

FERTILIZER TRENDS

Prepared for the Nomura Global Chemistry Leaders Conference

by

Barrie Bain

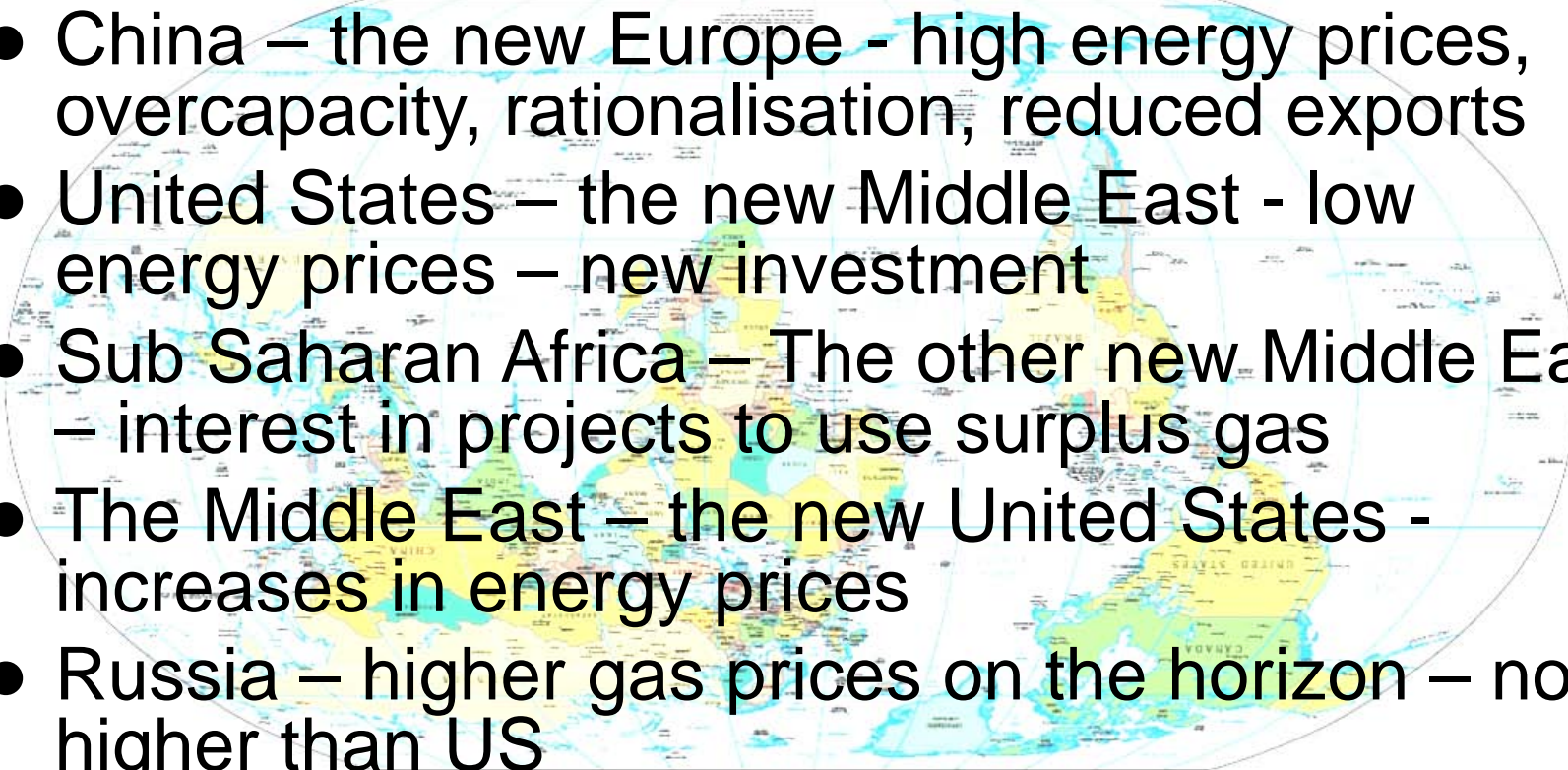
Director, FERTECON Limited

Rome, 22 March 2012

FERTECON Limited

- Formed in 1978
- Leading provider of fertilizer market information, prices and analysis
- Now part of Informa – publishers of Lloyd's List, Agra Europe, Agrow and owners of Datamonitor
- The link with Informa gives FERTECON new access to data and analysis resources on agriculture, shipping and freight and energy

A WORLD TURNED UPSIDE DOWN

- 
- China – the new Europe - high energy prices, overcapacity, rationalisation, reduced exports
 - United States – the new Middle East - low energy prices – new investment
 - Sub Saharan Africa – The other new Middle East – interest in projects to use surplus gas
 - The Middle East – the new United States - increases in energy prices
 - Russia – higher gas prices on the horizon – now higher than US
 - India – the new swing market

A CHANGING MARKET

MARKET BEHAVIOUR

- Dealers/distributors becoming risk averse – there is a switch to “just in time” purchasing
- This is pushing price risk both up and down the supply chain, to suppliers and farmers

NITROGEN

- Changing energy costs with US now low cost, China high cost and costs in Middle East increasing. This will affect future investment decisions

PHOSPHATE

- Phosphate becoming the new potash with lots of exploration interest by junior miners in phosphate rock

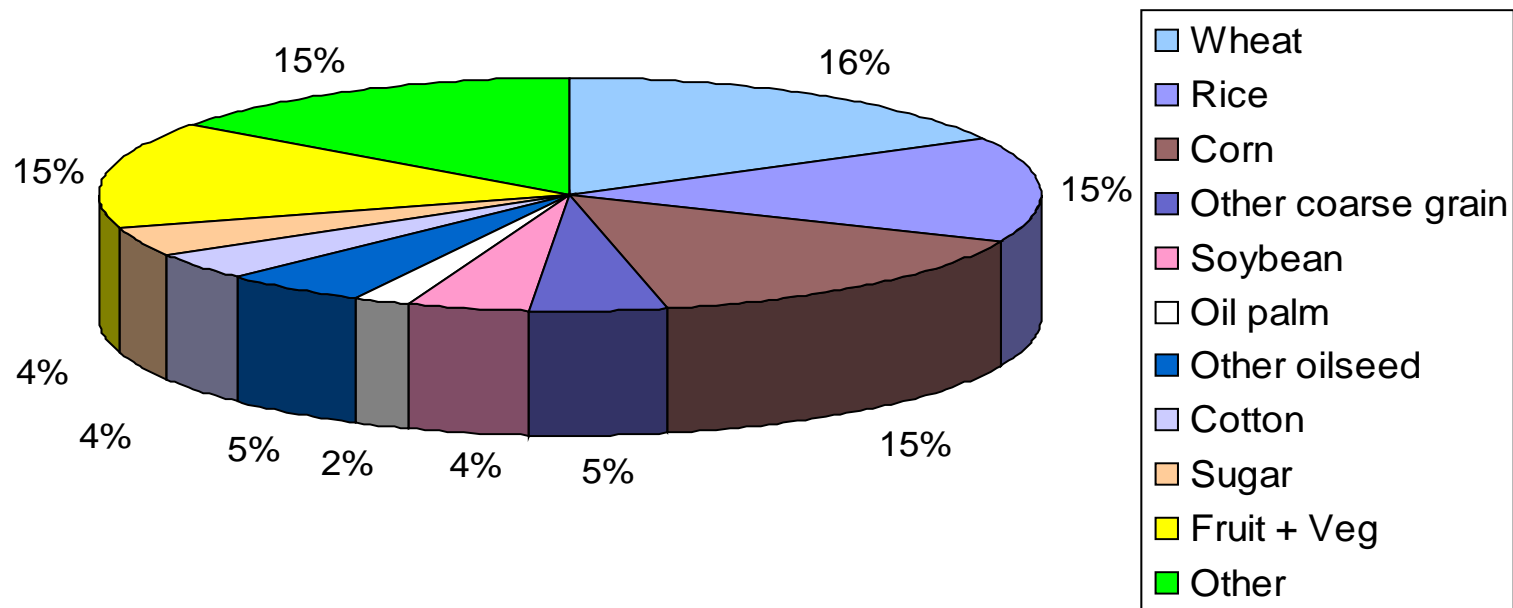
POTASH

- New entrants could challenge current market structure

FERTILIZER MARKET DRIVERS

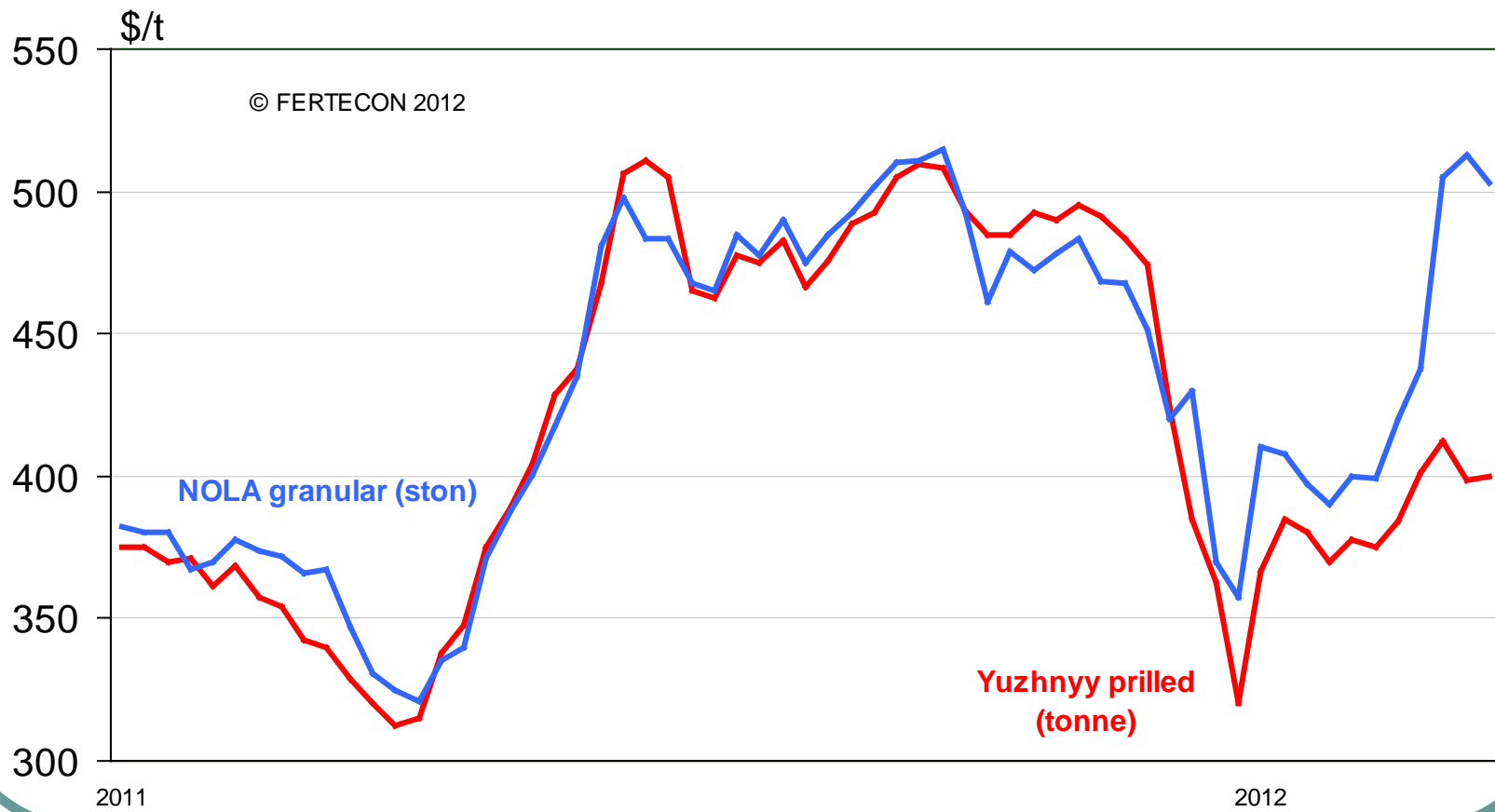
- There has been a strong correlation between crop prices and prices for key crops
- Corn, wheat, rice soybeans are key drivers, although there are differences between regions and nutrients
- On the supply side, for **nitrogen**, oil, gas and coal prices are key drivers, determining base costs and where new capacity is located.
- For **phosphate** and **potash**, the existence of reserves, investment costs and finance and logistics are key drivers of new supply
- Fertilizer costs are critical for farmers – making up 30-40% of input costs for many key crops – and usually the largest single component

FERTILIZER USE BY CROP



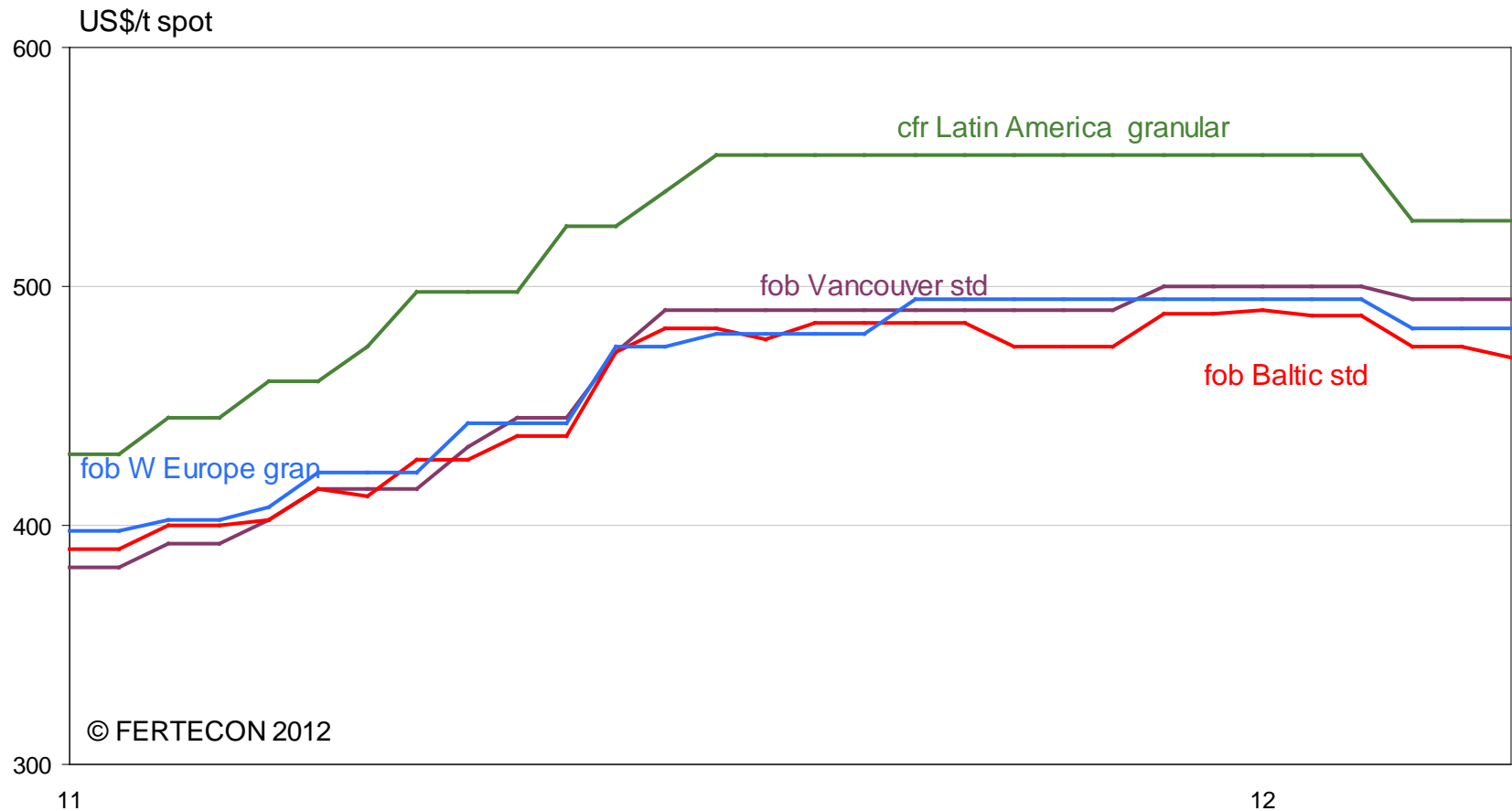
Source: IFA

UREA PRICES

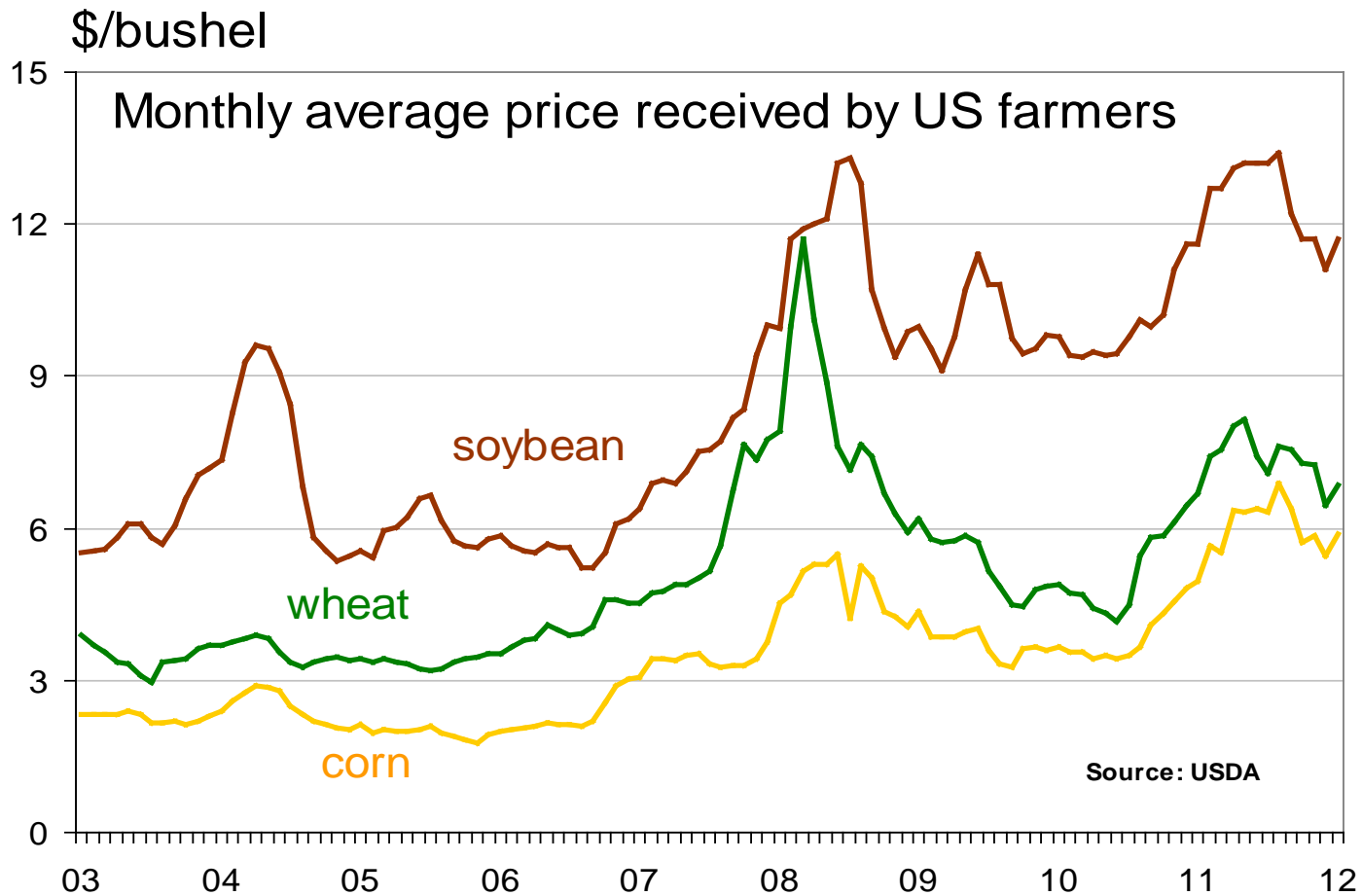


PHOSPHATE PRICES

POTASH PRICES

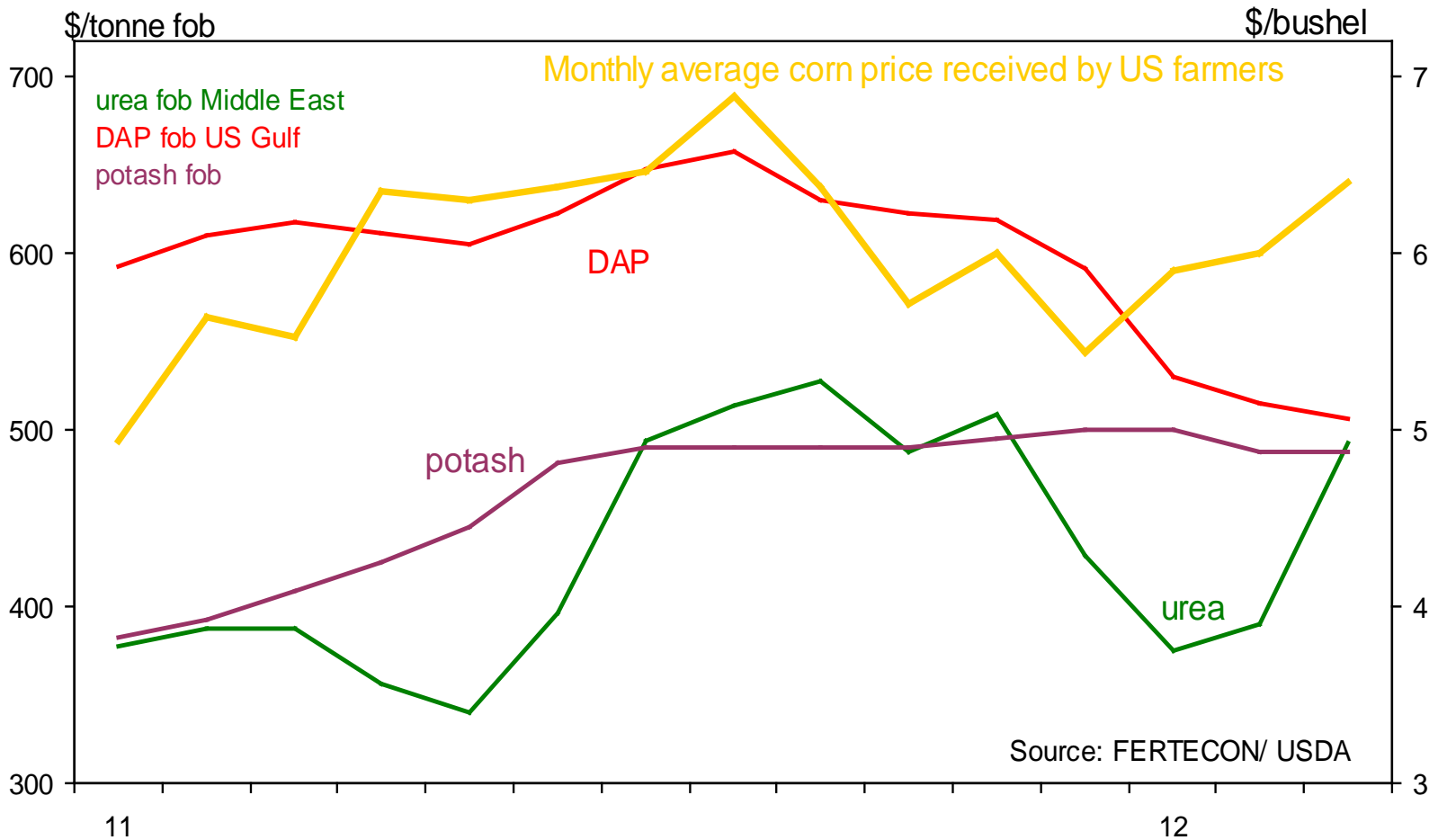


CROP PRICES

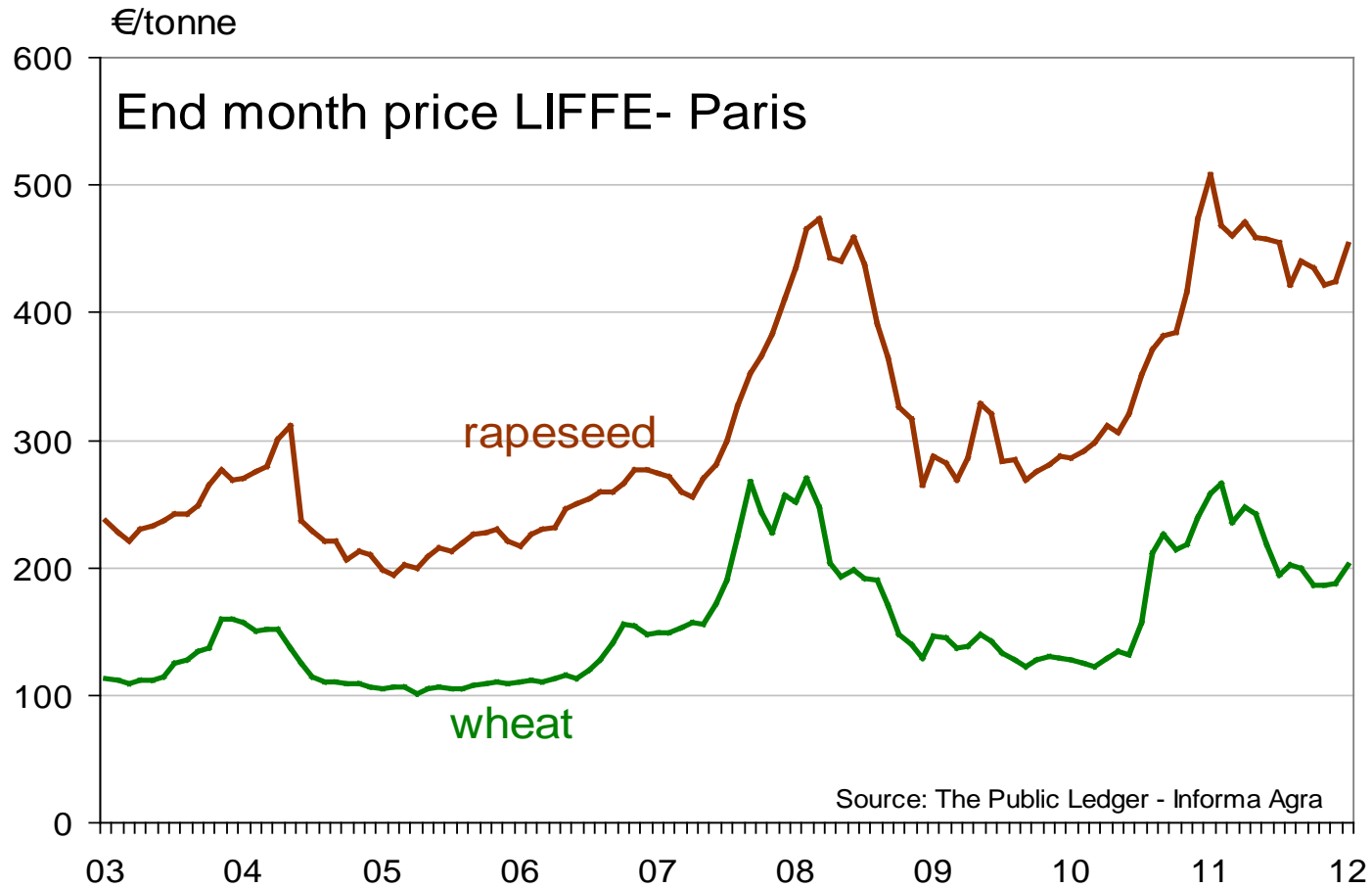


CROP vs FERTILIZER PRICES

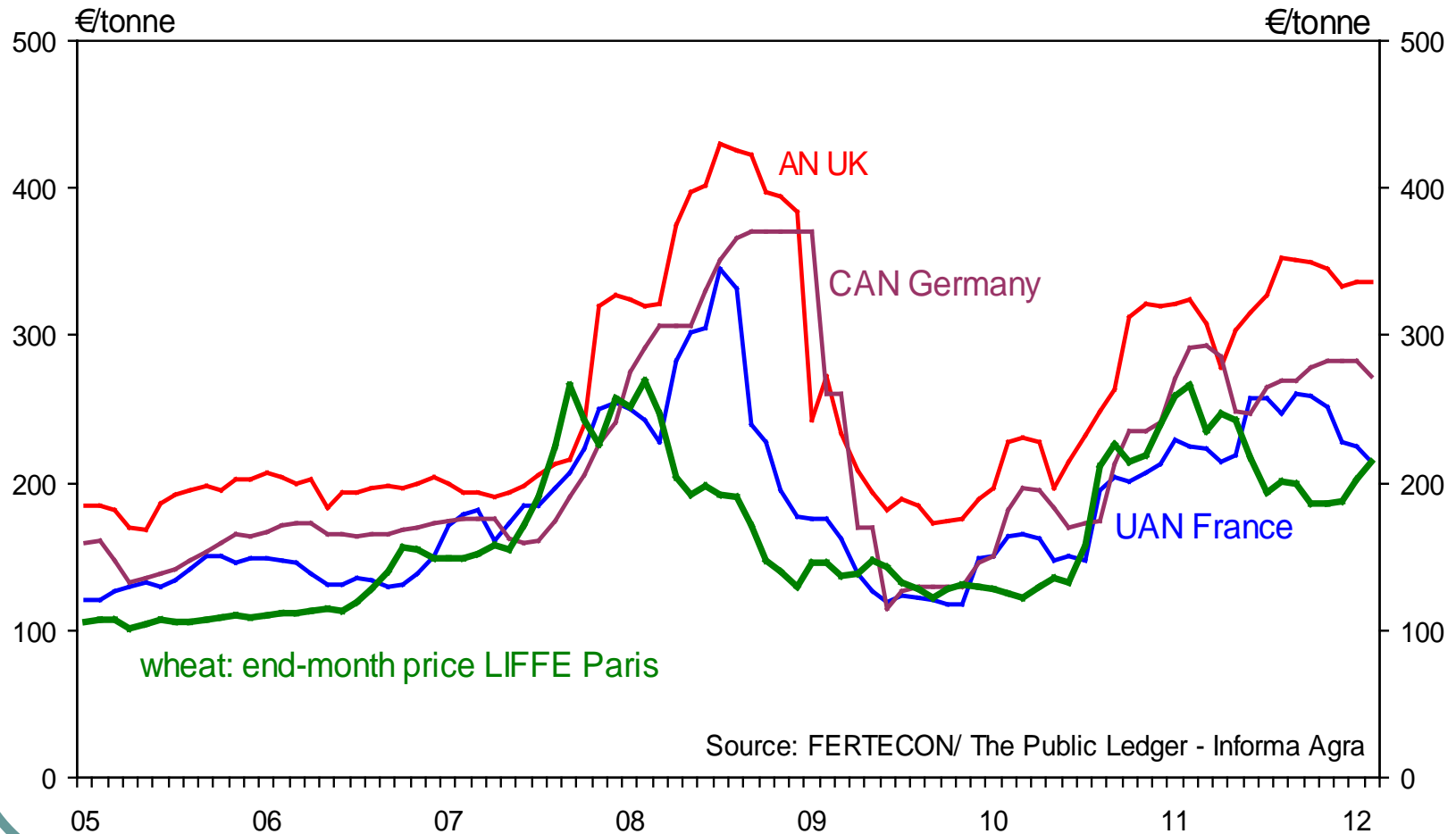
CROP vs FERTILIZER PRICES



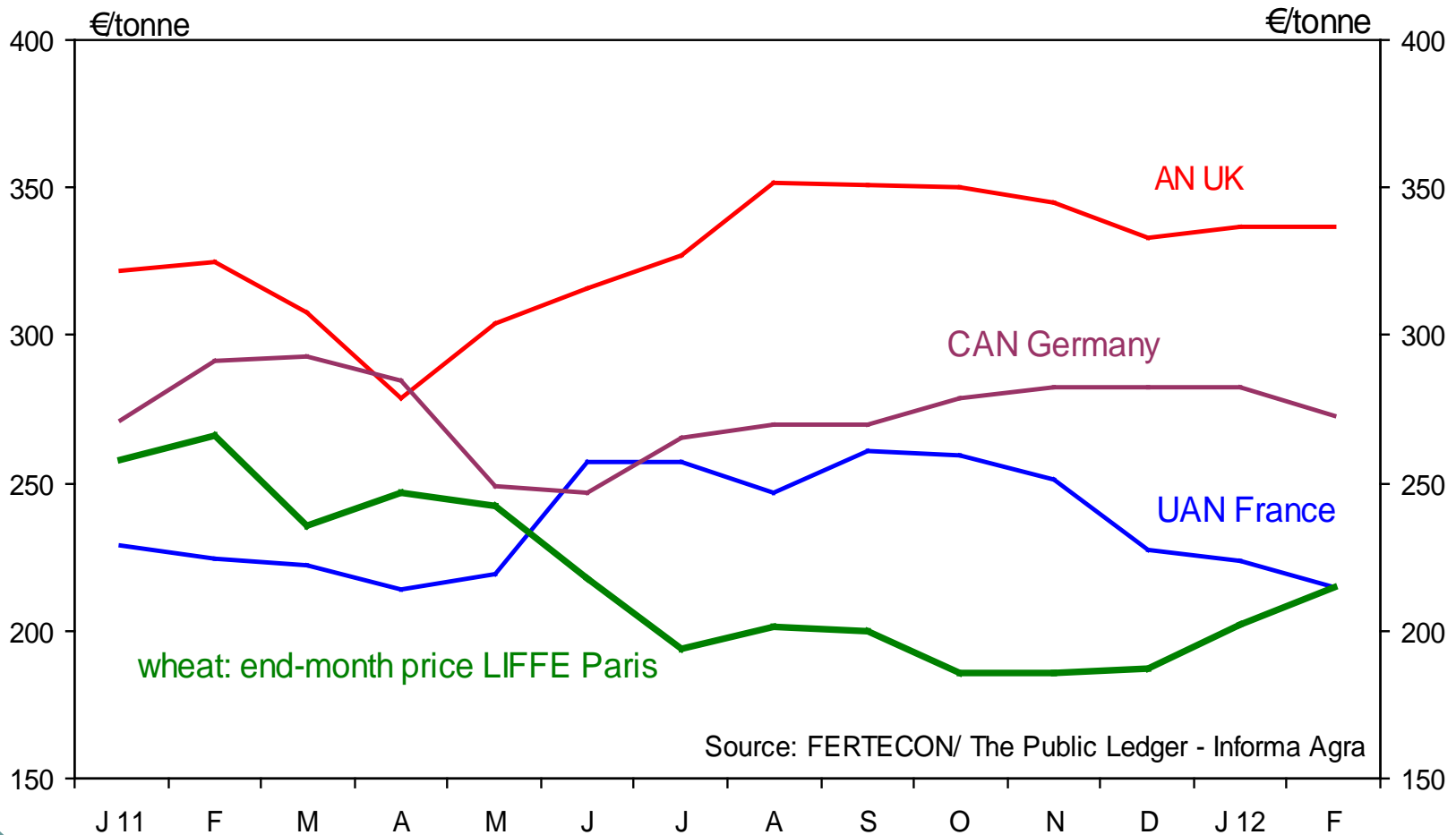
CROP PRICES - EUROPE



CROP vs FERTILIZER PRICES



CROP vs FERTILIZER PRICES



Source: FERTECON/ The Public Ledger - Informa Agra

DEMAND DESTRUCTION

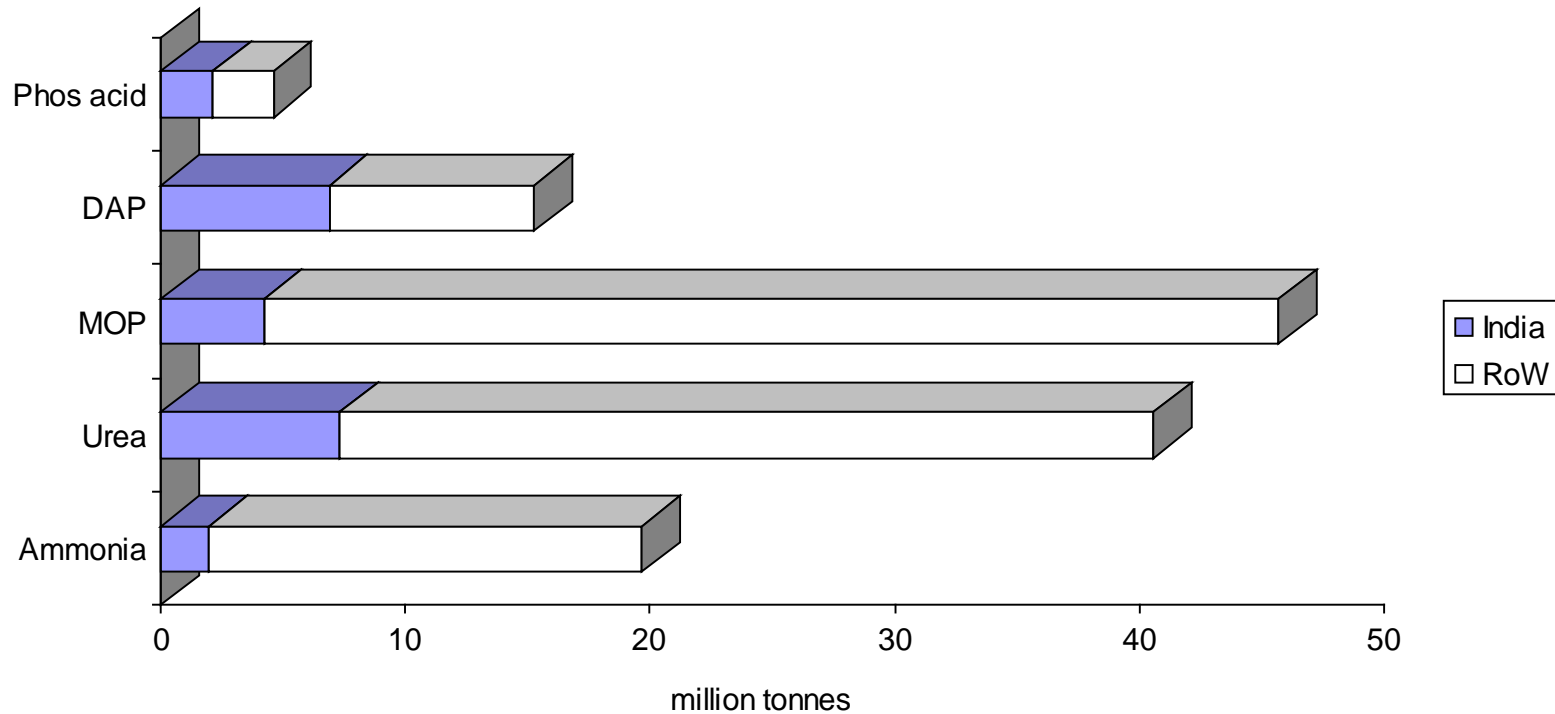
- Demand destruction was seen in 2008 as fertilizer prices rose above long term correlations with prices of key crops
- Many crops did not see the strong prices and fertilizer application fell sharply on these – especially in subsistence agriculture
- India was immune to demand destruction in 2008 due to the subsidy system
- Indian subsidy cuts on P+K in the current fertilizer year, together with higher international prices led to higher retail prices and a sharp fall in demand
- Last week's budget indicated cuts in P+K subsidies for 2012/13 – around 16%
- Urea subsidy cut by 1% for local urea and 5% for imported
- Government looking to switch subsidy payment system from producers and importers to local dealers and eventually to farmers

INDIAN SUBSIDY CHANGES

Billion rupees					
Subsidies	Budget 2011-12	Revised 2011-12	Budget 2012-13	Change budget 2010-11 to budget 2011-12	Change revised 2010-11 to budget 2011-12
Imported urea	69.830	138.830	133.980	64.150	-4.850
Indigenous urea	133.080	191.080	190.000	56.920	-1.080
Decontrolled fertilizer	297.069	342.079	285.761	-11.308	-56.318
Total subsidy	499.979	671.989	609.741	109.762	-62.248

IMPORTANCE OF INDIA

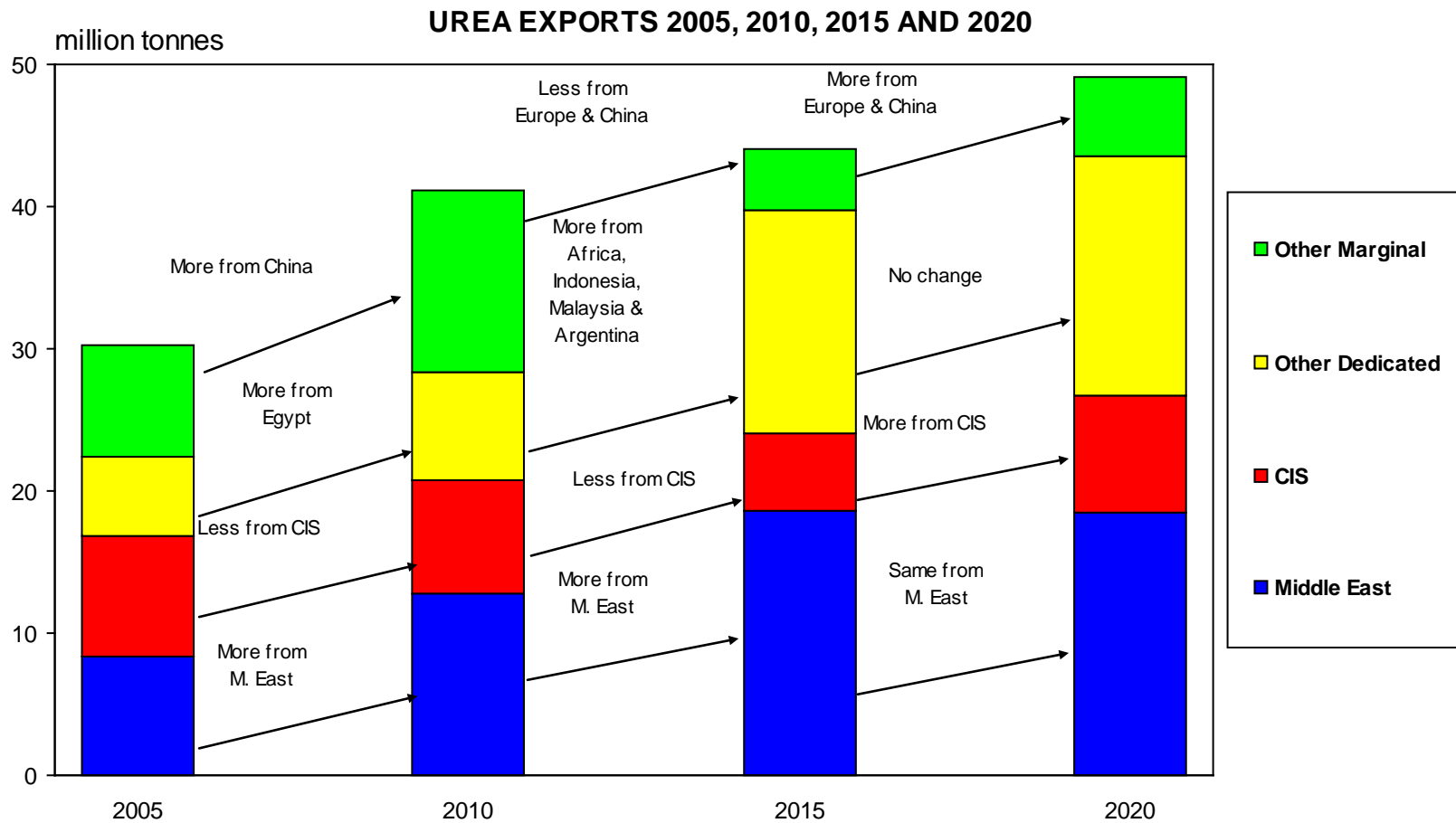
INDIAN IMPORTS AS SHARE OF WORLD TRADE



NITROGEN

New capacity changing market balance

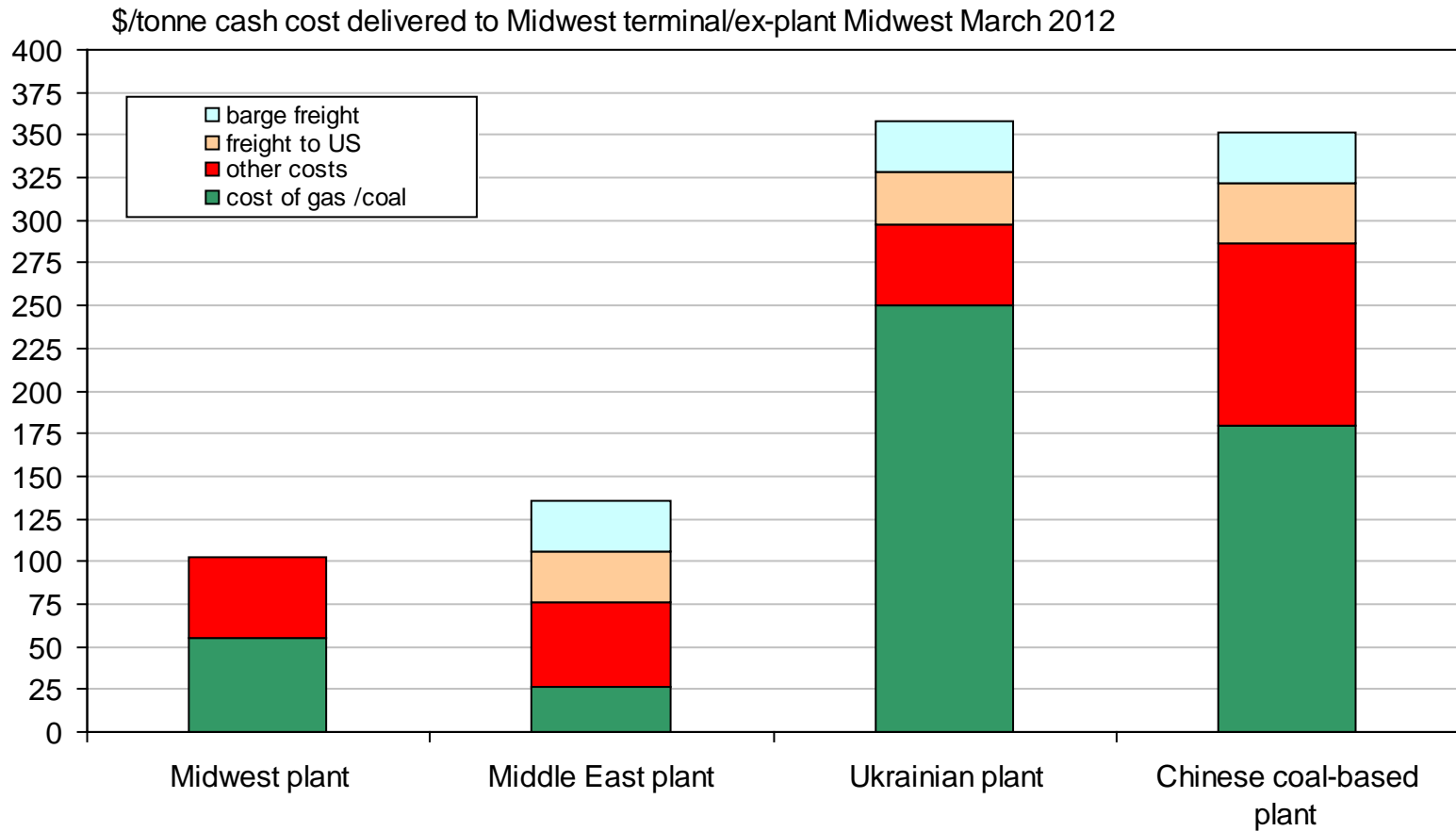
UREA SUPPLY INCREASES



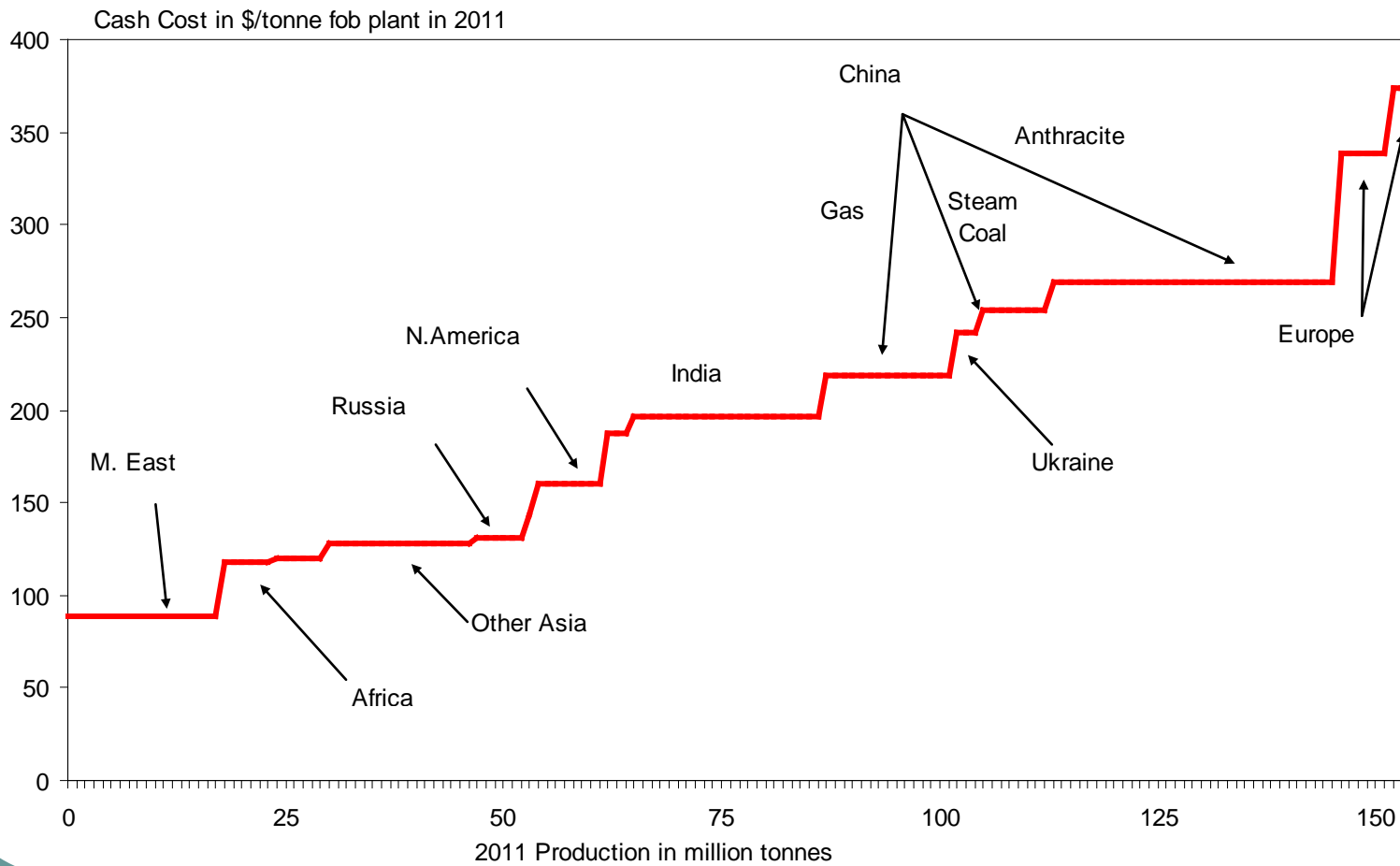
NEW NORTH AMERICAN CAPACITY?

- Low gas prices in the US have stimulated new petrochemical projects – especially ethylene
- However, in the fertilizer sector, firm announcements have been restricted to debottlenecking and small expansions
- Now, Yara is talking about a major expansion at Belle Plaine, Saskatchewan
- OCI has been awarded state grants to help develop an ammonia/urea/DEF/UAN project in Iowa
- We could see other projects announced, but capital costs and permitting remain a constraint

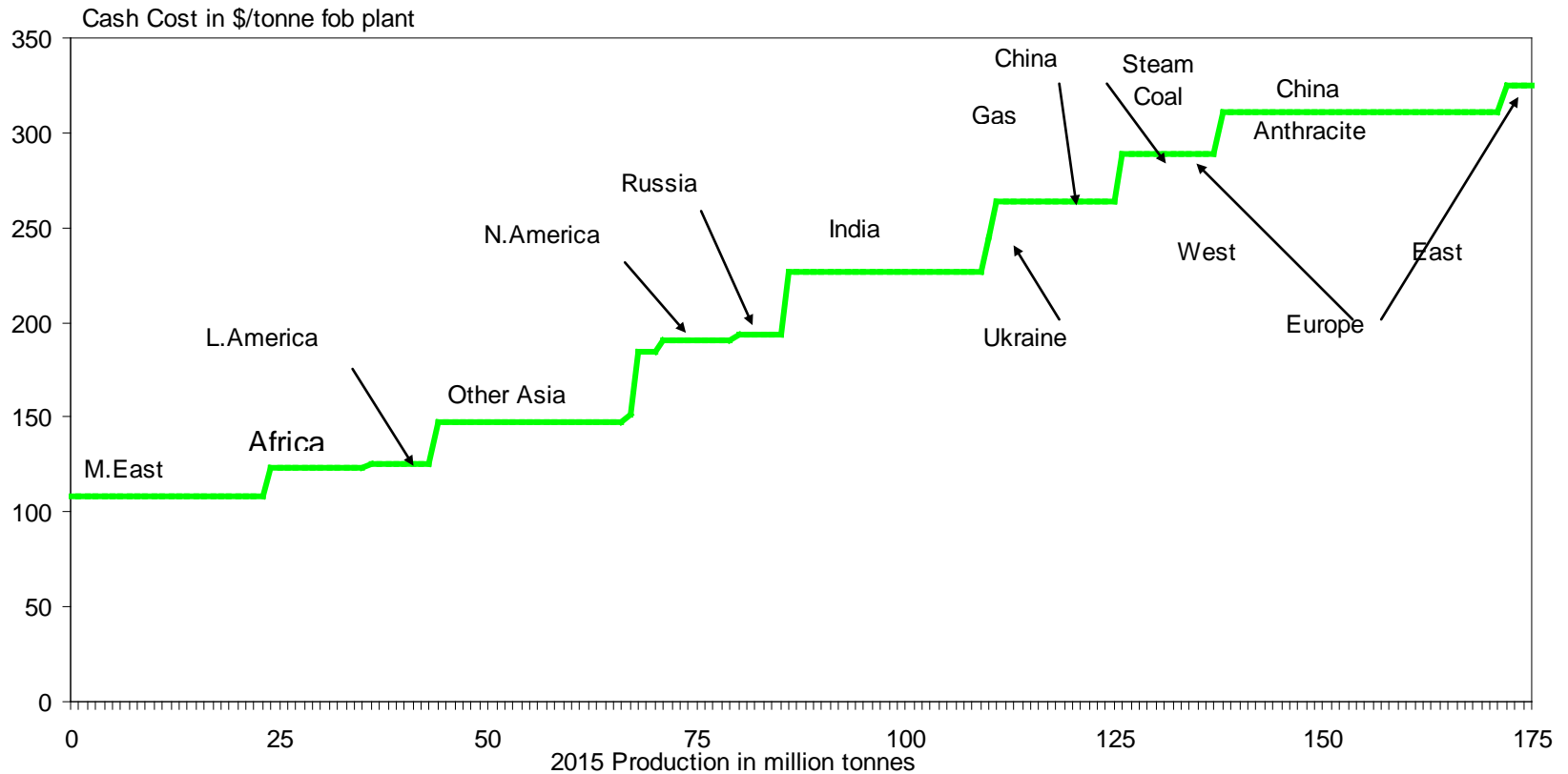
US UREA COST OF SUPPLY



UREA COST CURVE 2011



UREA COST CURVE 2015



NEW AFRICAN CAPACITY?

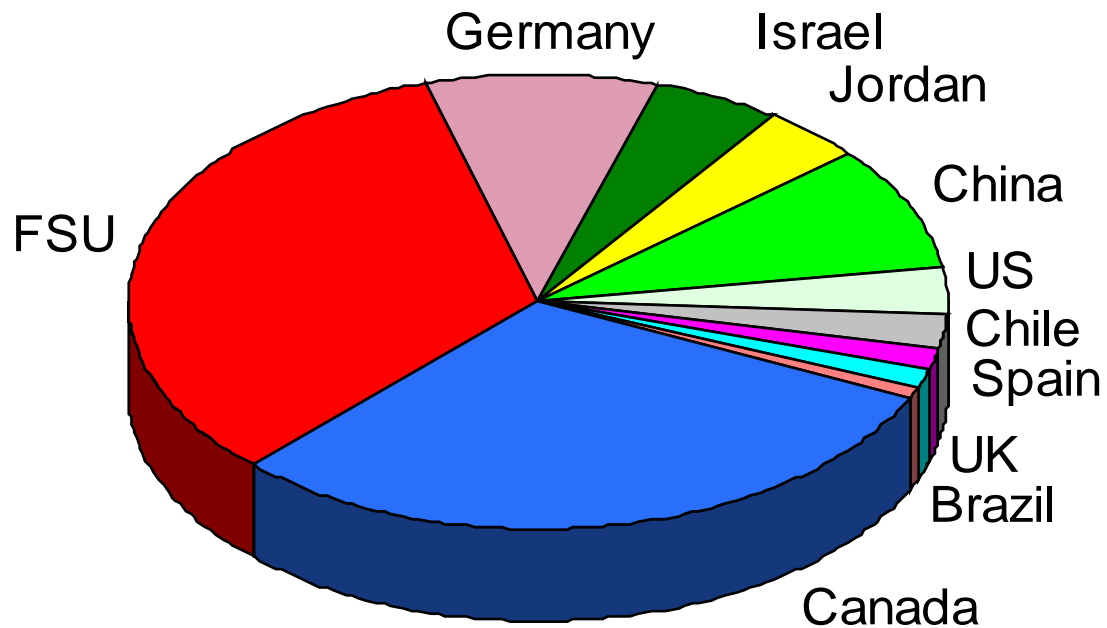
- Availability of low cost associated gas, currently being flared, is attracting interest in investment in ammonia/urea in Africa
- Project going ahead in Gabon, led by Olam, agricultural commodities company
- Interest in projects in Nigeria, Angola, Mozambique and elsewhere
- With gas costs increasing in MENA region, Africa looks attractive at \$1/mmBtu gas

POTASH

New entrants could change market structure

POTASH PRODUCTION

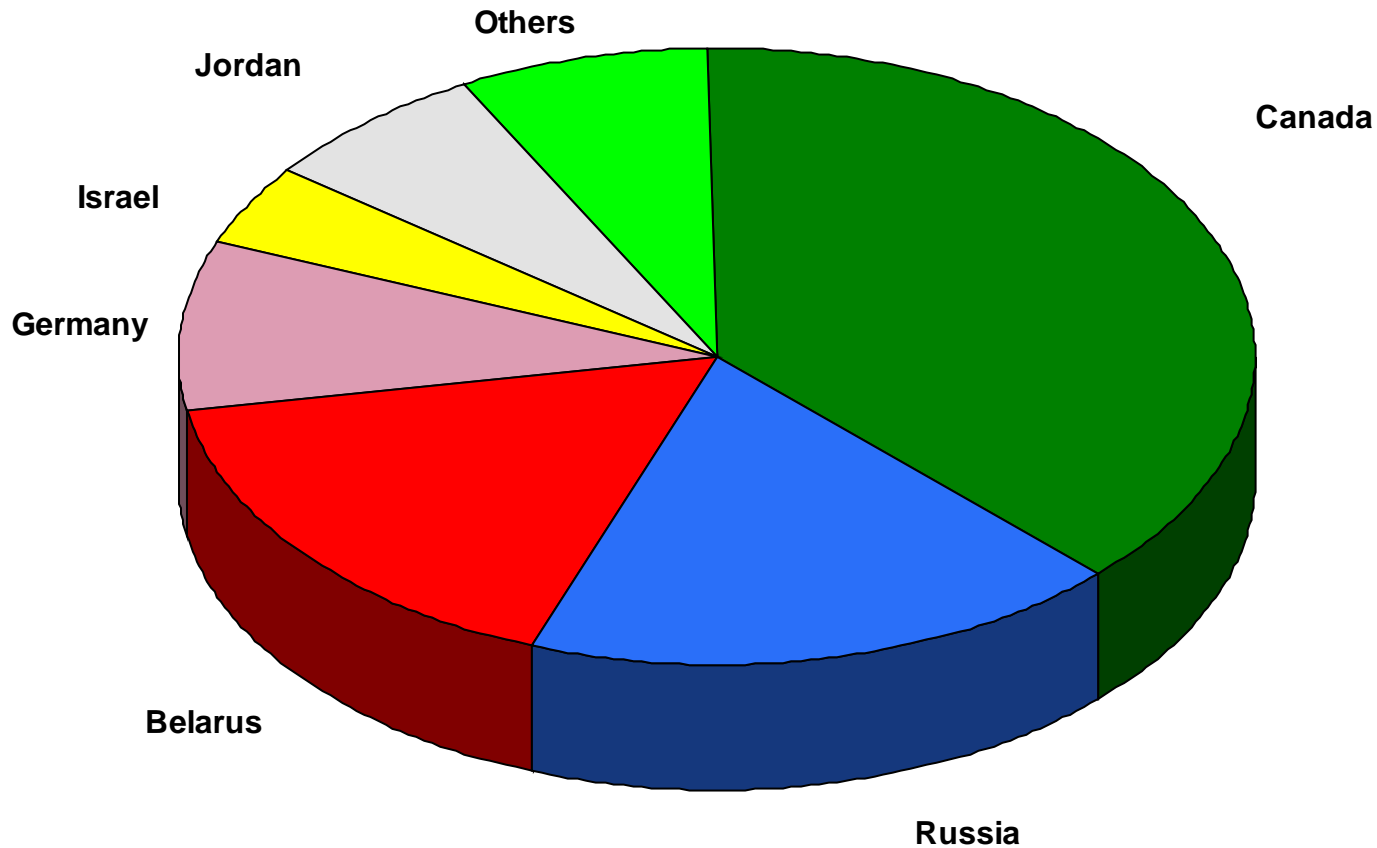
Total 60.5 million tonnes KCl - 2011 estimate



Capacity 75.8 million t - 80% utilisation

POTASH EXPORTS

POTASH EXPORT SOURCES - 2012 estimate
Total - approx 25.6 million tonnes nutrient



POTASH SUPPLY

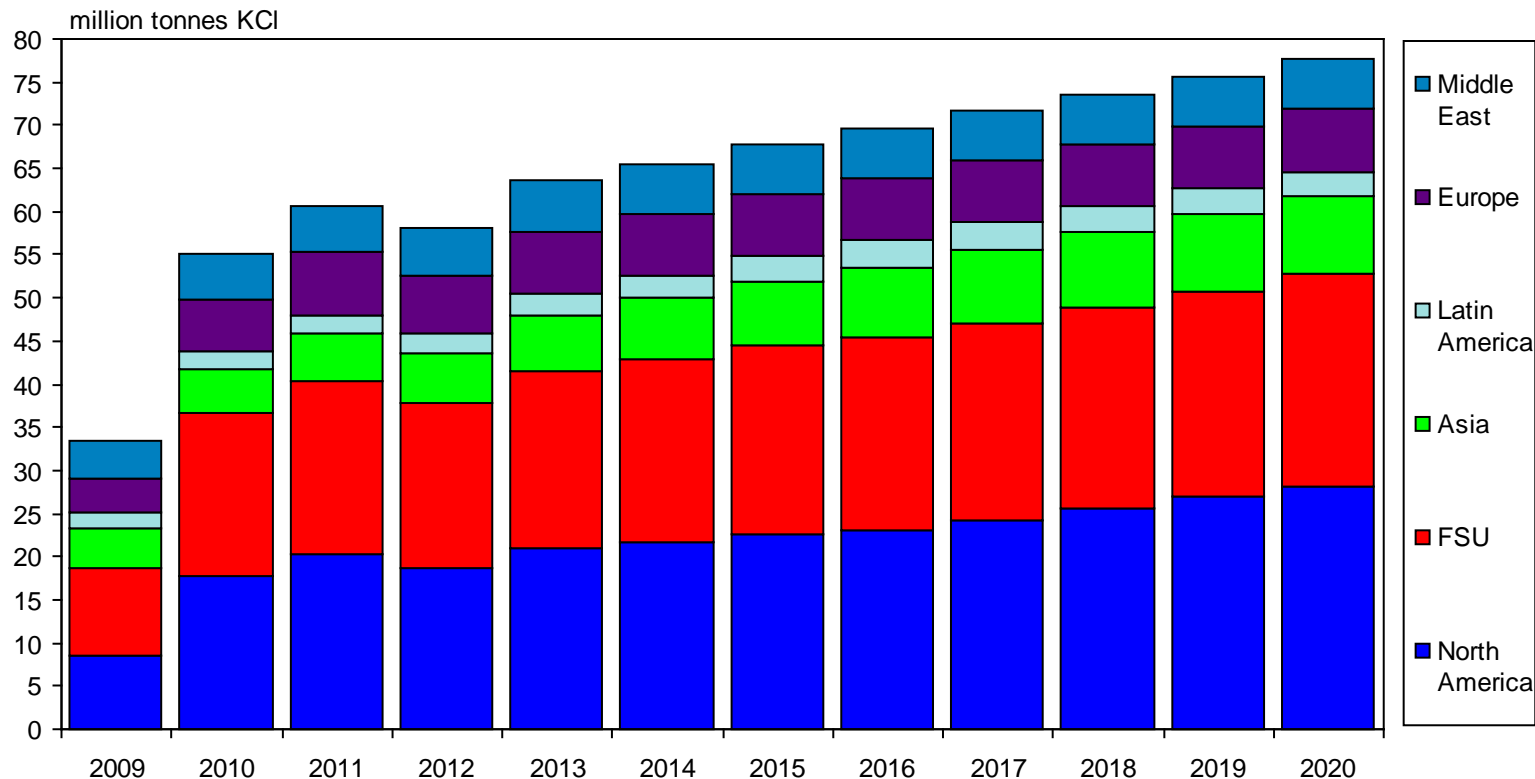
- **Two** major supply points – Canada and FSU – account for almost two thirds of world production
- This is represented by **five** producers and **two** marketing organisations
- **Four** marketing organisations – Canpotex, BPC, K+S and ICL– account for almost 90% of export sales (excluding Canada to US)

NEW POTASH SUPPLY

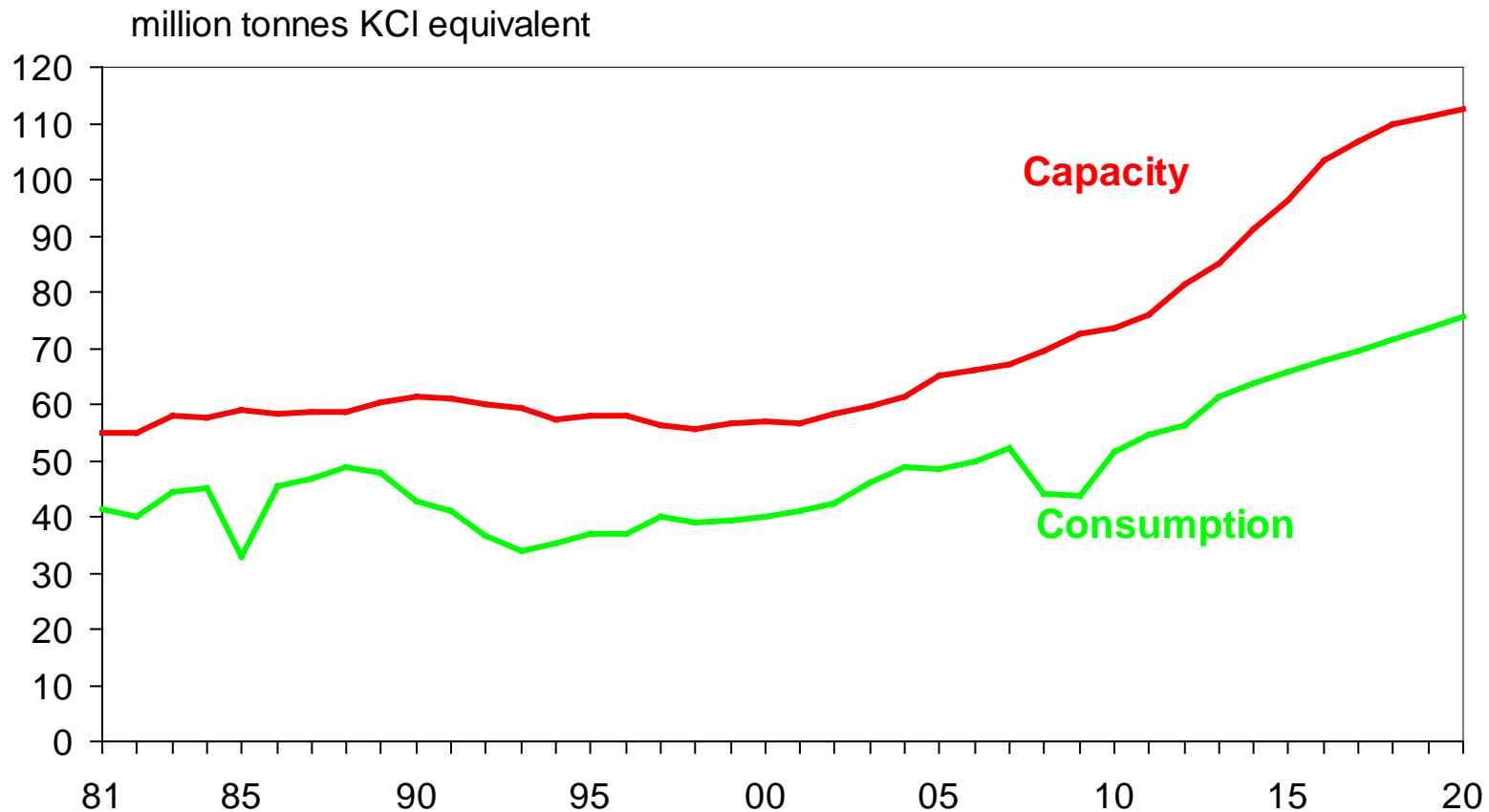
- **Two** new Canadian producers – K+S and BHP Billiton
- **Two** new mines in Russia by new producer EuroChem
- **Two** new mines in Latin America by Vale – one in Brazil and one in Argentina
- **Twenty** or more potential projects by junior miners

POTASH PRODUCTION

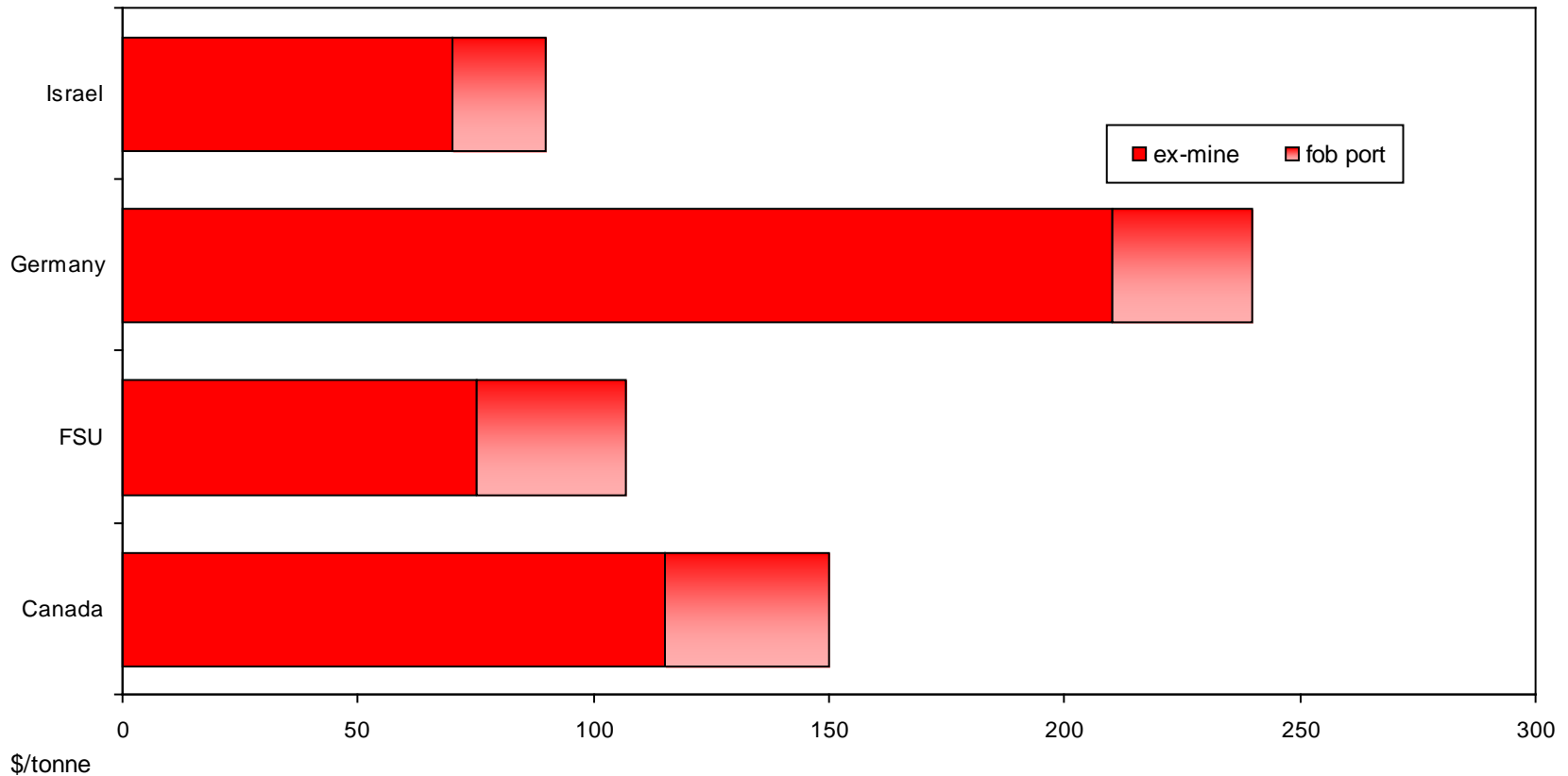
FORECAST WORLD POTASH PRODUCTION 2009-2020



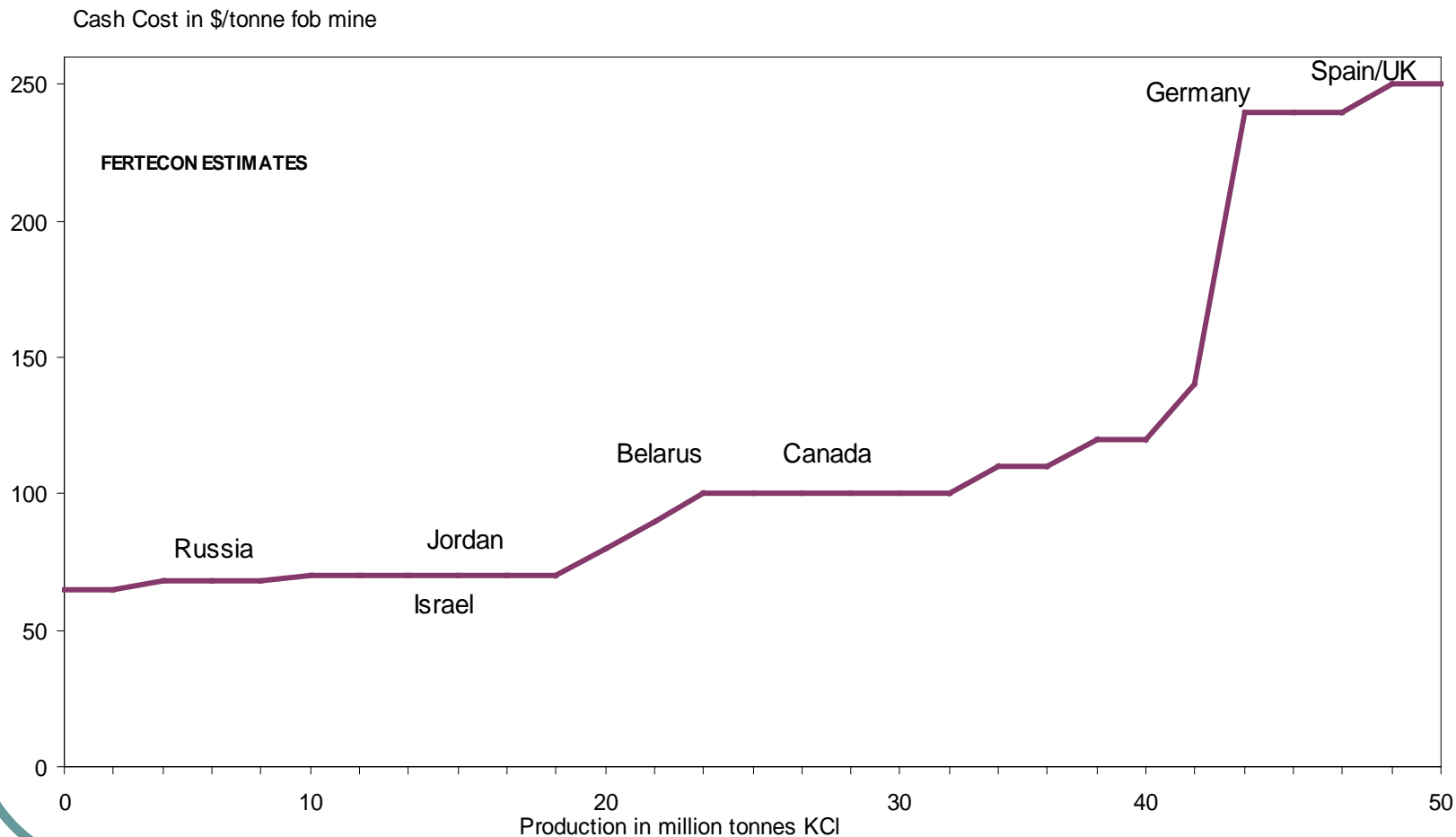
POTASH SUPPLY/DEMAND



POTASH COSTS



POTASH CASH COST CURVE EX-MINE



PHOSPHATE

New Saudi capacity moving market into surplus

SAUDI ARABIA ADDING TO SUPPLY

- Ma'aden project now cranking up towards its 3 million t/y capacity – around 15% of global trade
- Second project developing new mining area given go-ahead
- Capacity may have been easily absorbed by market except for downturn in Indian demand
- Extra Saudi supply could be compensated by lower Chinese exports in 2012

ROCK DEVELOPMENTS

- Higher prices for phosphates since 2007 has attracted interest in new projects
- Vale Bayovar project in Peru already operational
- Potential projects in Australia, Africa and Latin America
- Projects focussing on just rock – lower capex and quicker to develop than integrated phosphate fertilizer facilities
- New rock supplies could eventually reduce Moroccan dominance of rock market

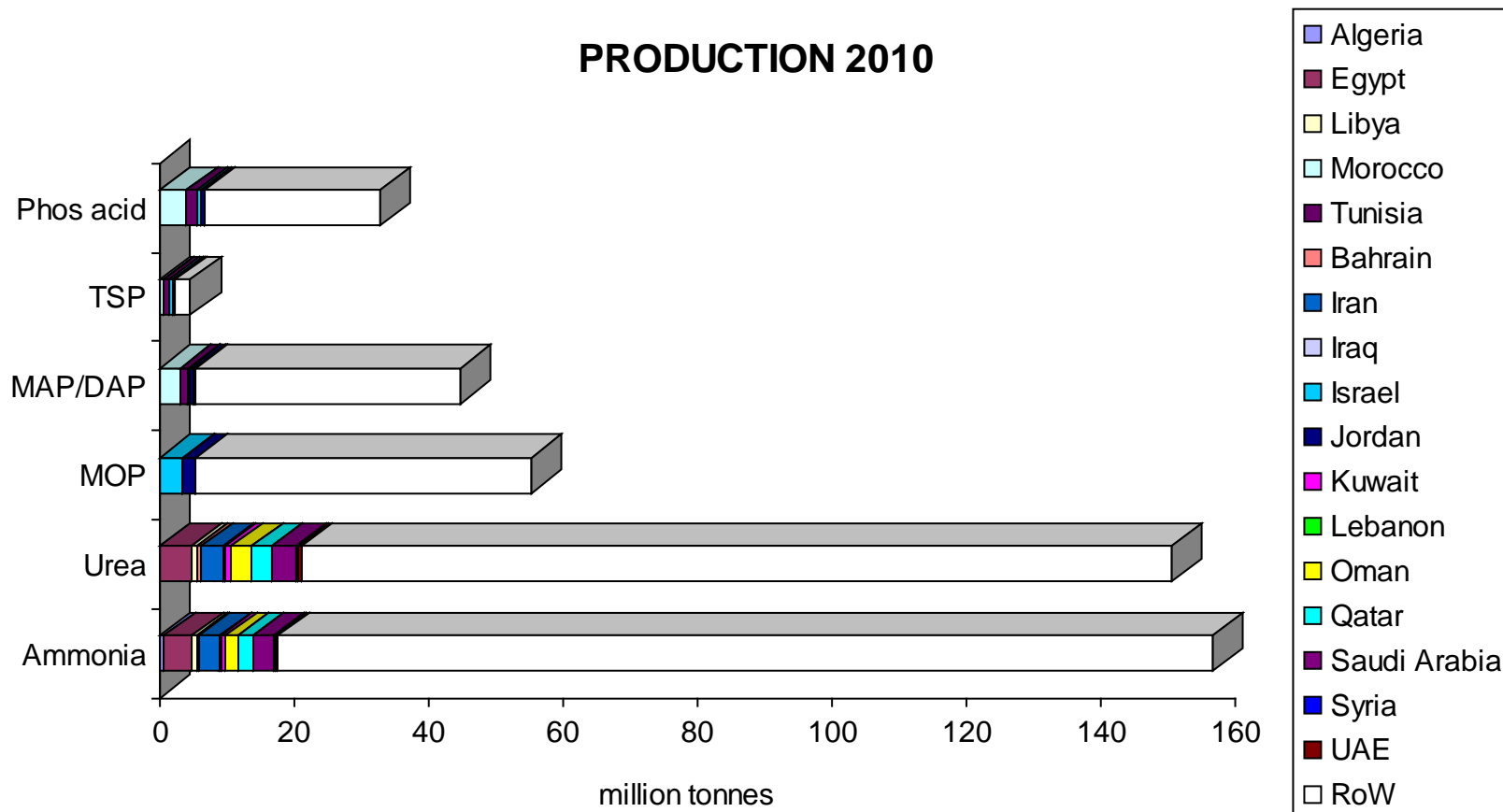
MIDDLE EAST / NORTH AFRICA

Still a supply risk

MIDDLE EAST CRITICAL TO AMMONIA, UREA AND SULPHUR SUPPLY

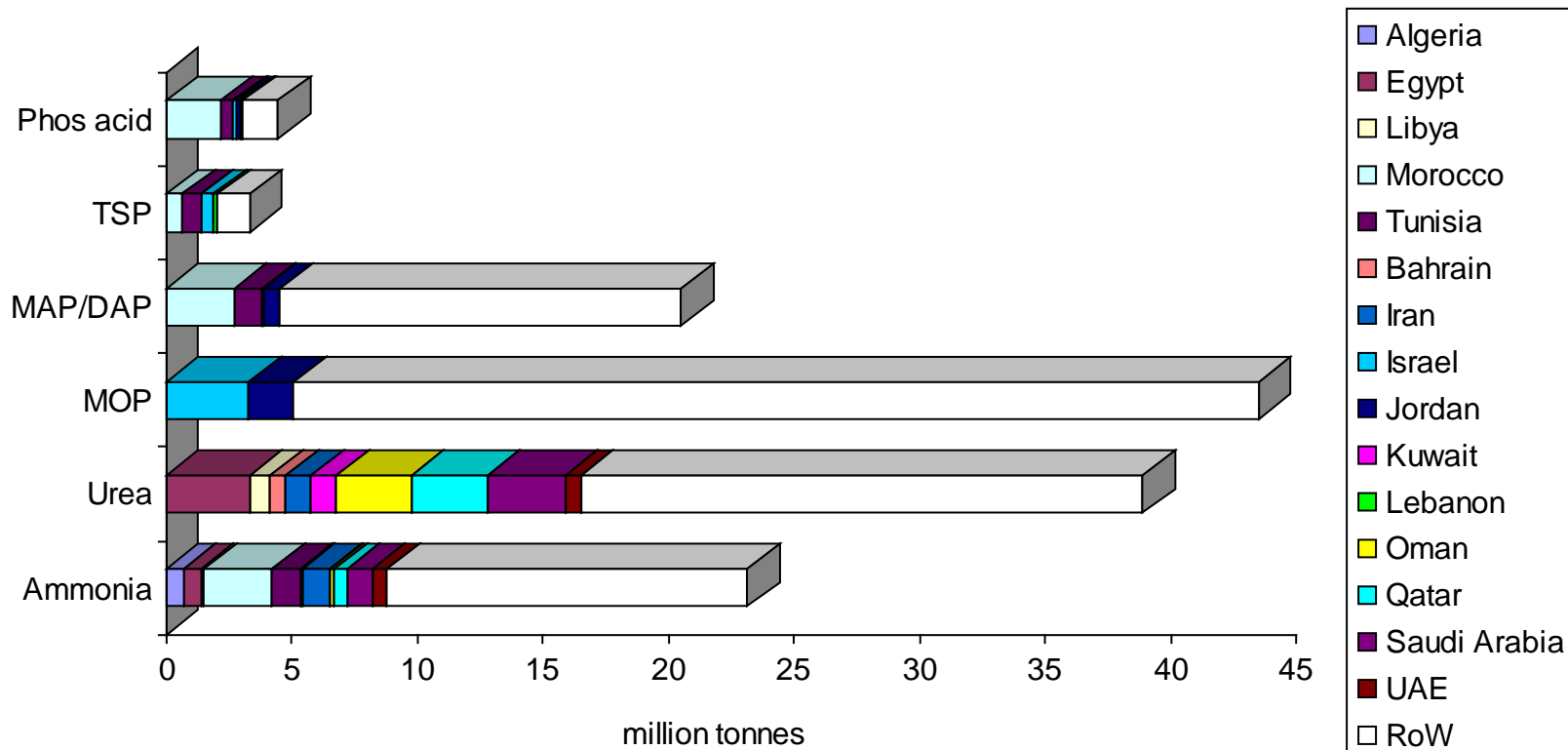
- Middle East accounts for 32% of urea exports and 15% of ammonia
- Middle East accounts for one third of US urea imports and 20% of US total supply
- Middle East supply accounts for 85% of Indian ammonia imports
- 35% of new urea capacity located in Middle East
- Middle East accounts for 30% of world sulphur exports
- Middle East accounts for 90% of Indian sulphur imports and 20% of North African supplies
- Yara Libya j-v plant still down
- Tunisian phosphate production disrupted through most of 2011
- Concern about Iran –exports disrupted by financial sanctions

MENA SHARE OF PRODUCTION



MENA SHARE OF EXPORTS

EXPORTS 2010



OUTLOOK

A curate's egg – good and bad in parts

SHORT TERM MARKET OUTLOOK

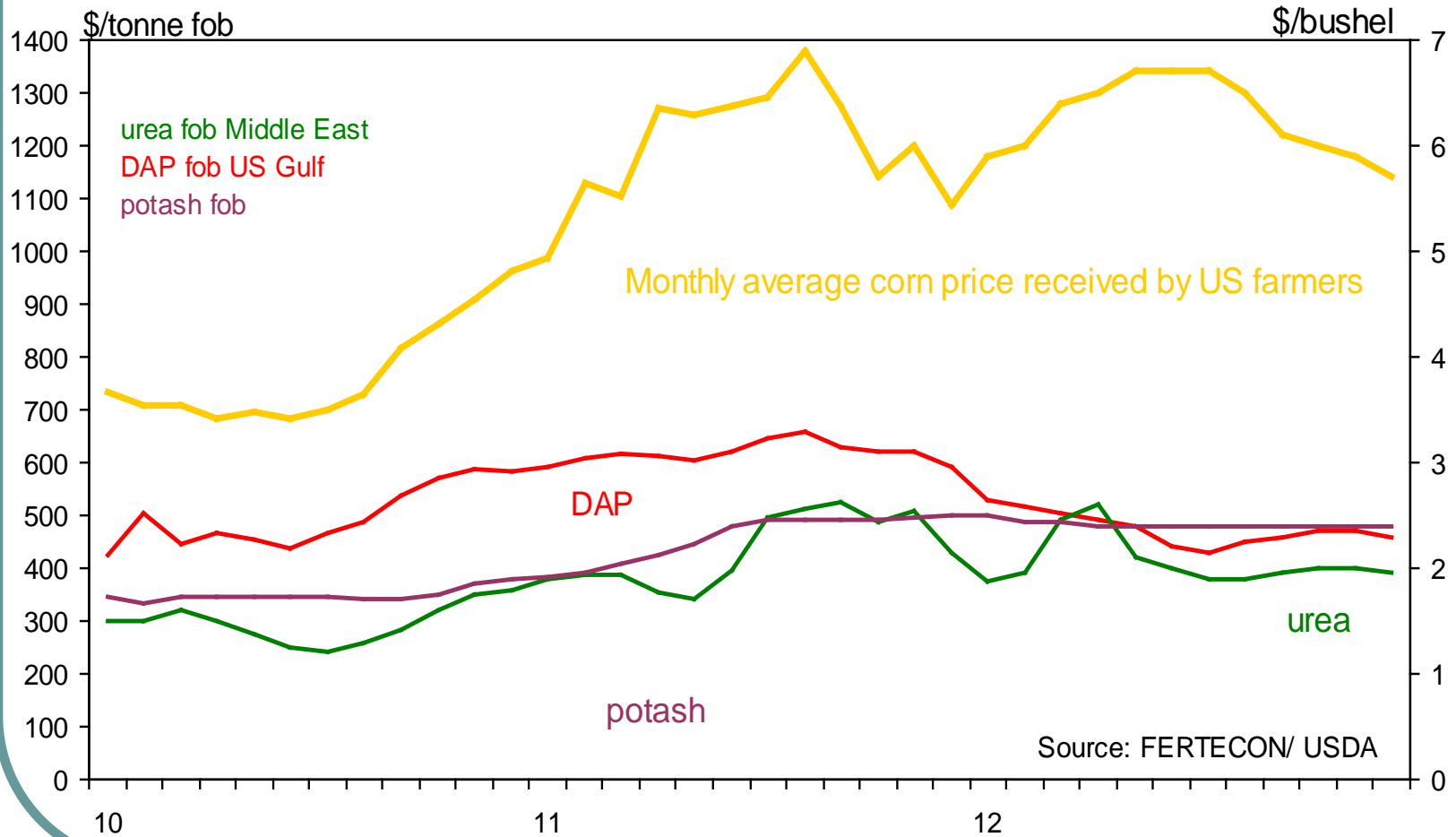
POSITIVE

- Crop prices remain strong
- Farmer and dealer purchasing behind normal
- No big consumer inventory build
- Farmers still need to buy fertilizers for the spring
- Delays to major nitrogen projects

NEGATIVE

- Last minute rush for product could create bottlenecks
- Indian demand destruction has had a negative impact on P+K
- Supply increases in all three nutrients this year

CROP vs FERTILIZER PRICES



LONG TERM SENSITIVITIES

Population growth

- There are signs that population growth is slowing
- This could mean that instead of having to feed 9 billion people by 2050 (the UN medium forecast), it could be 8 billion – just 15% more than today
- This could mean slower fertilizer demand growth, although increased affluence will mean increased meat consumption, and thus increased demand for feed grains

LONG TERM SENSITIVITIES

Genetic modification could limit fertilizer demand growth longer term

- Research underway on transferring the ability of legumes to fix nitrogen from the atmosphere to corn, wheat etc, thus reducing nitrogen requirements.
- GM techniques could improve nutrient uptake by crops, lowering potential fertilizer demand growth.
- GM could lead to development of crops that require less nutrient input
- However, there will still be fertilizer demand growth and there is an increased potential for higher value “smart fertilizers”

LONG TERM SENSITIVITIES

Increased recycling

- Nutrient recovery at sewerage plants could provide source of fertilizers
- Better use of manures and application of some of the techniques of organic farming could provide larger portion of nutrient requirements although this will remain limited
- Organic lobby is increasing in influence – could affect some government policy – particularly over “sustainability”

LONG TERM SENSITIVITIES

Africa could see substantial fertilizer demand growth

- African fertilizer application the lowest in the world
- Increased focus from fertilizer industry, government international agencies and NGOs on increasing food production
- Investment in distribution schemes and farmer education to help smallholder farmers
- Gates Foundation looking at major development programmes
- Contract farming schemes to produce food for export could see major increase in fertilizer usage

ENVIRONMENTAL SENSITIVITIES

- Nitrate directive already constrains nitrogen application in most of EU
- Phosphate application limited by regulations in Scandinavia, Netherlands
- Growing concern on impact of fertilizer run off leading to lawn fertilizer restrictions in many US states and now proposals in several states to restrict agricultural fertilizer application
- Concern of imbalanced nitrogen application in parts of China and India
- Major opportunity for “smart” fertilizers and enhanced application techniques
- Greenhouse gas emissions become a major factor – already top of the agenda in EU industry
- Increasing market for ammonia and urea for NOx abatement