**
  - Vale / 2018 / 0.6Mt

- **RATIONALISATION**
  - PCS / 2014-16 / 4.1Mt
  - Mosaic / 2014 / 0.5Mt
  - Intrepid / 2016 / 0.4Mt
  - Intrepid / 2016 / 0.4Mt
  - Mosaic / 2014 / 0.5Mt
  - PCS / 2014-16 / 4.1Mt

- **PRODUCT SWITCH**
  - ICL / 2018 / 1.0Mt
  - Intrepid / 2016 / 0.2Mt

**Charts:**
- Production: Effective capacity
- Production: Nameplate capacity
Prices remain above marginal costs

CRU provides detailed site-by-site cost estimates as part of its Potash Cost Report.

2015 average price (FOB Vancouver)

2016 average price (FOB Vancouver) (forecast)

Countries undergoing rationalisation, re-config or depletion.
Currency weakness has handed advantage to CIS

Rationalisation at PotashCorp has helped control costs. Agrium & Mosaic have less operational flexibility.

Russia & Belarus are the lowest cost exporters

Germany is highest cost exporter, but makes most sales within EU

Why is the variance in operating costs in Qinghai so large?
- Technology – cold crystallization vs. No. 4 process; dredging vs. draining
- Scale – QSLP has 2x1Mt units; some sites produce only tens of kt
- Location – some sites are 200-400km from rail
- Year-round operation – lower yields and higher energy input in winter

Costs are 2016 forecasts and include royalties & ad-valorem taxes, production costs, sustaining capital, delivery to FOB.
Remote production units face challenges

Outlying playa:
- No rail link / long road haulage
- Mixed brines
- Smaller reserves
QSL Industry & Zang’ge dominate Qarhan playa

**Refineries**
- QSL Yuantong
- QSL Potash
- QSL Sanyuan
- Salt Lake Chemical
- Zangge Potash
- Yellow River Potash
- Kunlong Weiye
- Dikuang Chemical

**Railway stations**
- Dabsan (Dabuxun)
- Qarhan (Chaerhan)
- QSL Potash loadout
- Zangge Potash loadout (completed 2015)
China’s Production has doubled since 2010
China’s demand not as high as it might seem

2015

GROSS SUPPLY

Re-exports

Change in MOP producer inventory

DELIVERIES

Change in port inventory

Change in downstream inventory

NET DEMAND

Mt

Production

Seaborne imports

Rail imports

0.3

0.7

2.0

0.5

China’s demand not as high as it might seem
By the end of December, China had imported its contractual obligations. Imports continue – but into bonded warehouses.

By the end of March, India had imported less than 80% of the volumes due.

Inventory position in China must unwind sooner or later

India fell short of contracted volumes in 2015/16

Data: Fertilizer Week, GTIS, India vessel arrivals

Inventory position in China must unwind sooner or later

India fell short of contracted volumes in 2015/16

Data: Fertilizer Week, GTIS, India vessel arrivals
Forecast market balance (2015-2021)

Data: CRU

operating rate based on extension of capacity shutdowns
OUTLINE OF THE PRESENTATION

WELCOME & INTRODUCTION

AGRICULTURE/FERTILIZER DEMAND OUTLOOK

NITROGEN OUTLOOK

PHOSPHATE OUTLOOK

POTASH OUTLOOK
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- Ammonia Market Outlook – published every 3 months
- Urea Market Outlook – published every 3 months
- Sulphur Market Outlook – published every 3 months
- Sulphuric Acid Market Outlook – published every 3 months
- Phosphate Fertilizer Market Outlook – published every 3 months
- Phosphate Rock Market Outlook – published every 3 months
- Potassium Chloride Market Outlook – published every 6 months

COST SERVICES
- Phosphate Rock Cost Report
- Nitrogen Cost Report
- Phosphate Fertilizer Cost Report
- Potash Cost Report

SPECIALIST REPORTS
- UAN Market Outlook
- Explosive Grade Ammonium Nitrate Market Outlook
- Ammonium Nitrites Market Outlook
- Ammonium Sulphates Market Outlook
- Potassium Sulphates & Potassium Nitrate Market Outlook
- Industrial and Food Phosphates Market Outlook
- Animal Feed Phosphates Market Outlook

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