FERTILIZER OUTLOOK

Knowledge would often confuse them

by

Barrie Bain

Director of Fertilizer Intelligence

FERTECON Limited

Nomura Global Chemical Industry Leaders Conference,
Venice, 21 March 2013

informa bringing knowledge to life

FERTECON Limited

- Formed in 1978
- Leading global provider of fertilizer market information, prices and analysis
- Now part of Informa plc
- The link with Informa gives FERTECON new access to data and analysis resources on agriculture, shipping and freight and energy

FERTILIZER USE

Either to hath it sterile with idleness or manured with industry

FERTILIZER TYPES

- There are three main nutrients
- Nitrogen (N)
- Phosphate (P_2O_5)
- Potash (K_2O)

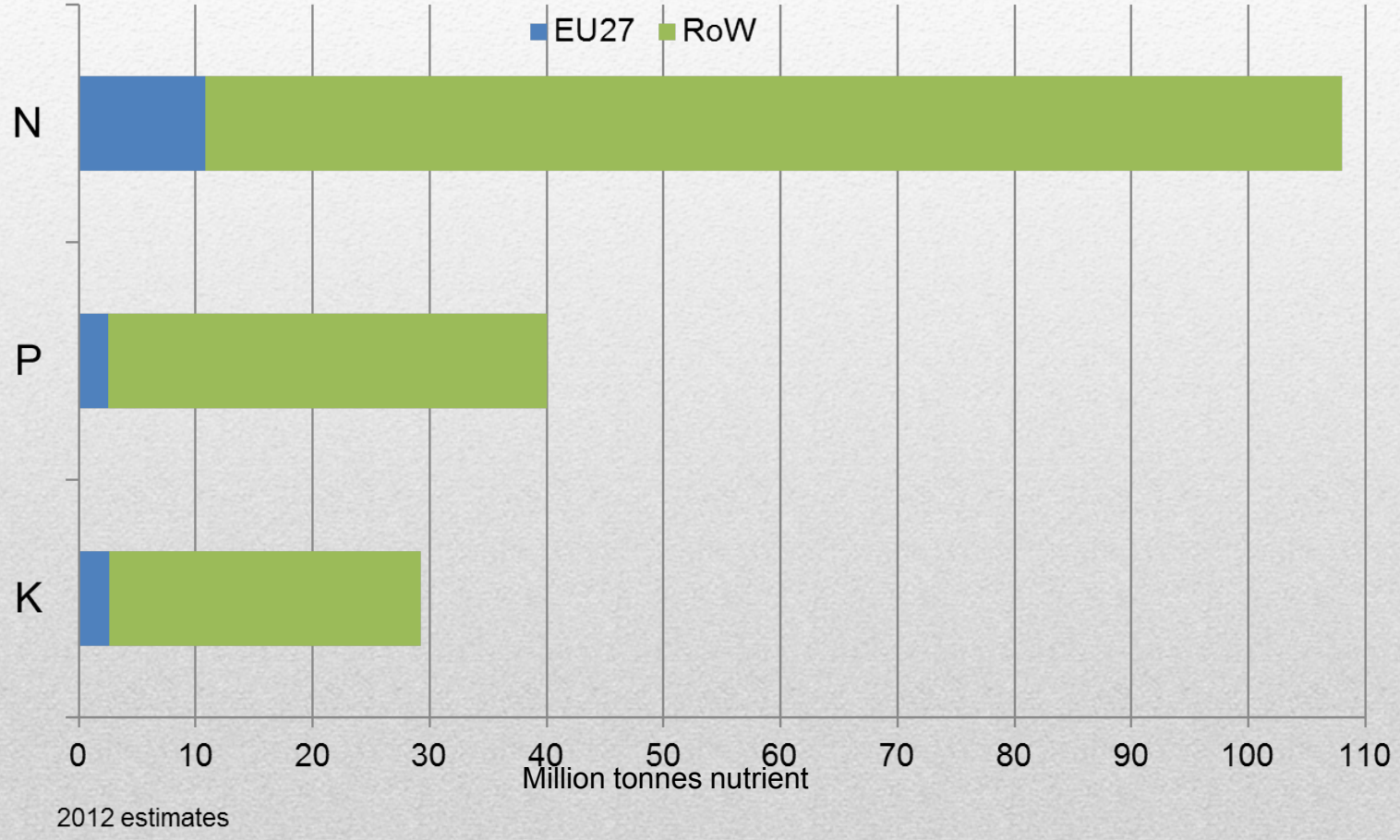
- There are secondary and micronutrients such as sulphur, magnesium, zinc etc.

- Nutrients perform different functions in the growth of the plant and the three main nutrients cannot be substituted for each other

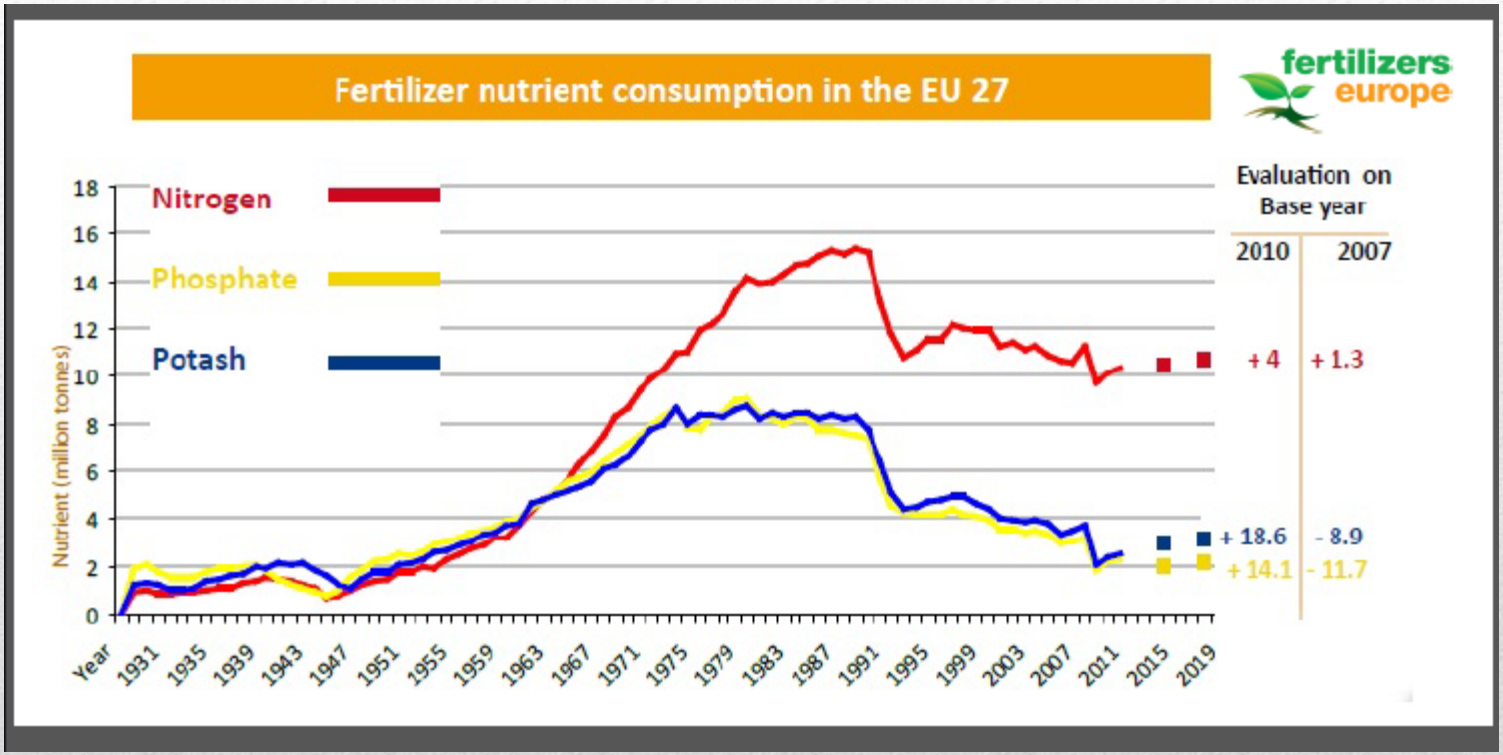
- Plants need balanced nutrient application – how much and in what proportion depends on the soil type and the crop being grown

- Without chemical fertilizers, crop production would be reduced by almost half

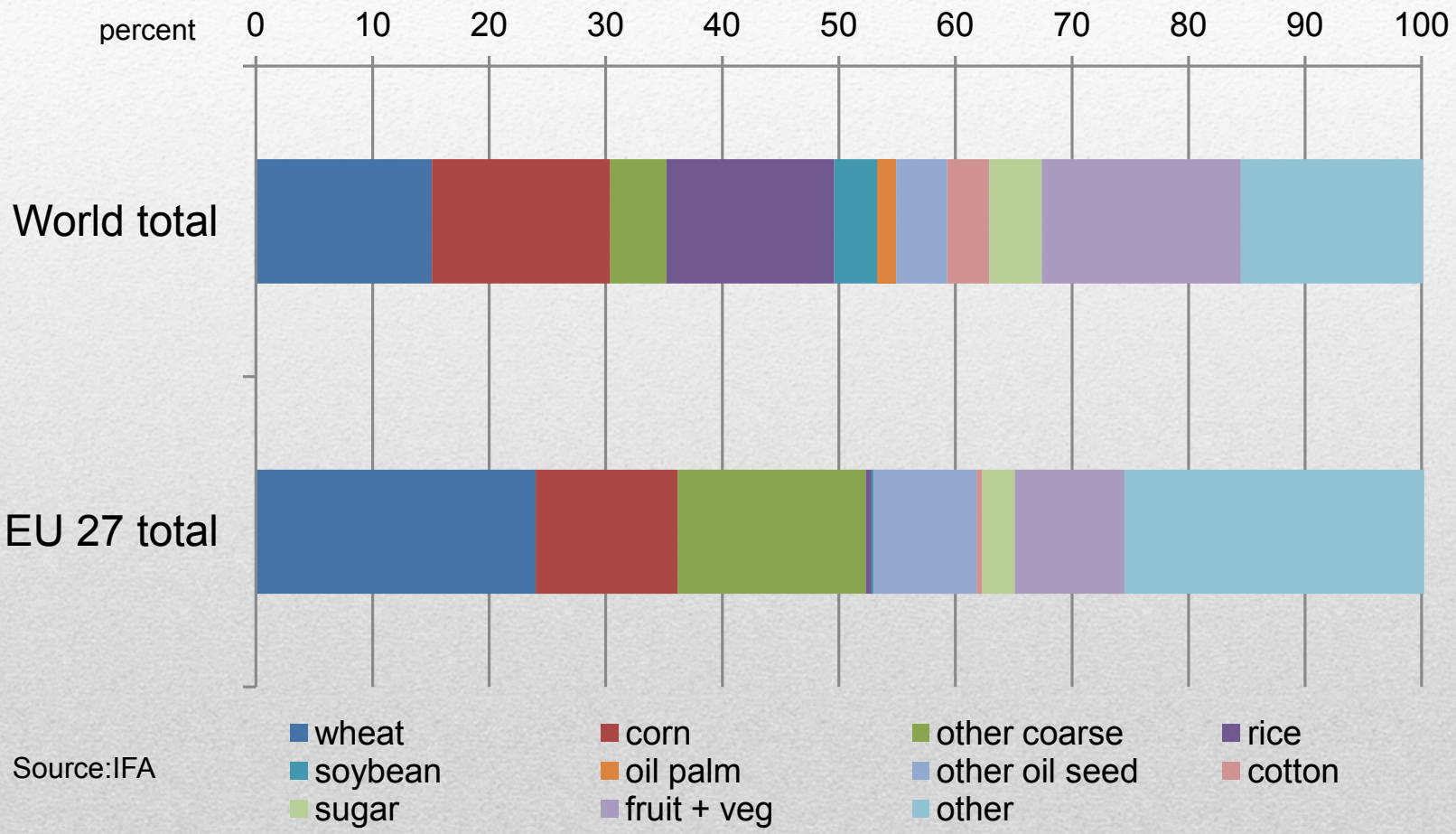
WORLD/ EU FERTILIZER USE



EU FERTILIZER USE

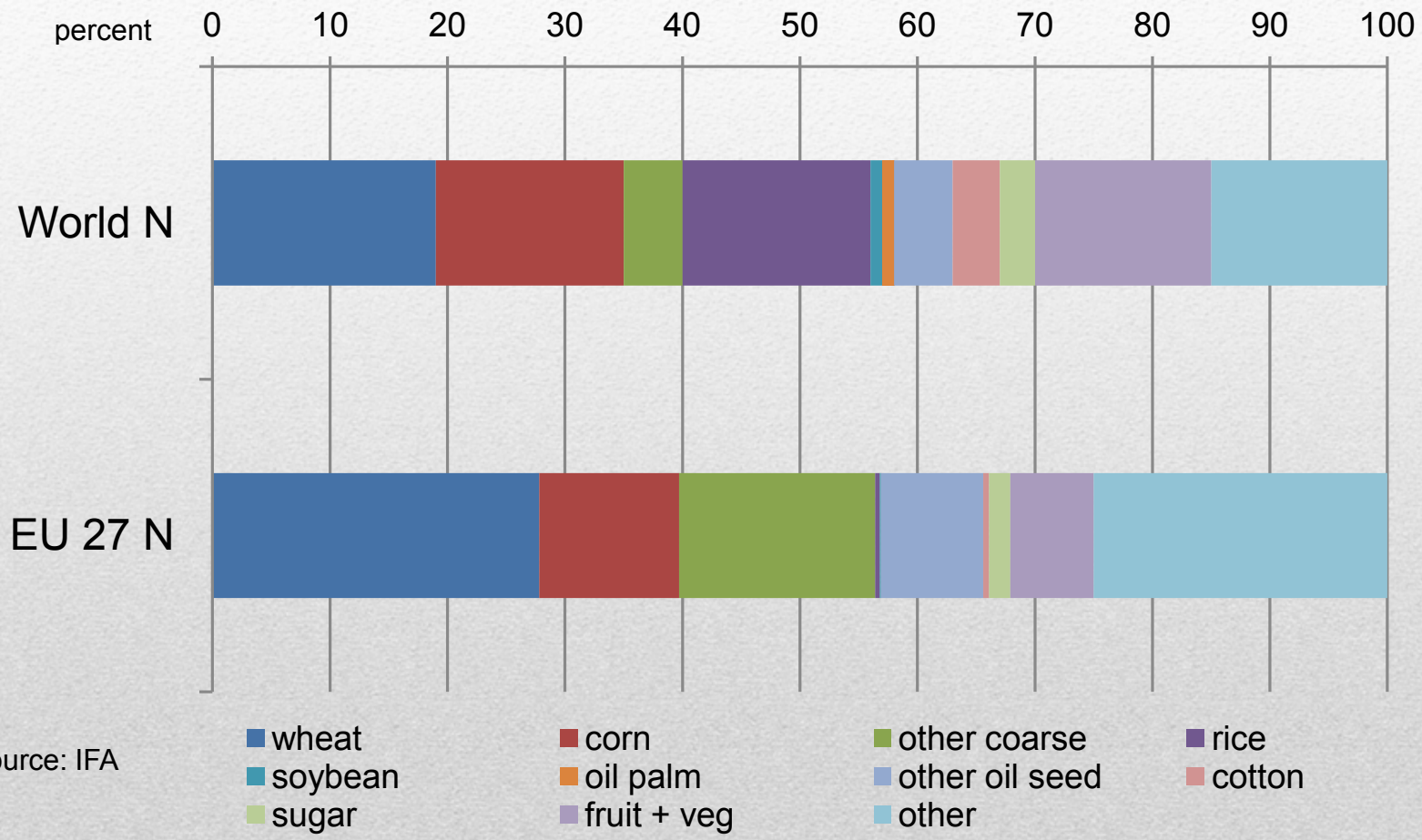


FERTILIZER USE BY CROP



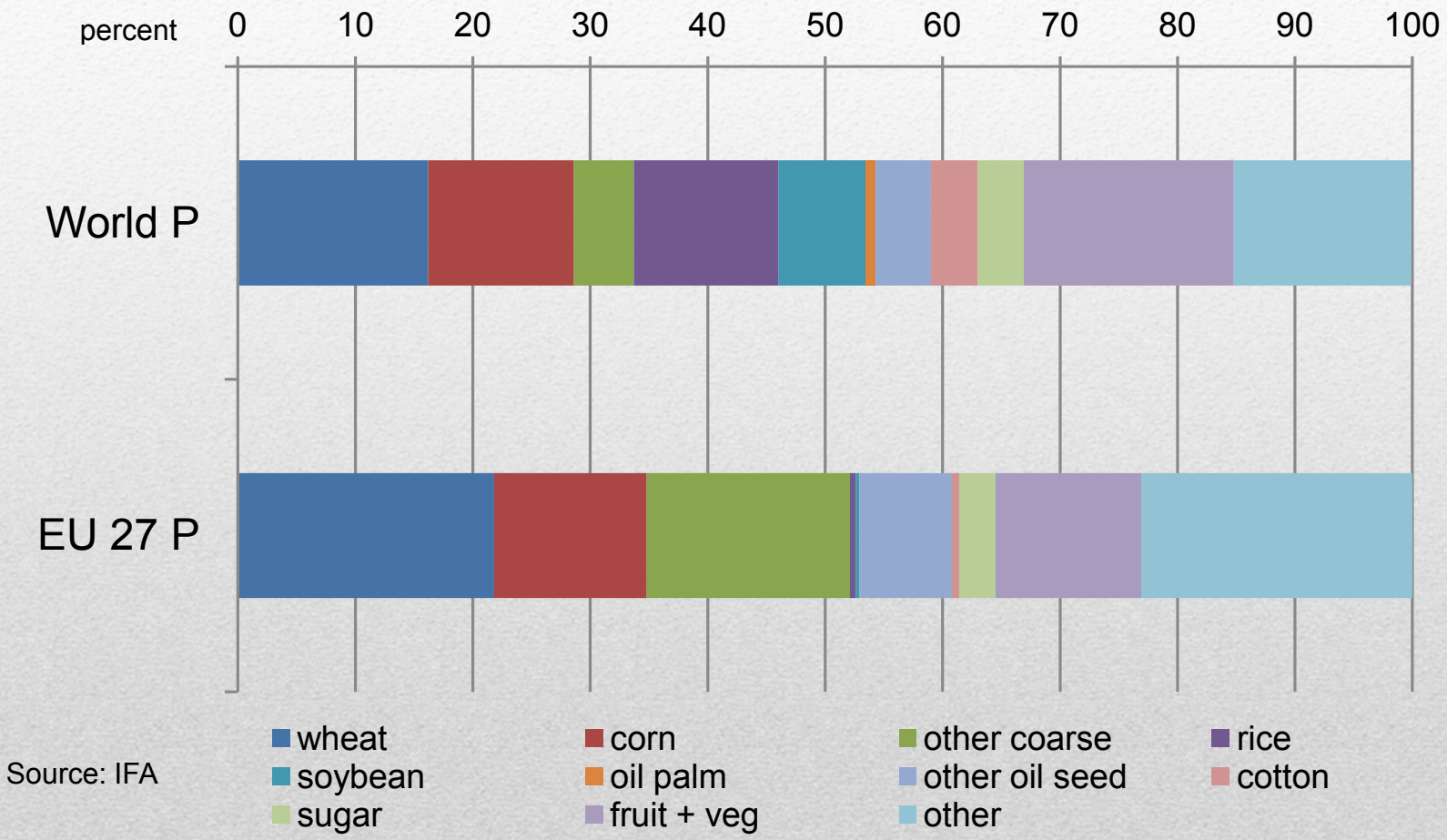
Source:IFA

NITROGEN USE BY CROP



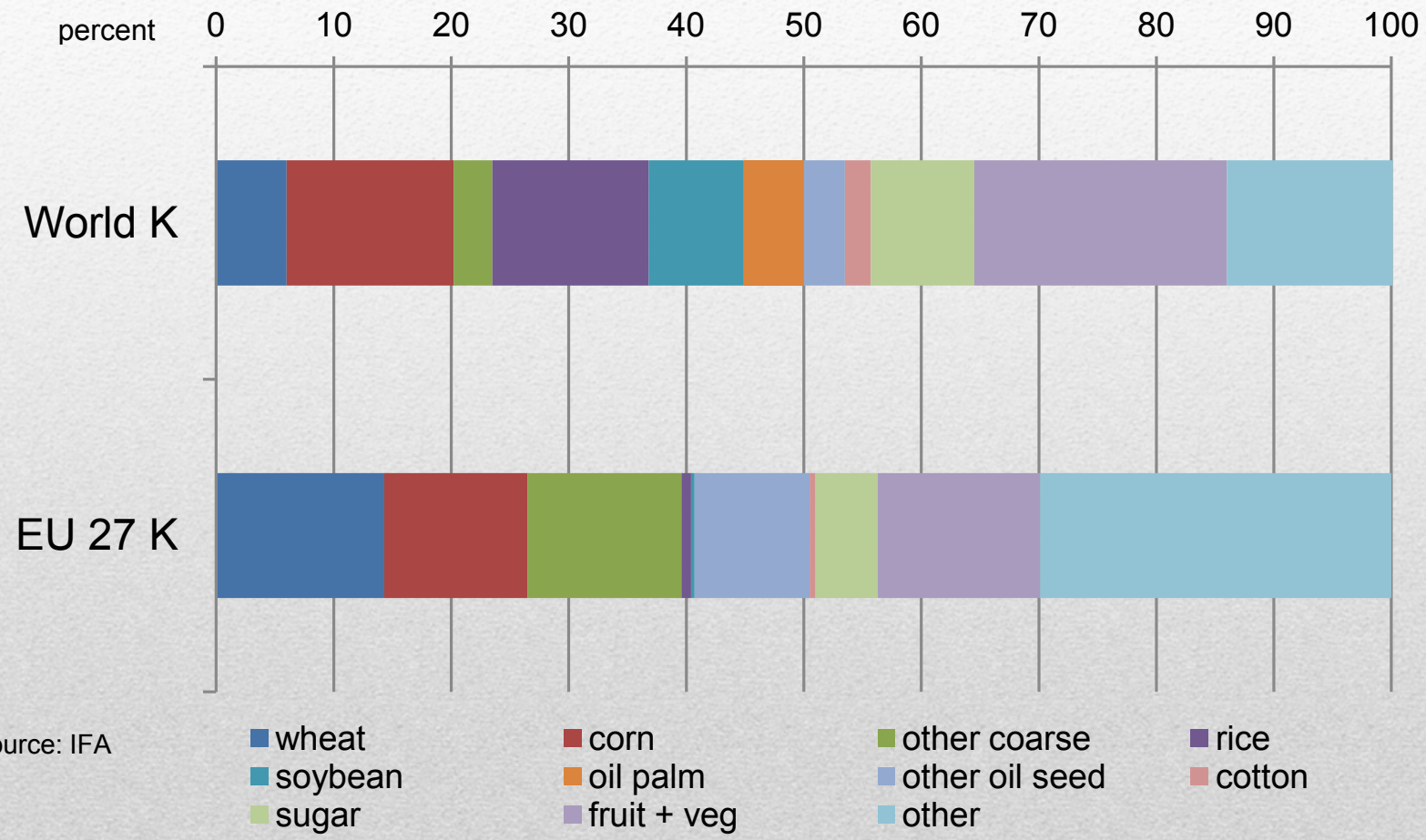
Source: IFA

PHOSPHATE USE BY CROP



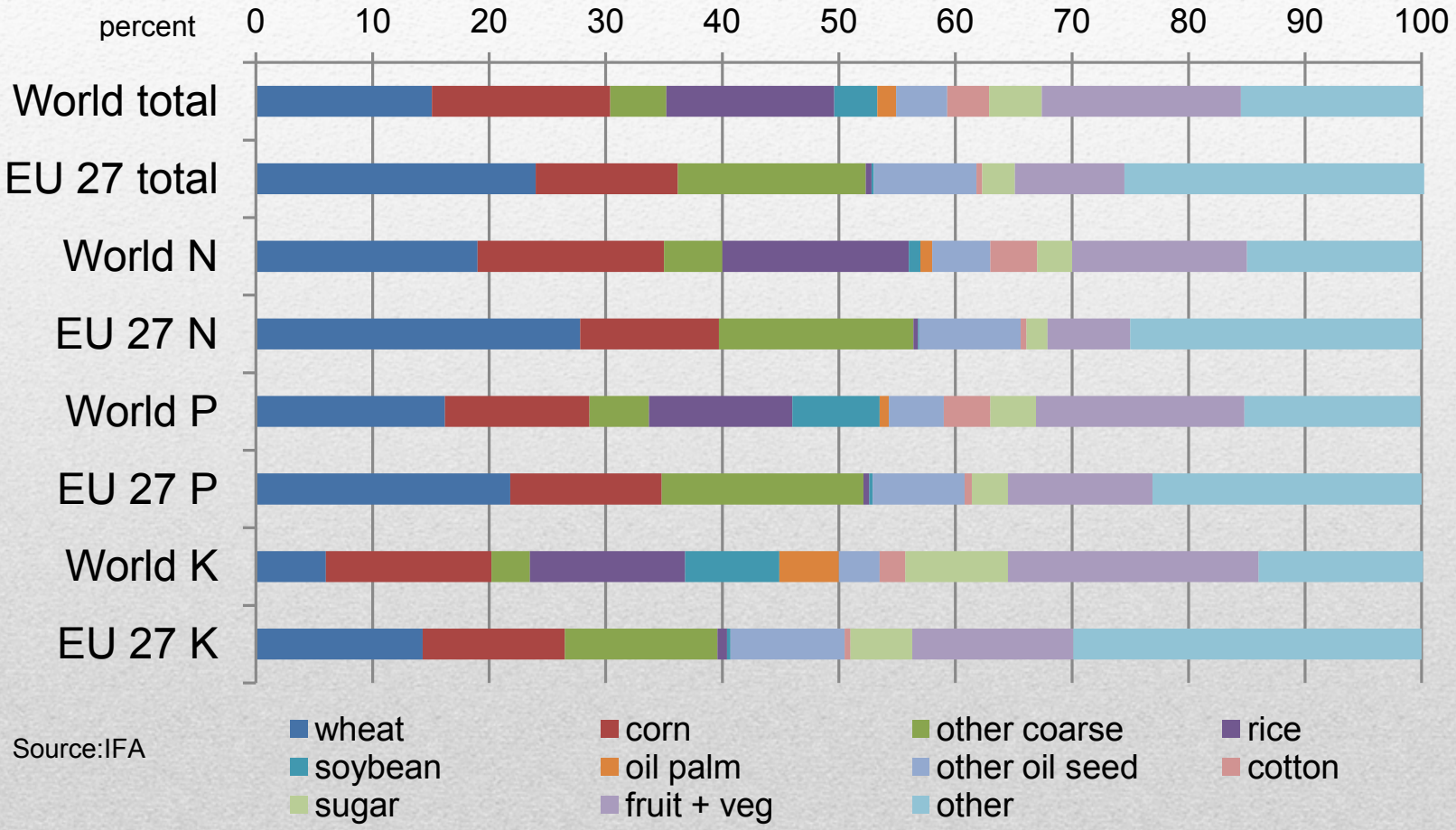
Source: IFA

POTASH USE BY CROP



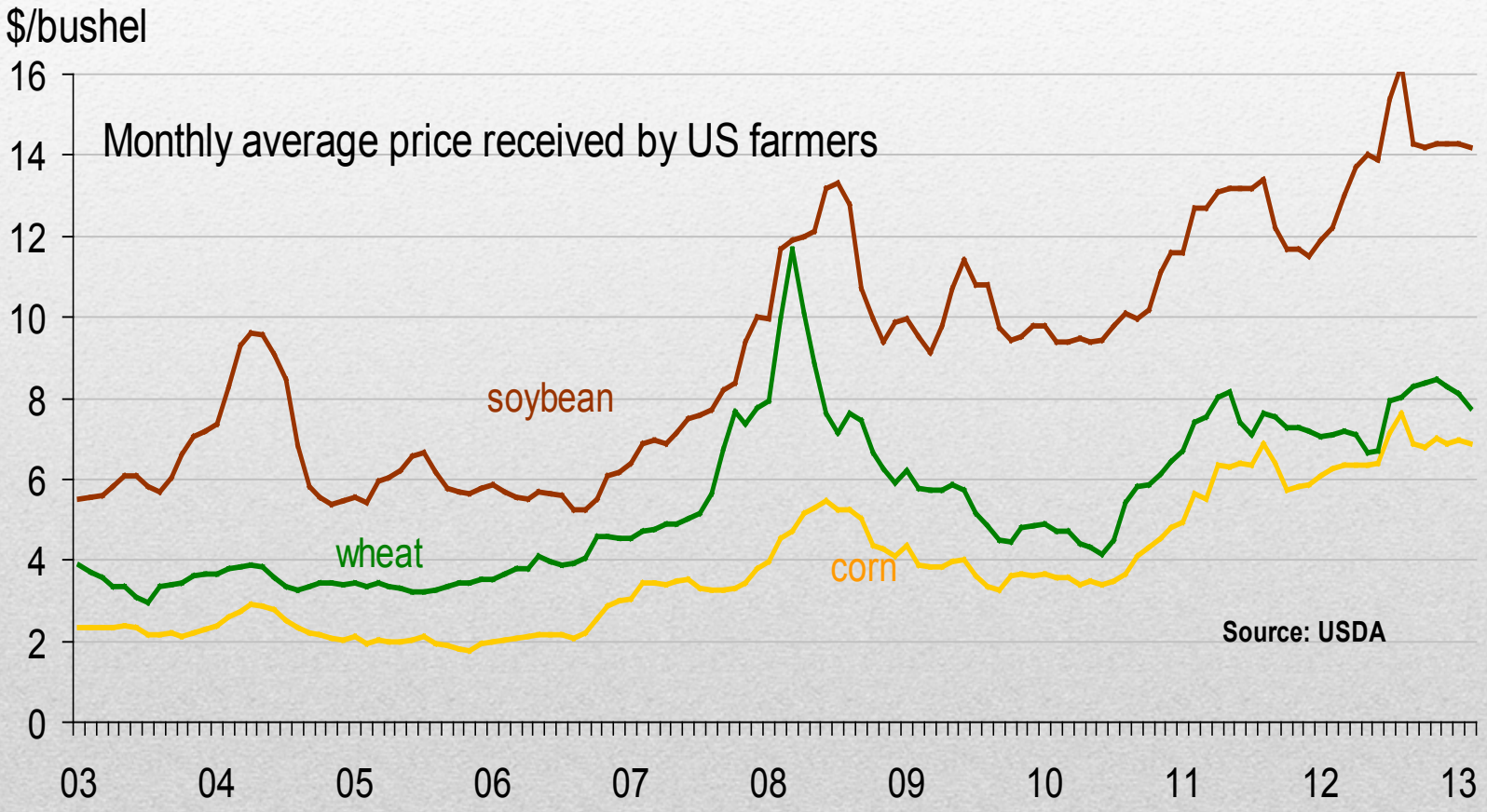
Source: IFA

FERTILIZER USE BY CROP

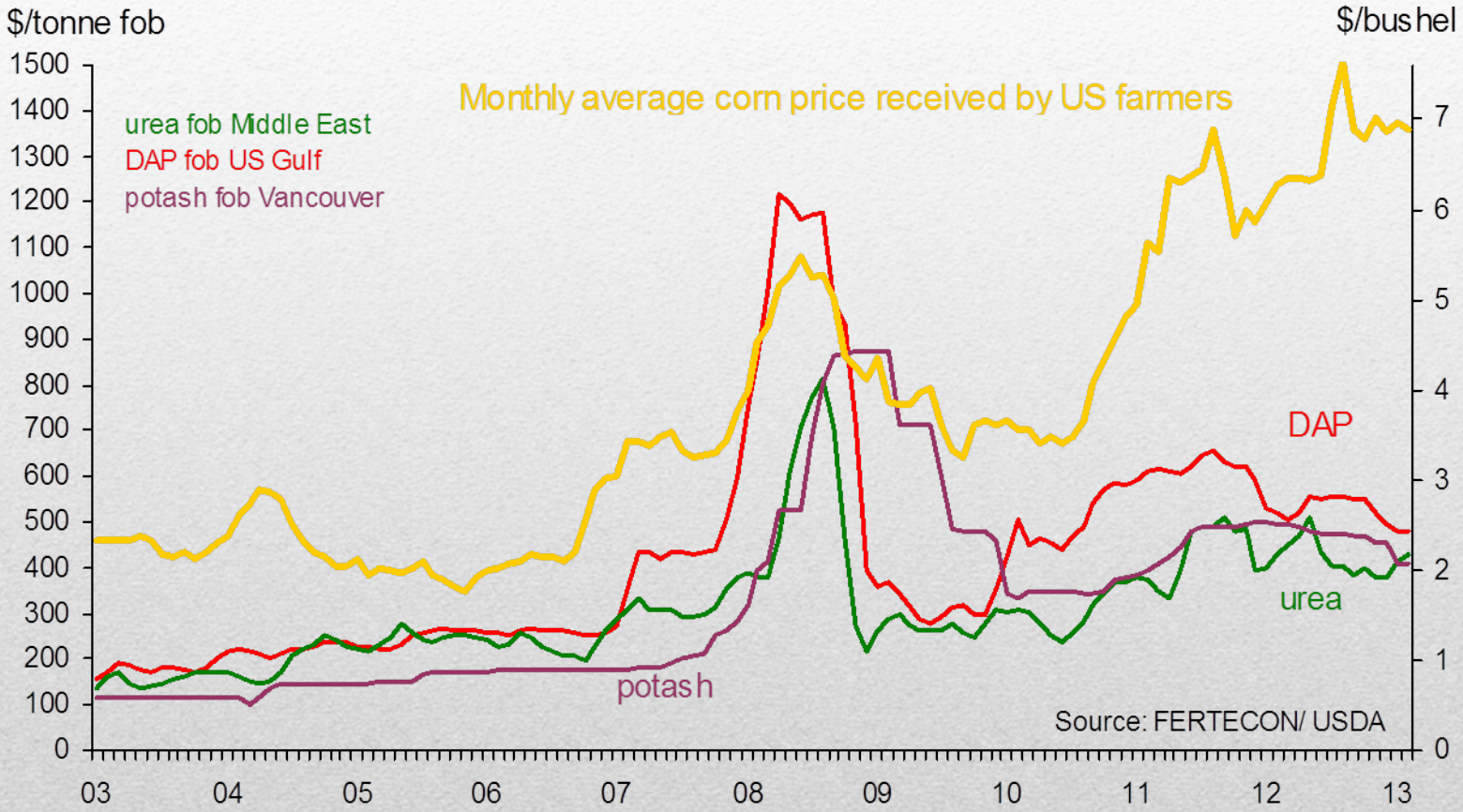


Source:IFA

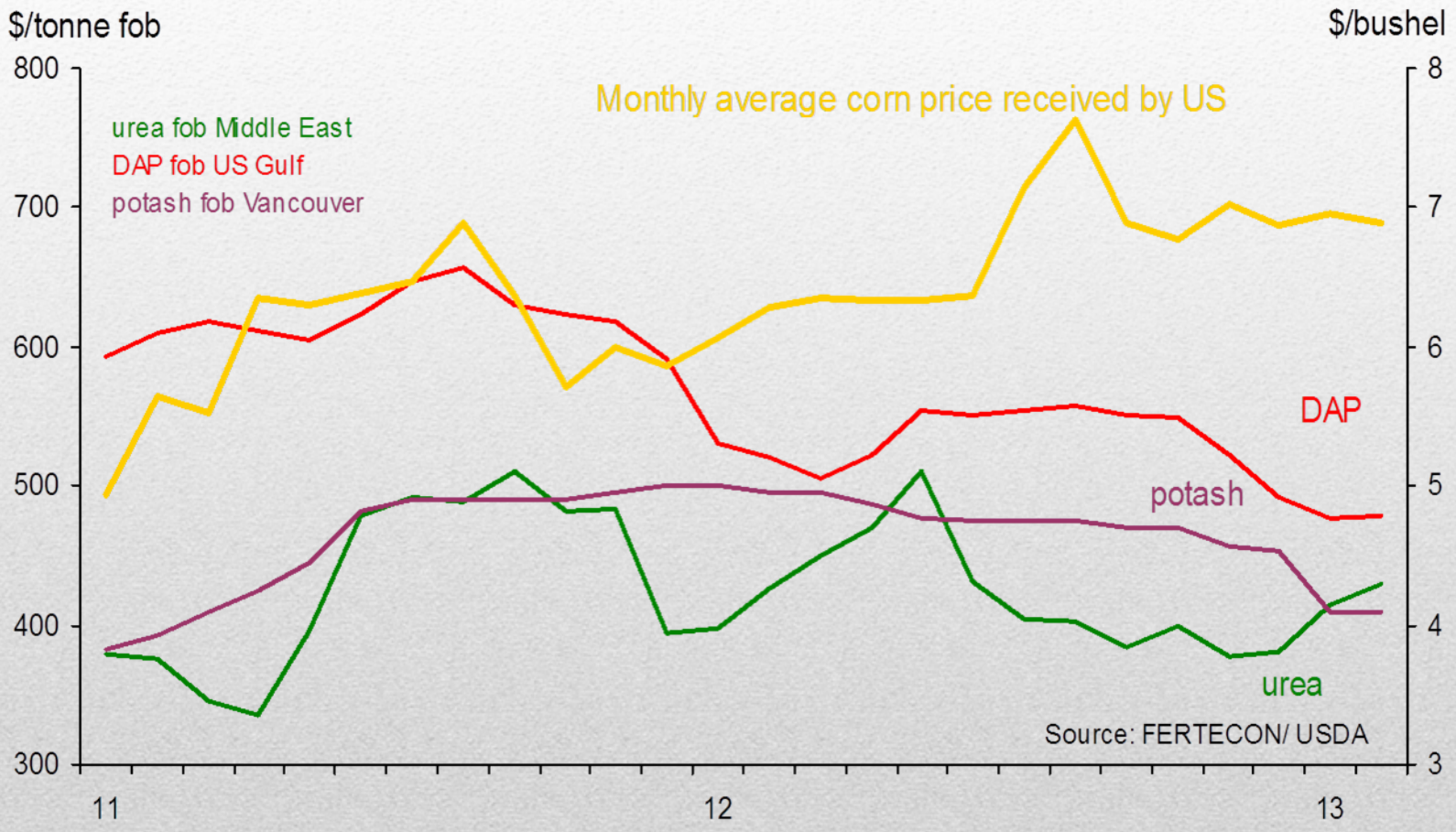
CROP PRICES


$/bushel
16
14
12
10
8
6
4
2
0
Monthly average price received by US farmers
soybean
wheat
corn
Source: USDA
03
04
05
06
07
08
09
10
11
12
13

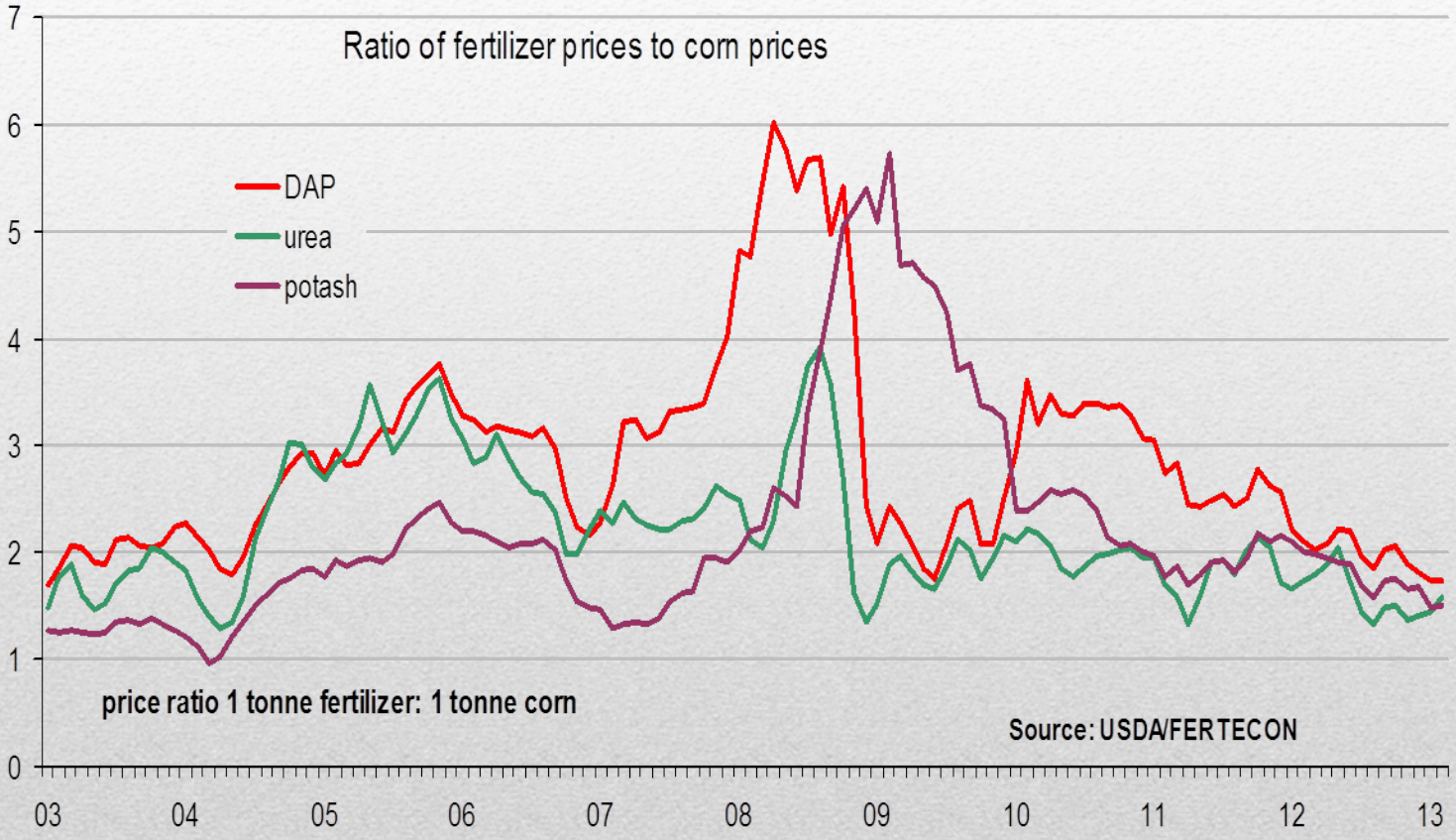
CROP vs FERTILIZER PRICES



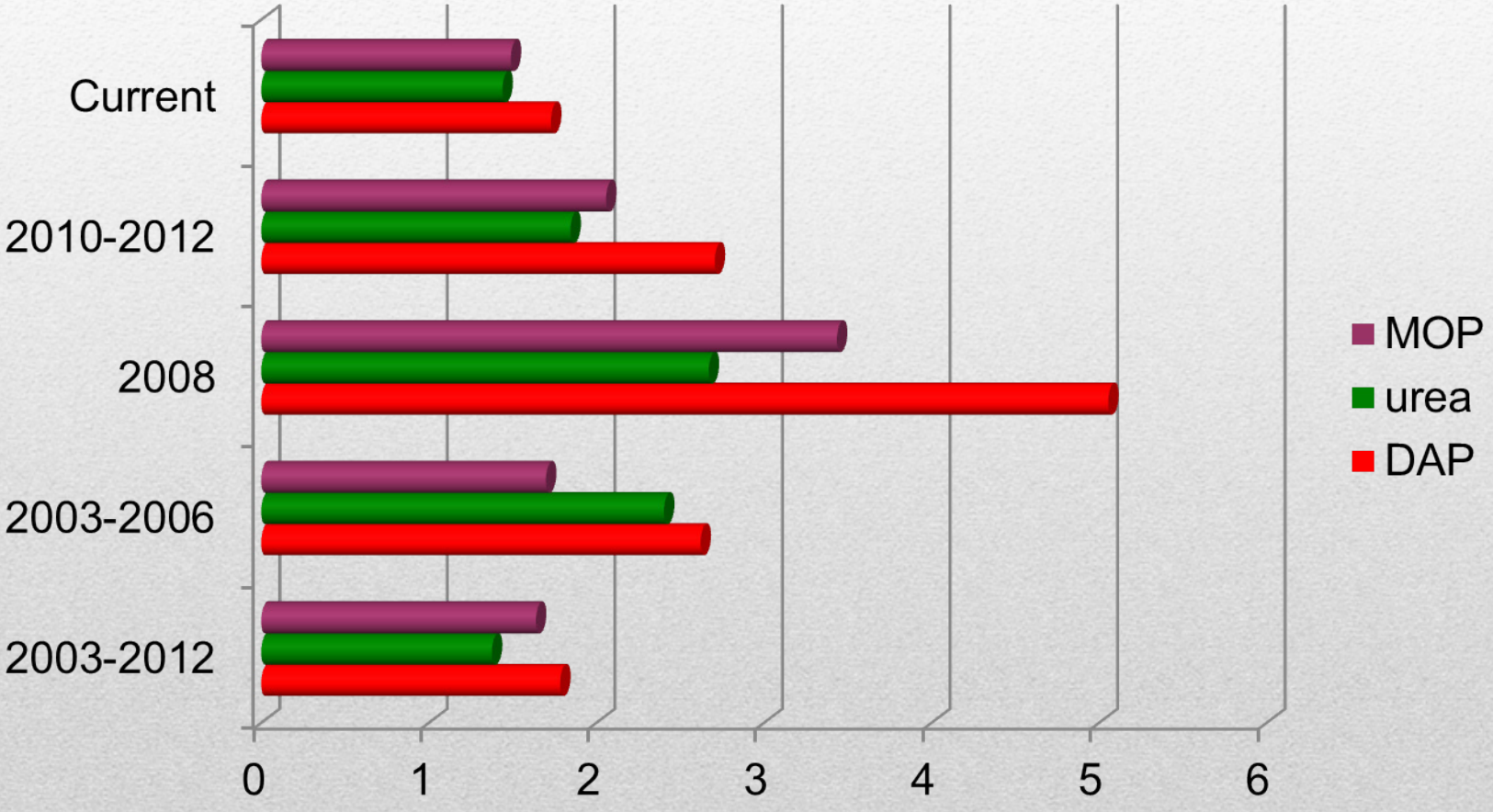
CROP vs FERTILIZER PRICES



FERTILIZER TO CROP PRICE RATIOS



CORN TO FERTILIZER RATIOS



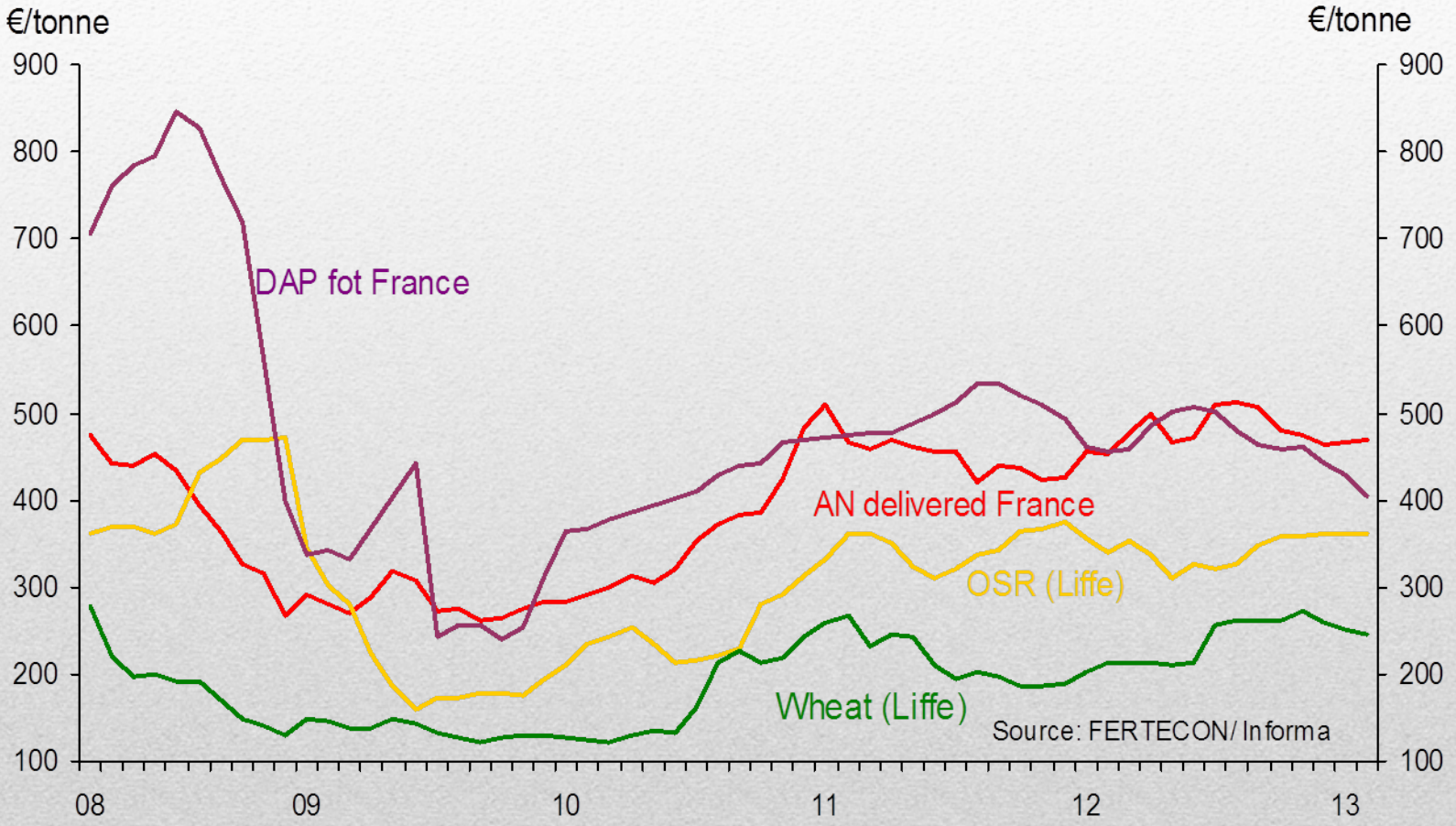
CROP : FERTILIZER CORRELATIONS

	UREA	DAP	MOP
2003-2012	0.75	0.71	0.67
2006-2010	0.75	0.71	0.89
2011-2012	0.17	-0.23	0.46

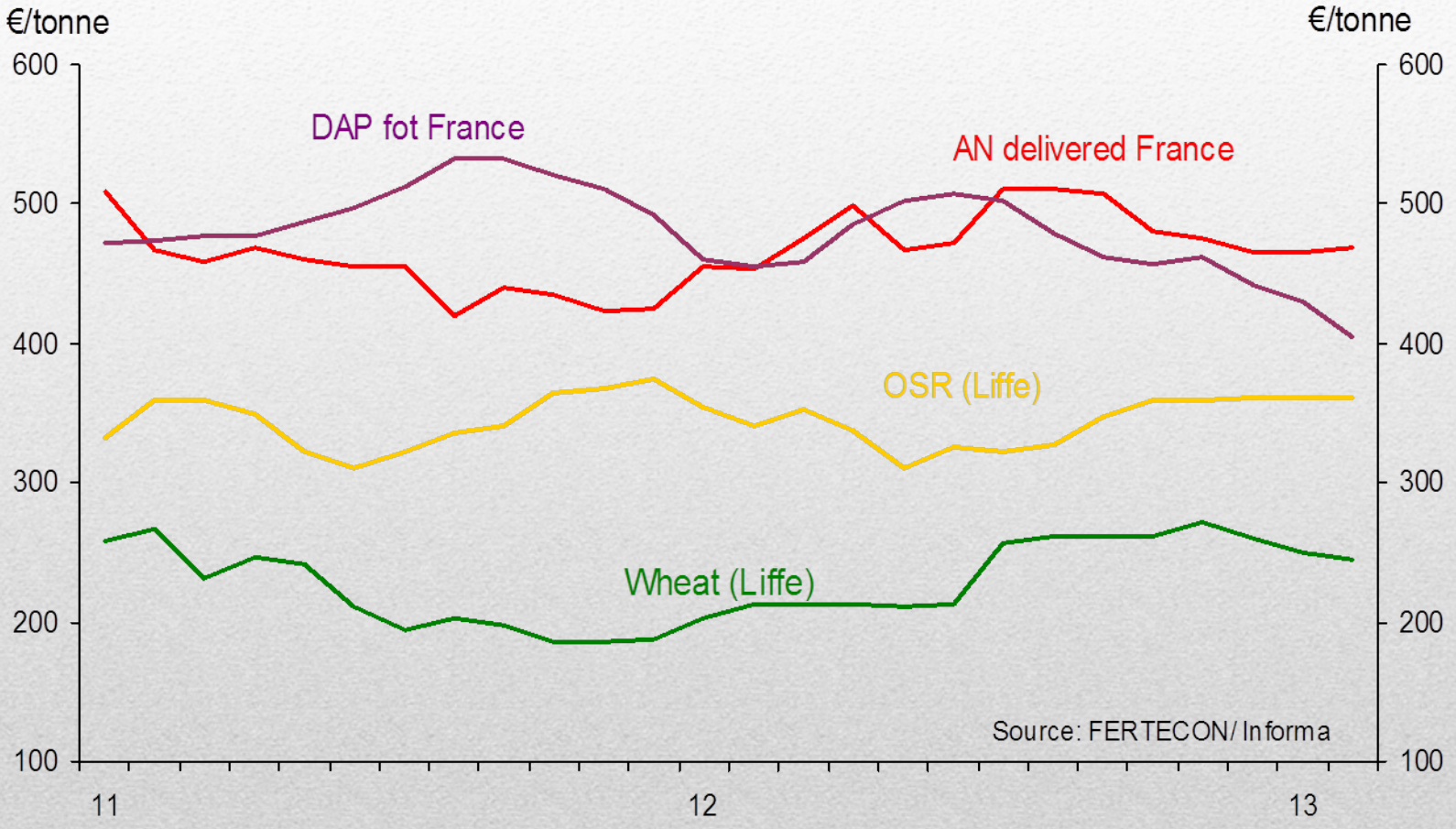
CORRELATION BREAKDOWN

- Fertilizer price are driven by supply as well as demand
- Time lags
- Levels were already high enough to stimulate good fertilizer demand at the start of 2011 – you don't necessarily put more fertilizer on $7 corn than $5 corn
- Influence of non-commercial and semi-commercial markets – especially India

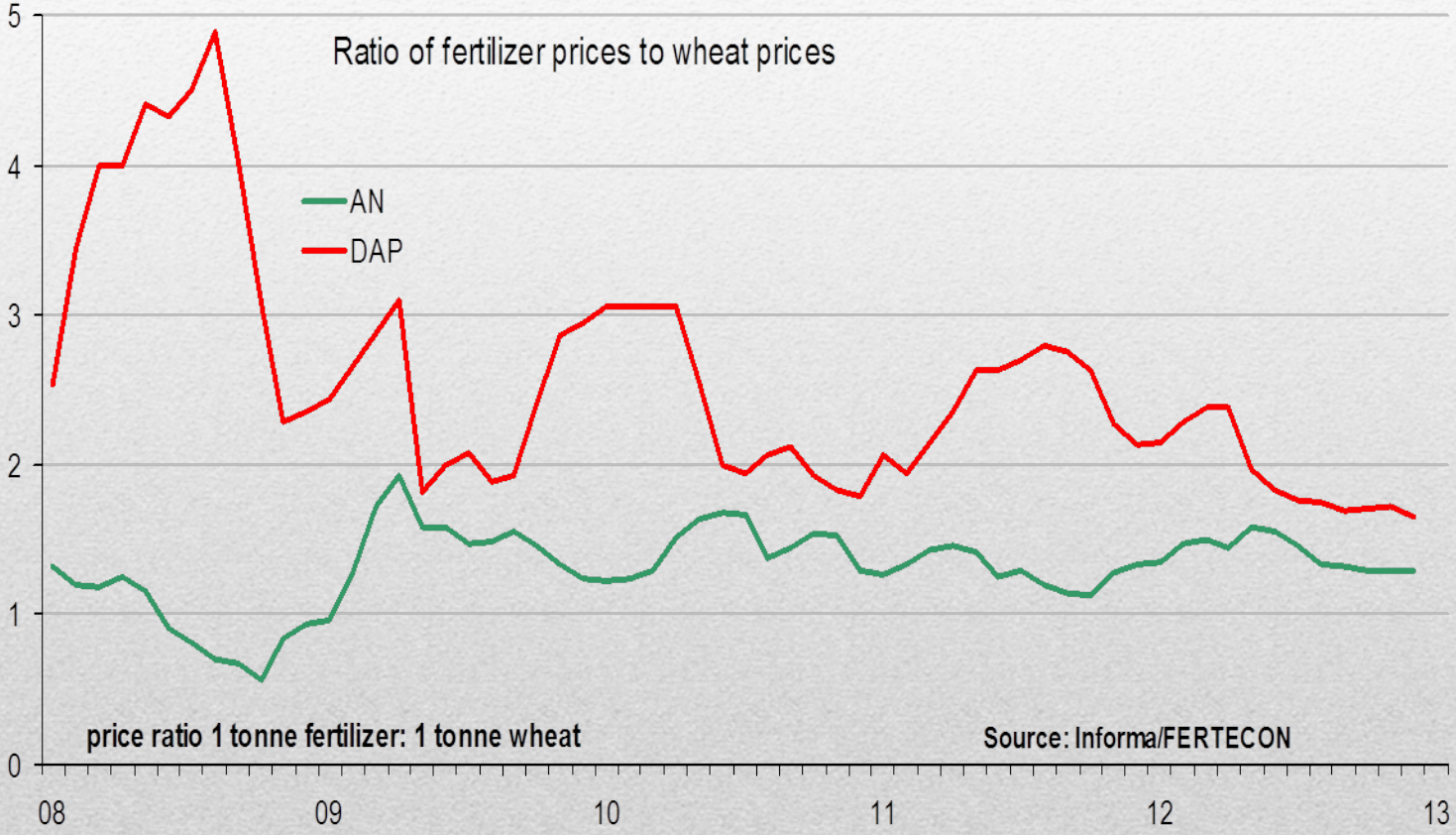
CROP vs FERTILIZER PRICES - EUROPE



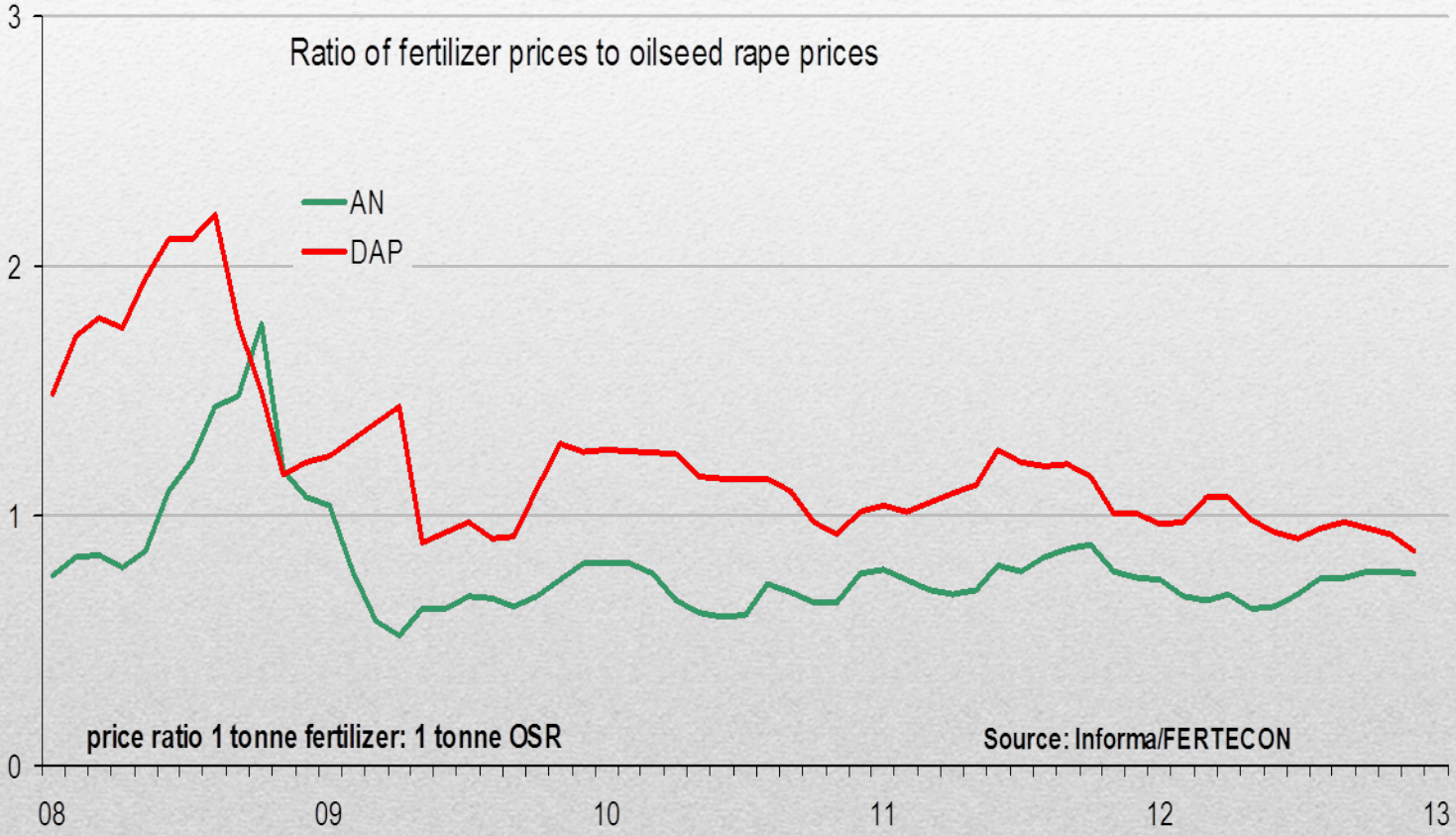
CROP vs FERTILIZER PRICES - EUROPE



FERTILIZER TO CROP PRICE RATIOS- EUROPE



FERTILIZER TO CROP PRICE RATIOS- EUROPE



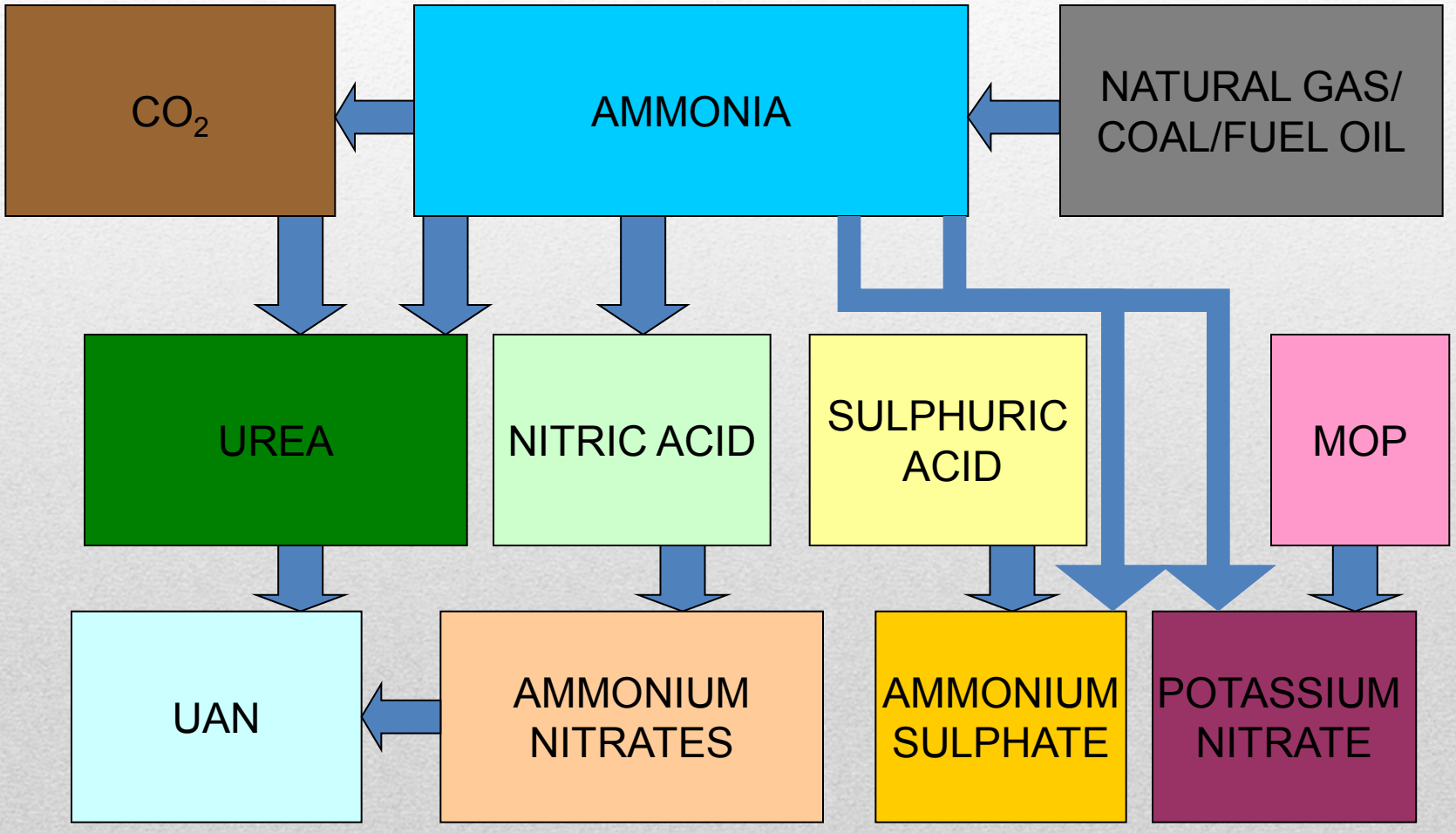
DO FERTILIZER PRICES DRIVE CROP PRICES?
OR DO CROP PRICES DRIVE FERTILIZER PRICES?

DO FERTILIZER PRICES DRIVE CROP PRICES? OR DO CROP PRICES DRIVE FERTILIZER PRICES?

NITROGEN

Sometimes, I feel the past and the future pressing so hard on either side that there's no room for the present at all

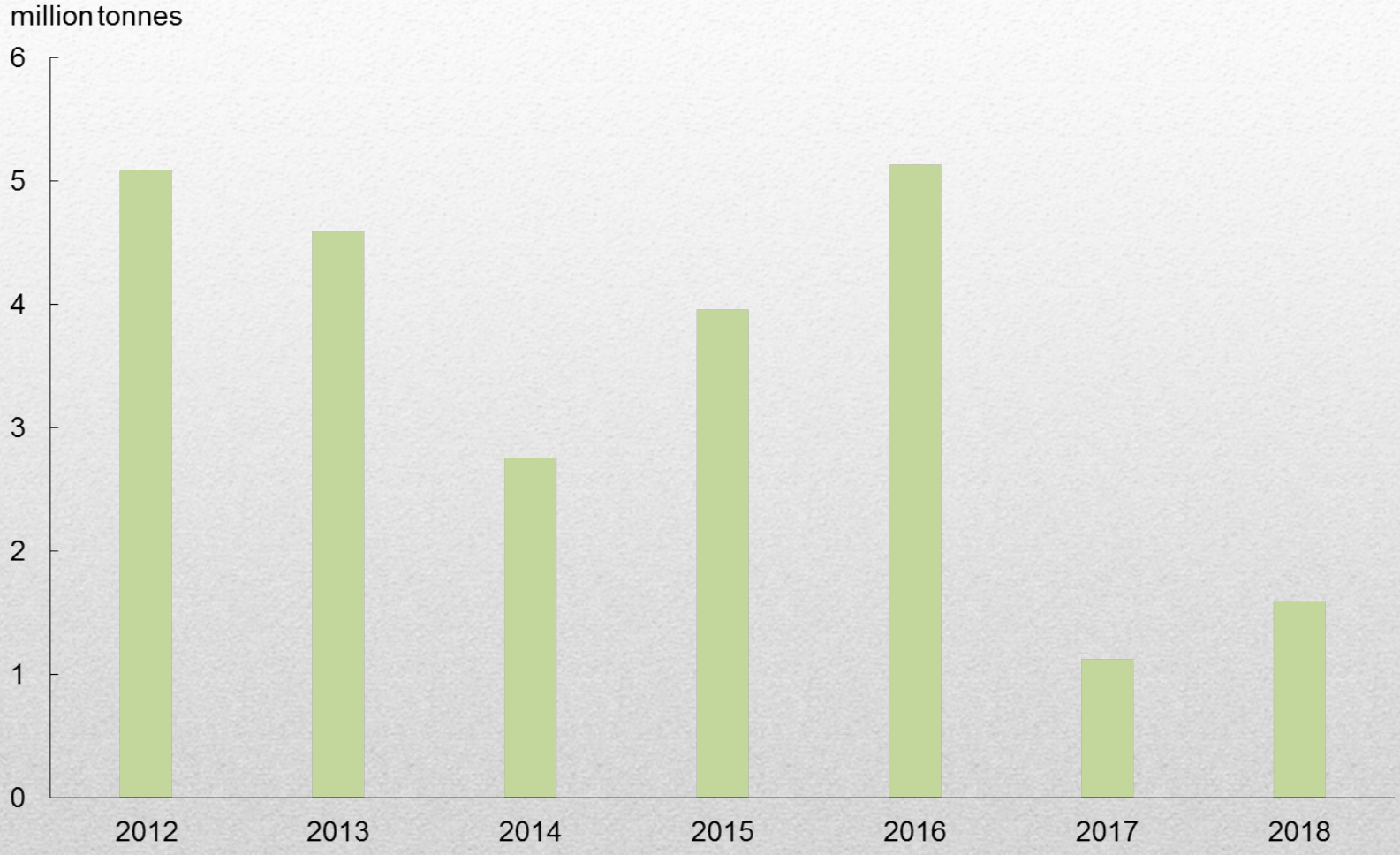
NITROGEN PRODUCTION



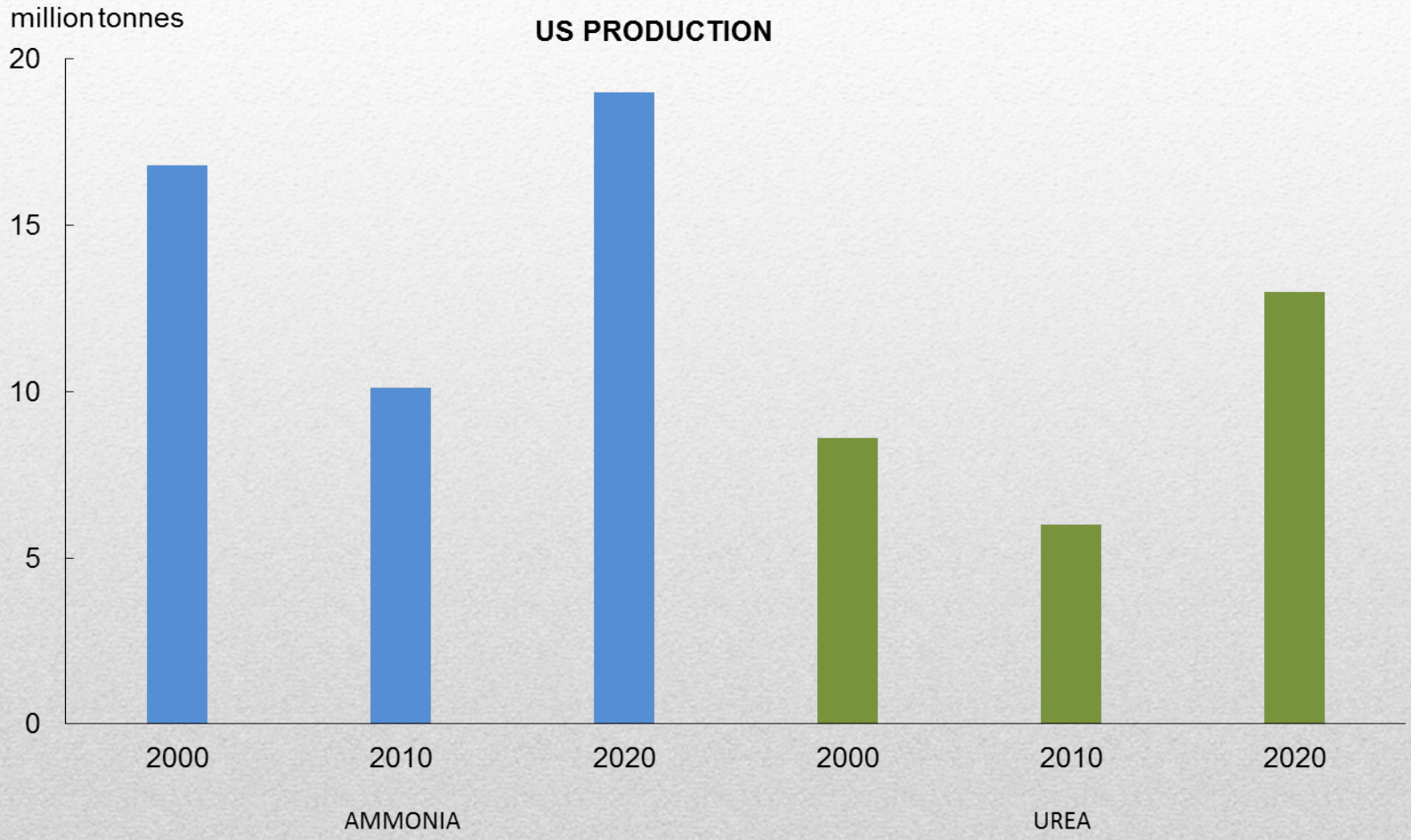
NEW UREA SUPPLY

- New low-cost capacity in Algeria (three 1.2 million t/y plants)
- Additional capacity in Africa (Nigeria and Gabon)
- New supply from Middle East (Qatar, Abu Dhabi)
- Lower gas prices in North America encouraging new supply, thus reducing import demand

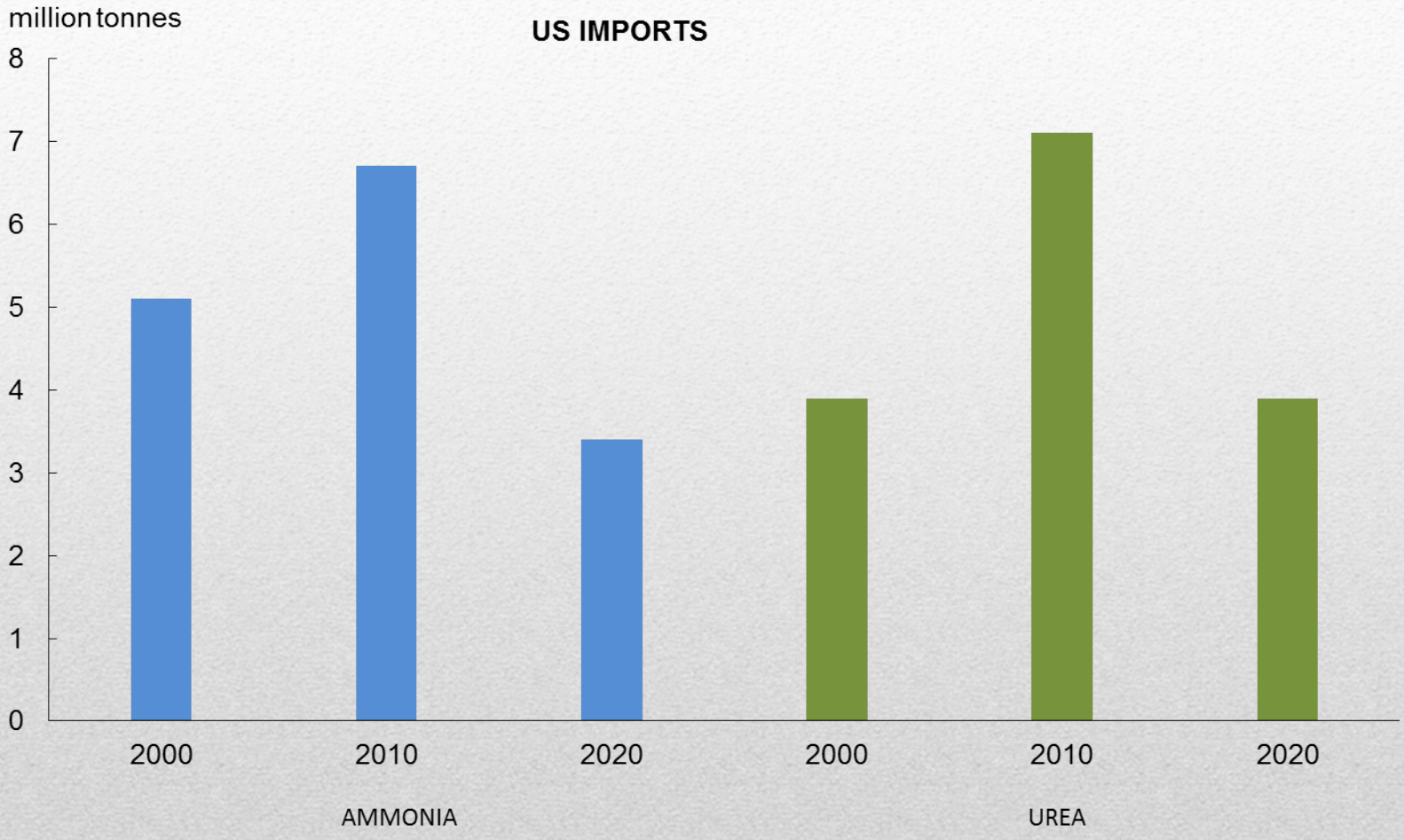
NEW LOW-COST UREA EXPORT CAPACITY



US NITROGEN PRODUCTION

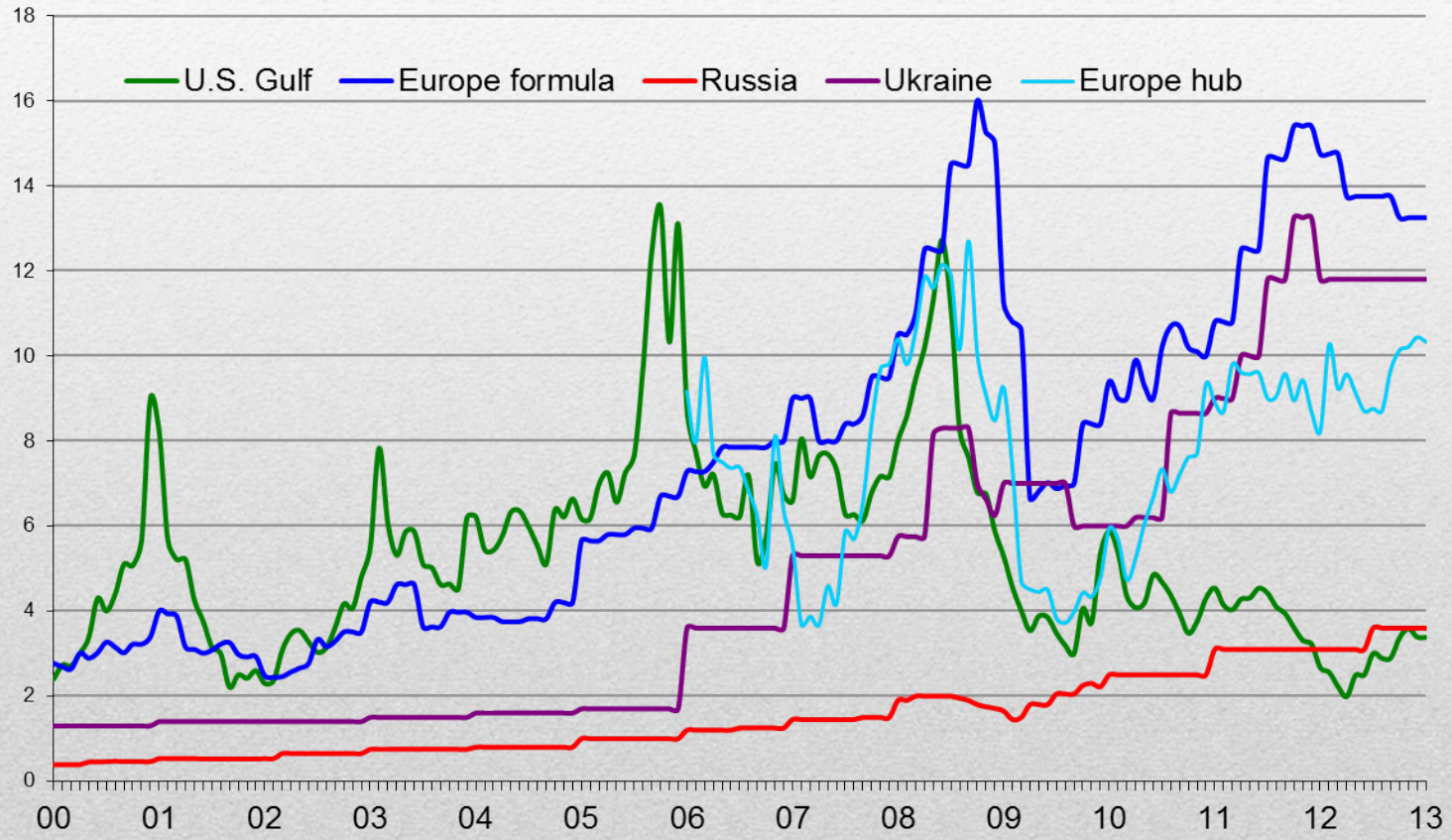


US NITROGEN IMPORTS



GAS PRICES

$mmBtu in plant

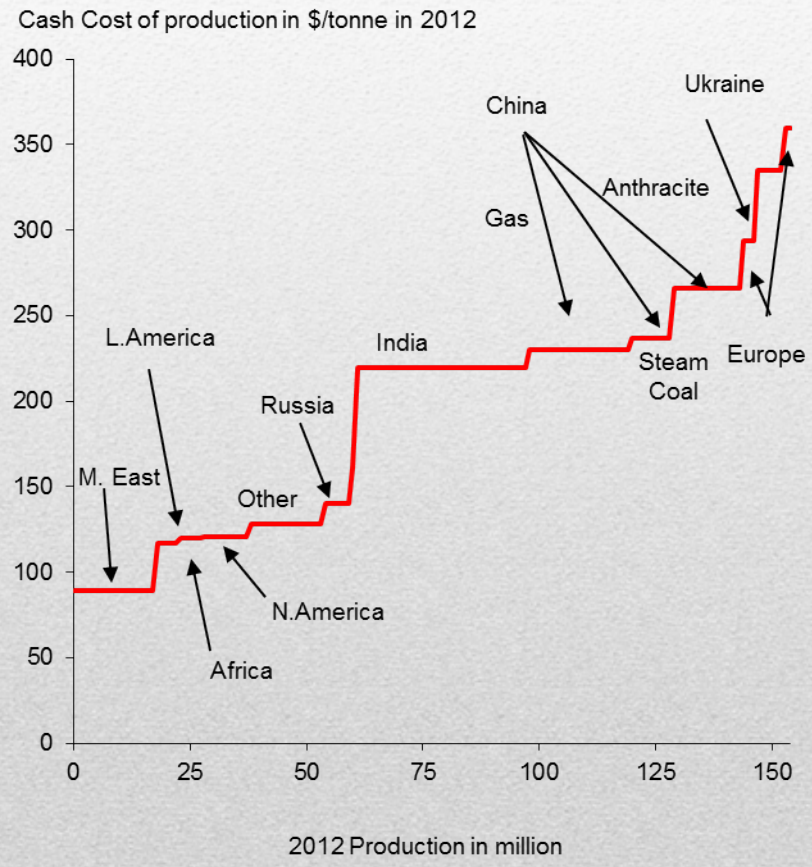


NITROGEN PRODUCTON COSTS

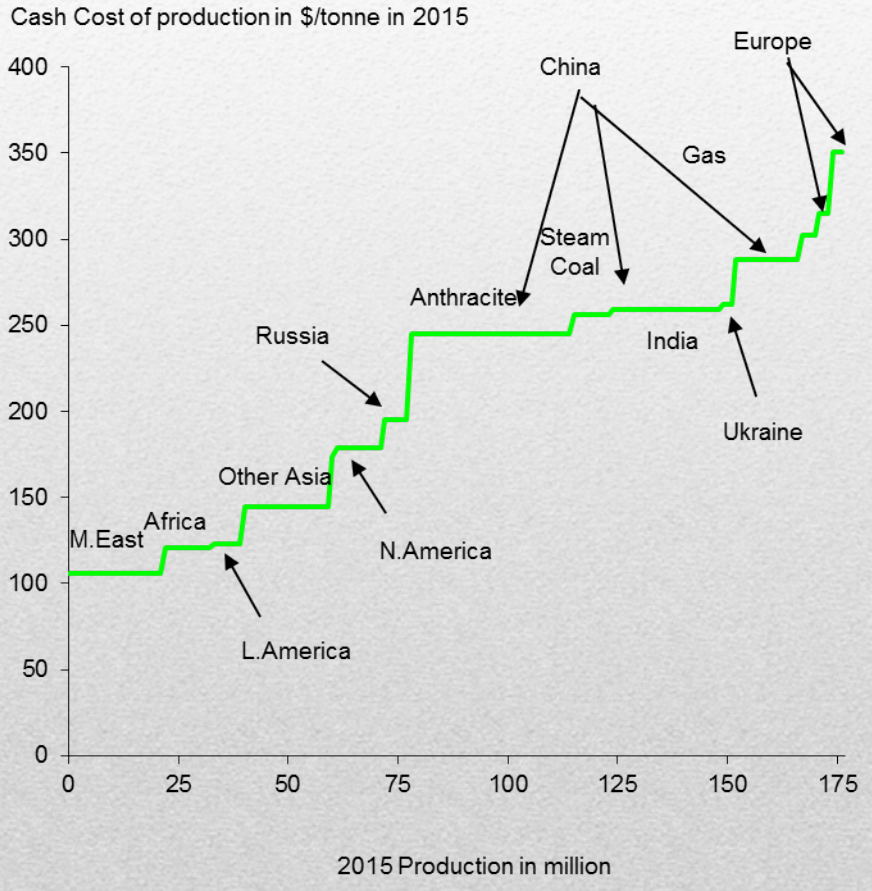
- The EU 15 has the most efficient nitrogen fertilizer plants in the world – more efficient than the US and even new plants in North Africa and the Middle East
- However, it has some of the highest production costs in the World
- This is due to high gas costs in Europe
- In contrast, the fall in US gas prices has made US prodcution extremely competitive

UREA COST CURVES

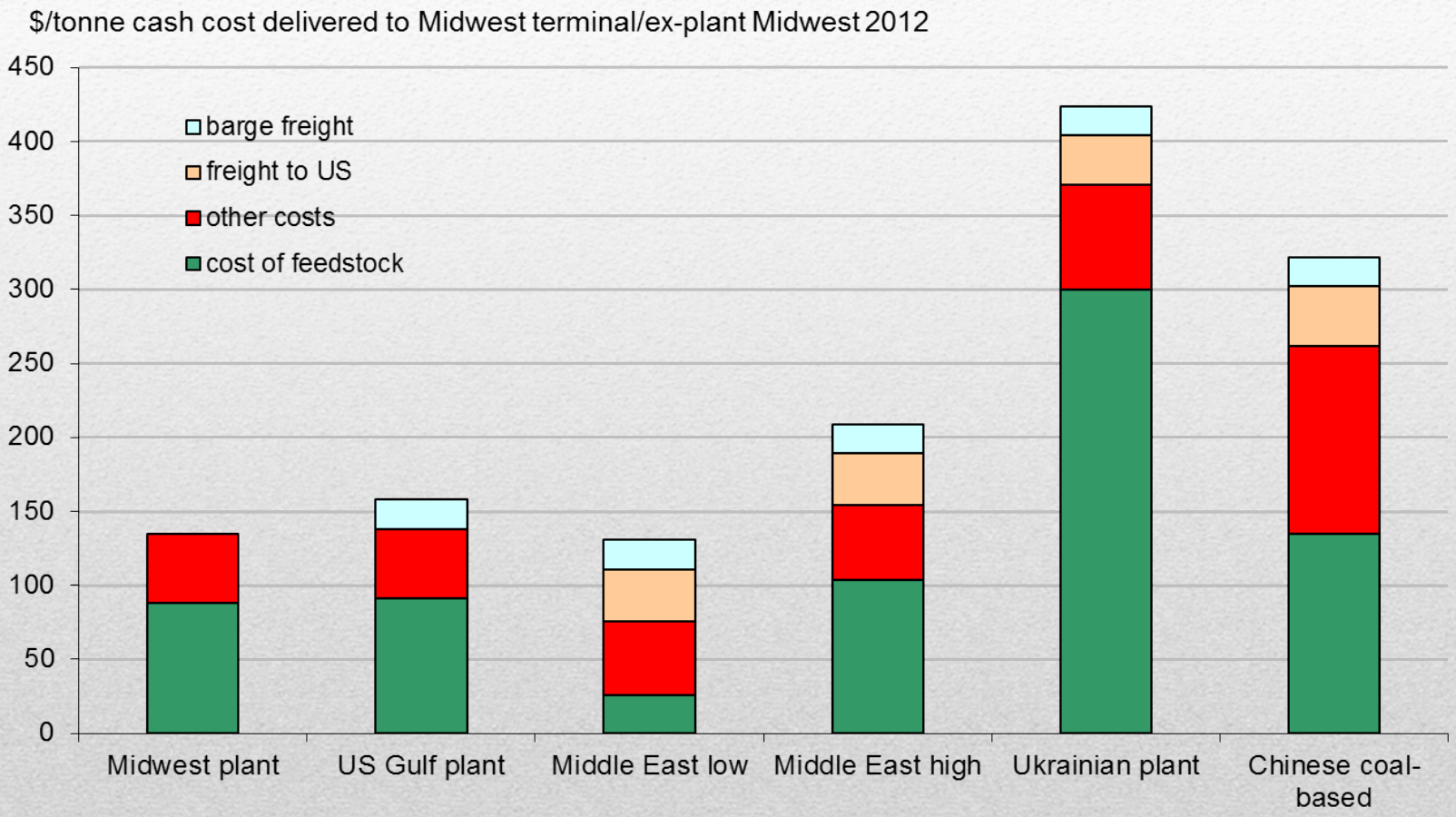
UREA COST CURVE - 2012



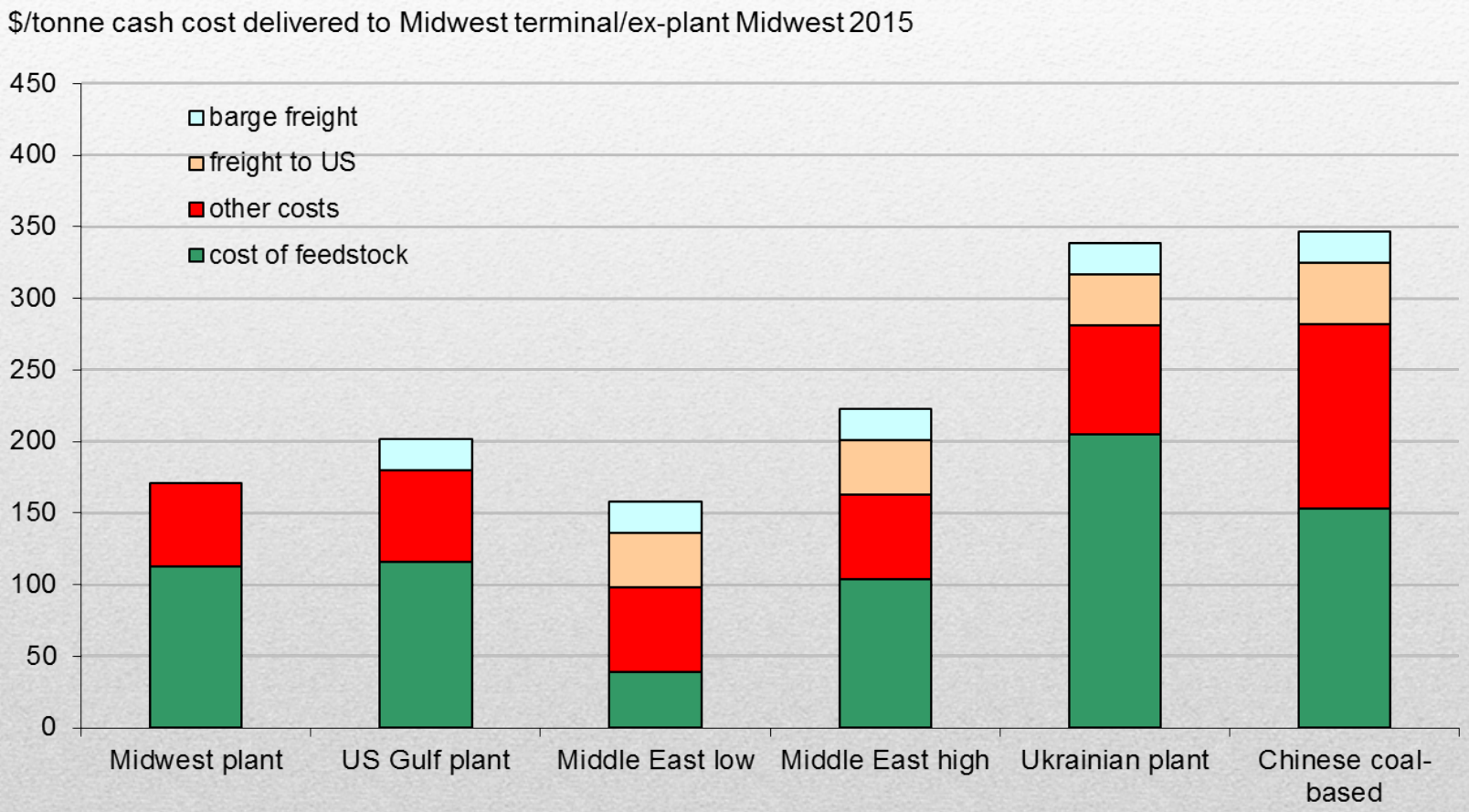
UREA COST CURVE - 2015



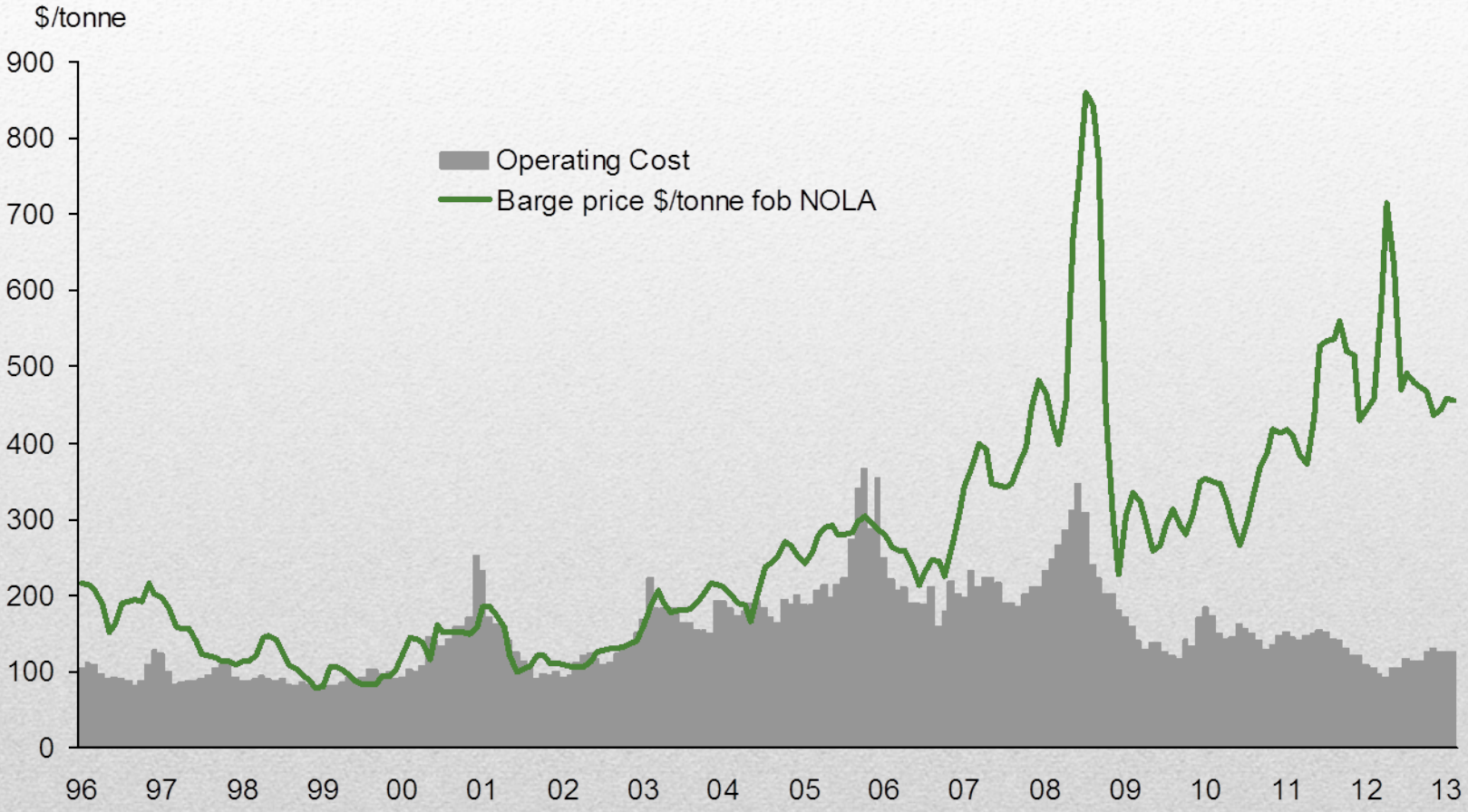
US UREA COST OF SUPPLY - 2013



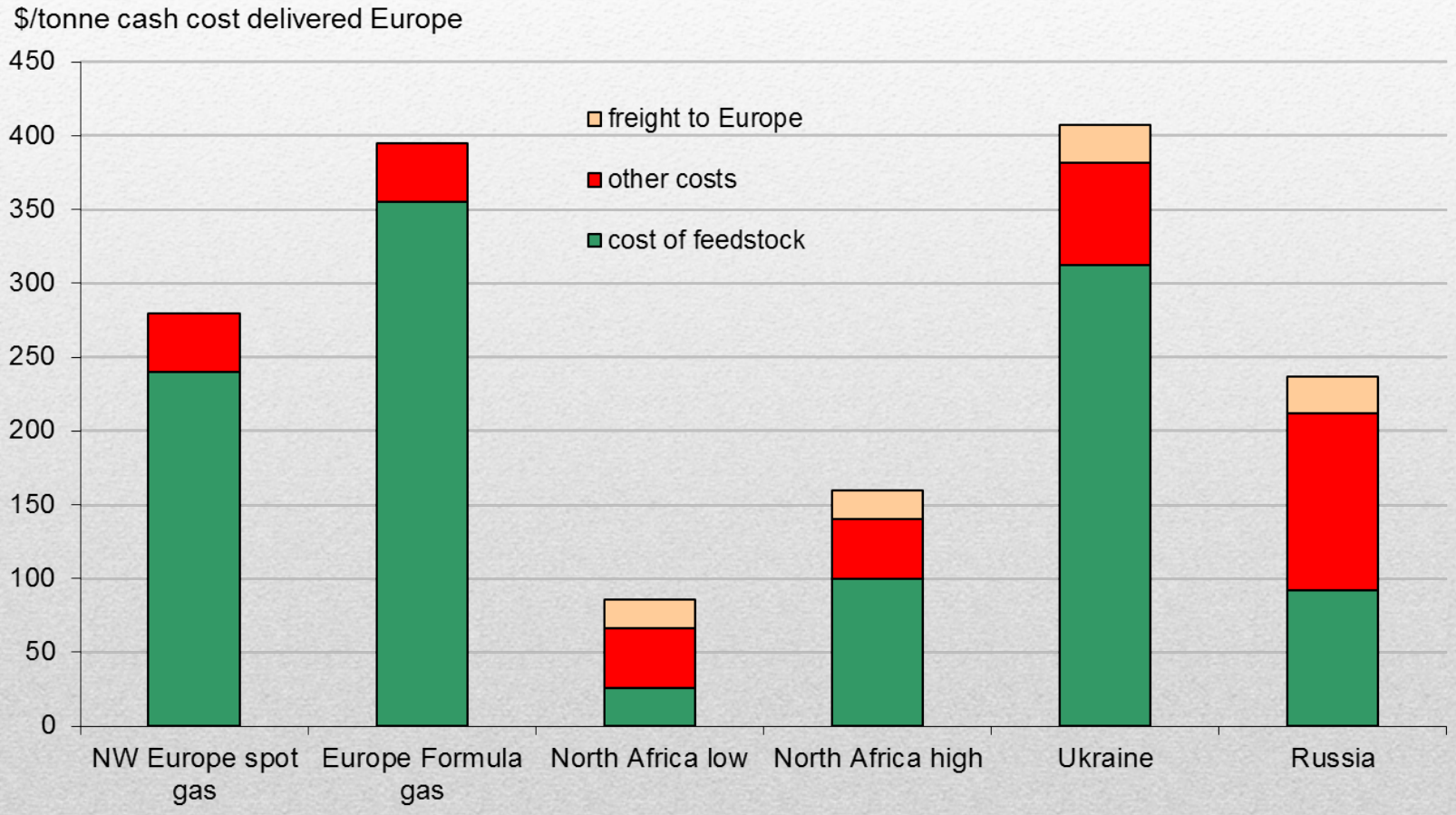
US UREA COST OF SUPPLY - 2015



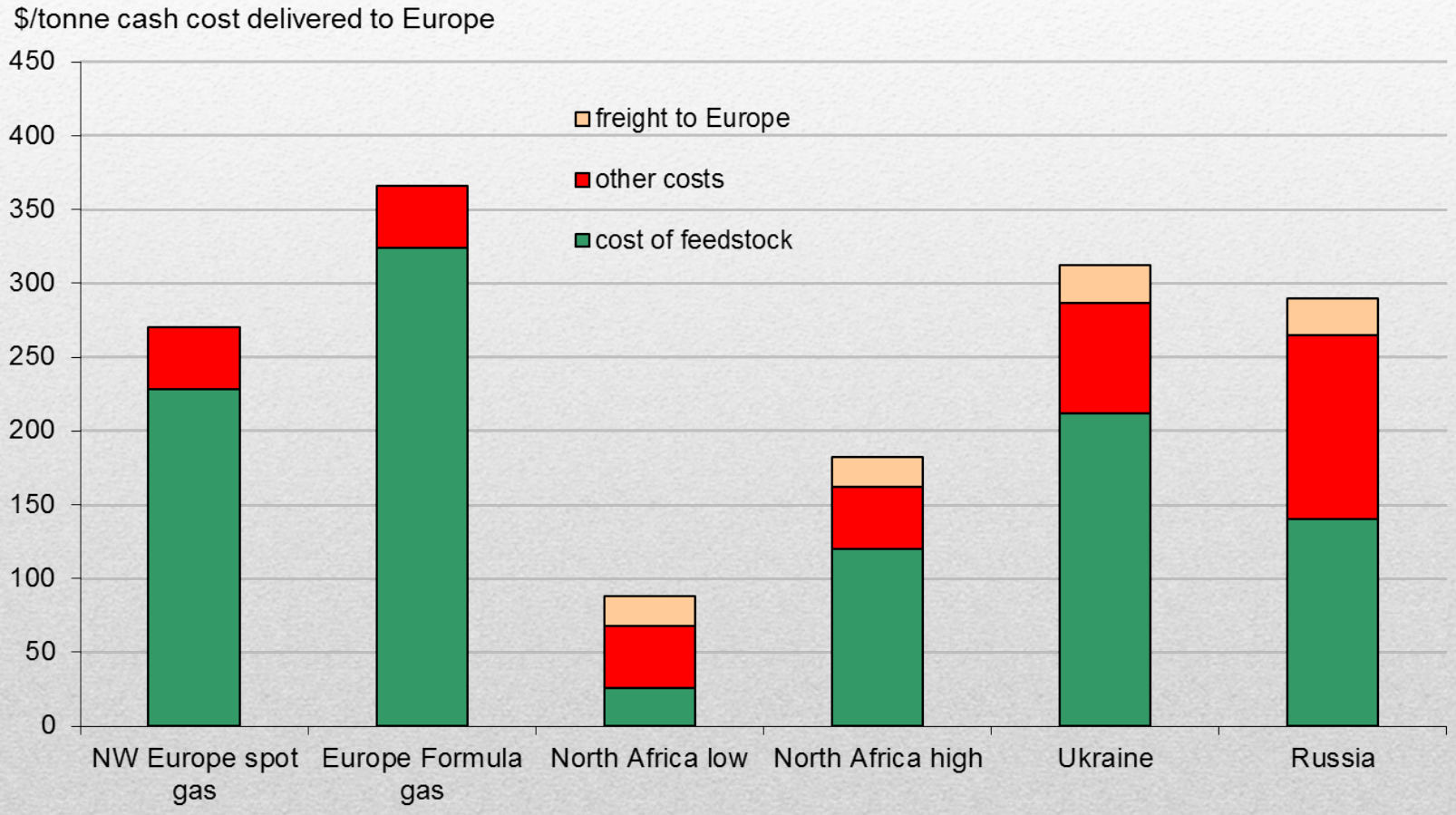
US UREA CASH MARGINS



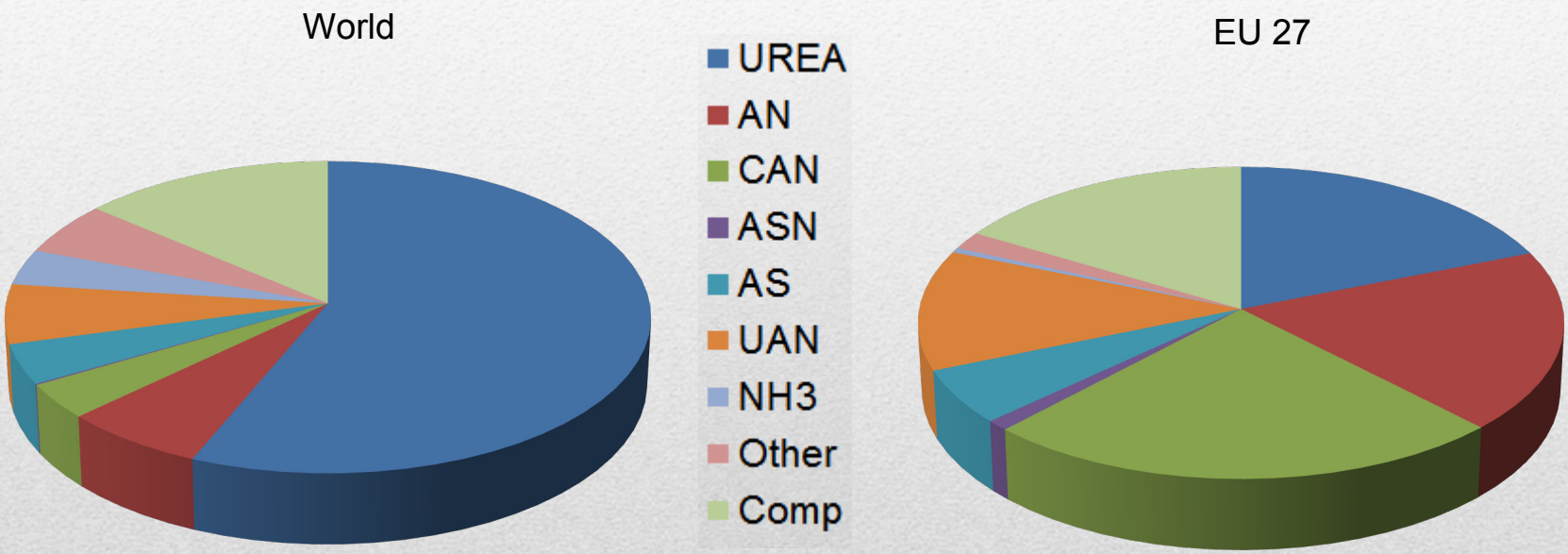
EUROPE: UREA COST OF SUPPLY - 2013



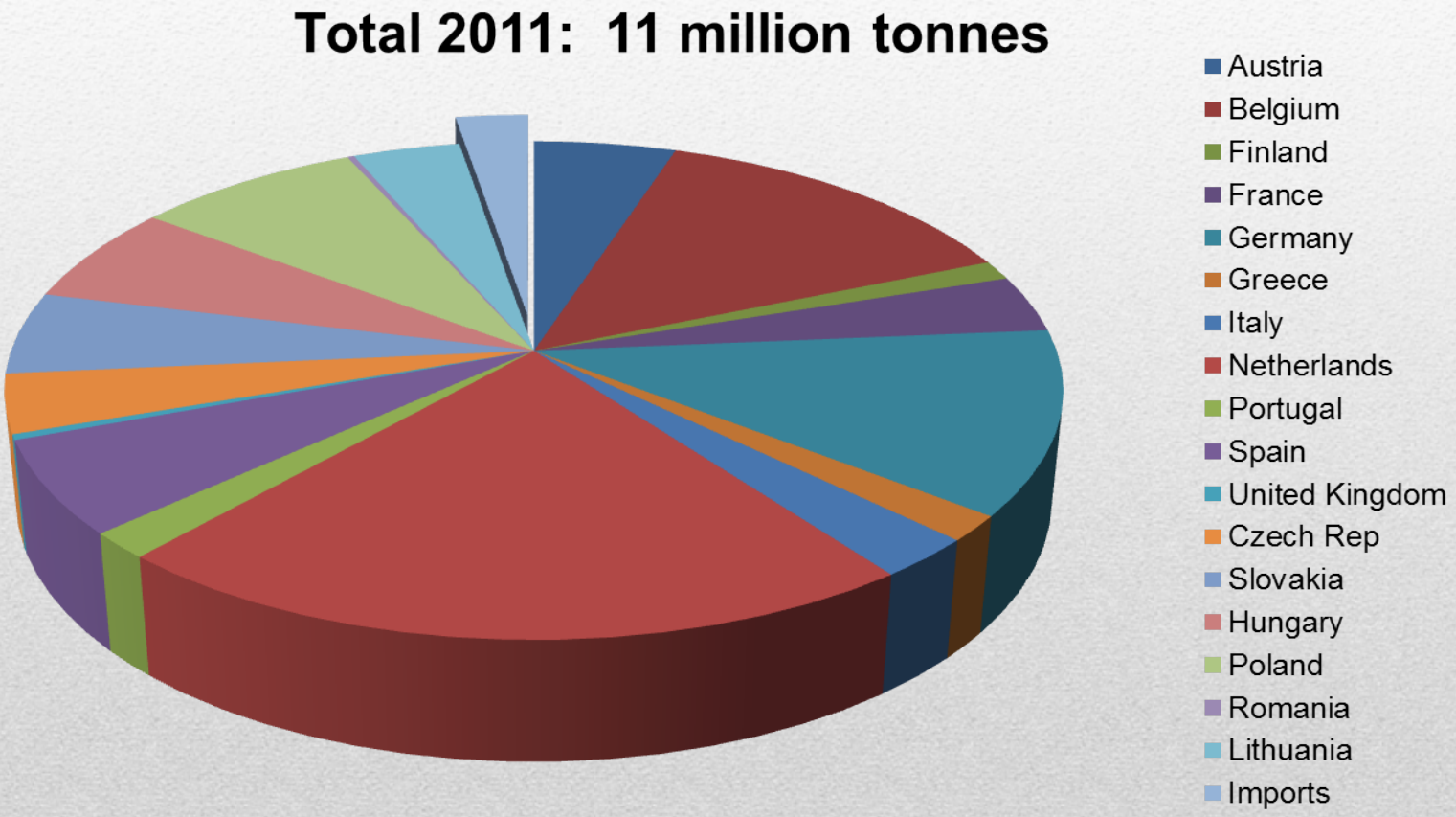
EUROPE: UREA COST OF SUPPLY - 2015



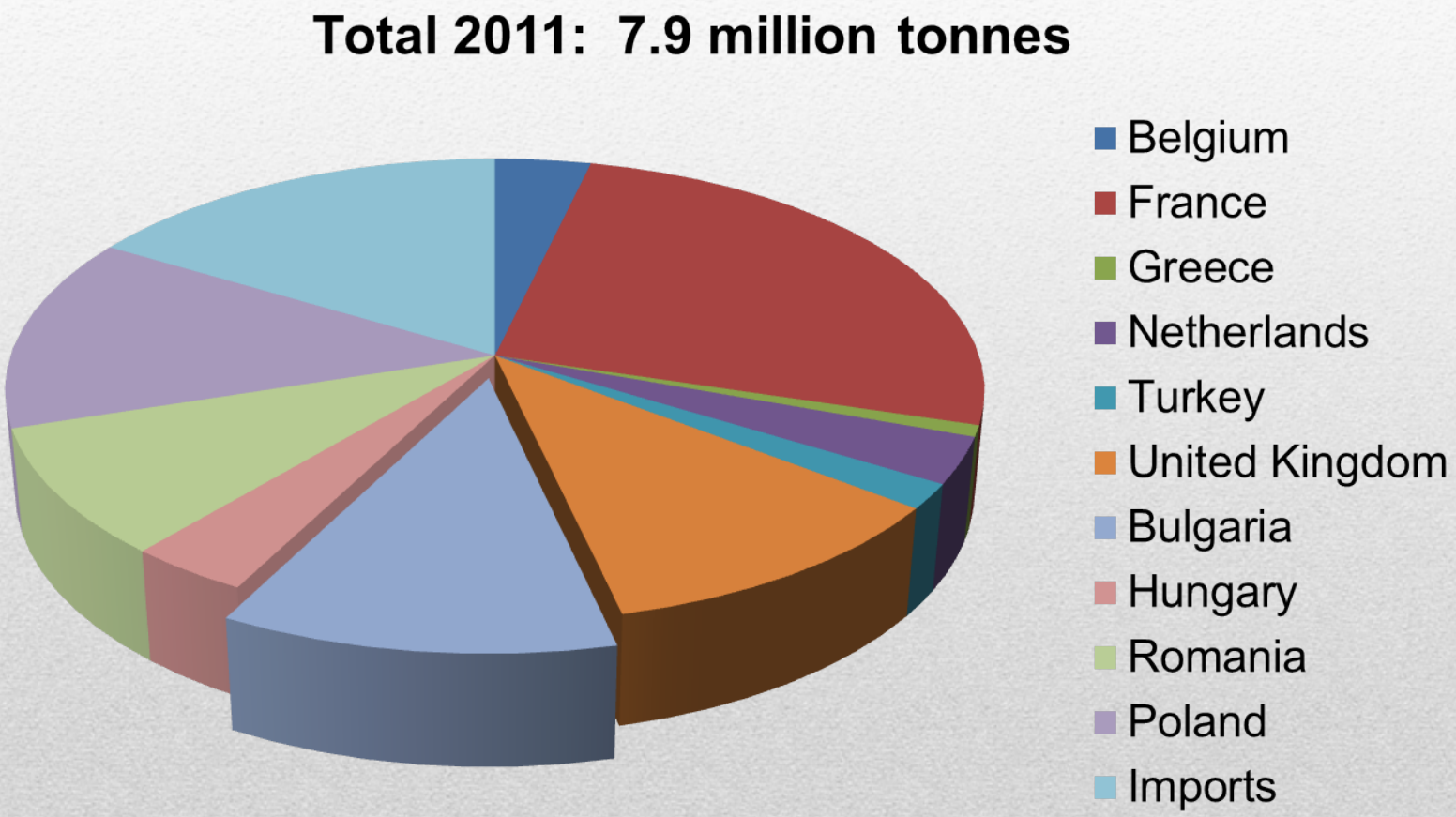
EU/RoW FERTILIZER NITROGEN USE



EU CAN SUPPLY



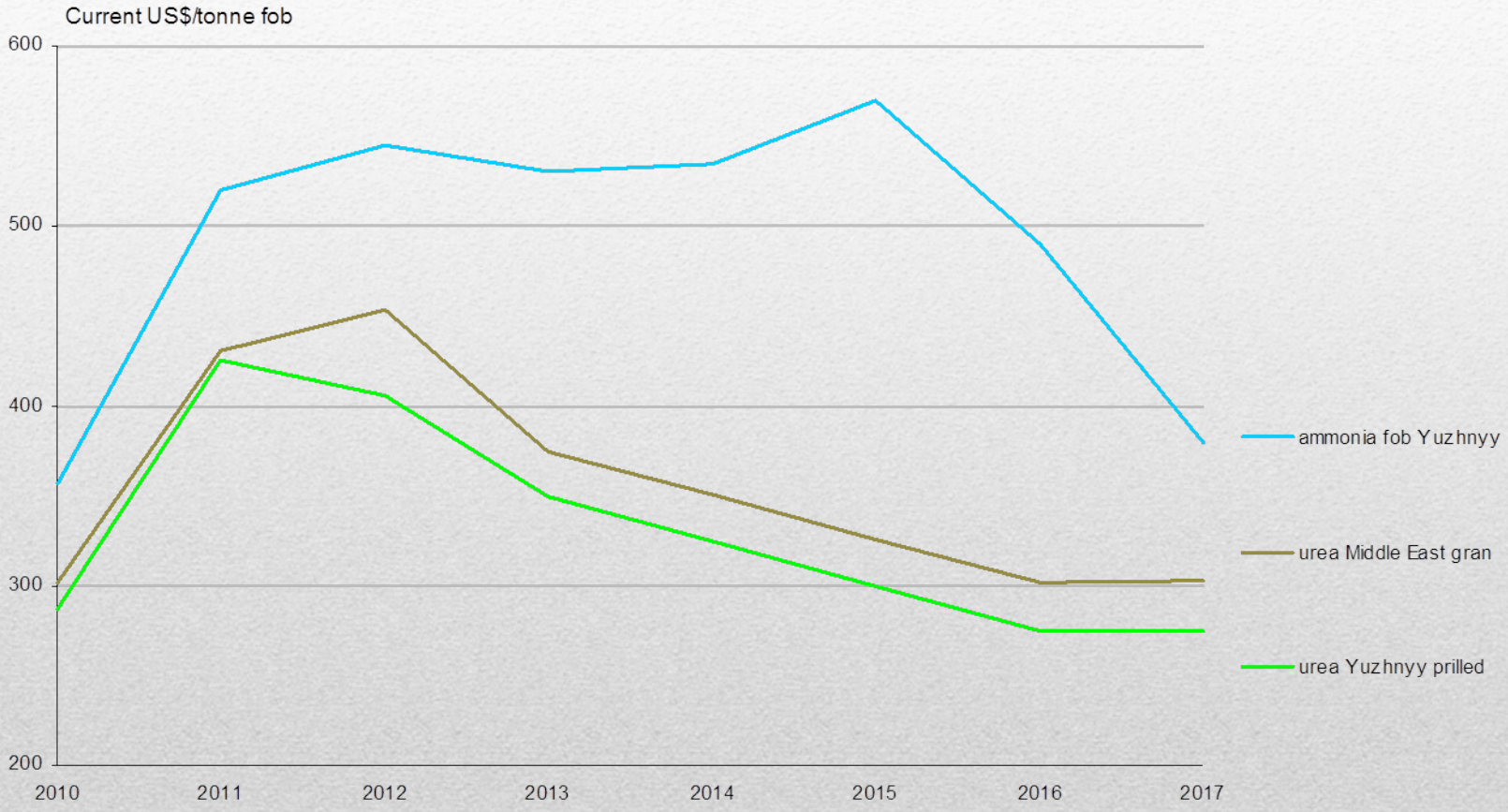
EU AMMONIUM NITRATE SUPPLY



EMISSION TRADING SCHEME

- EU ETS now applies to CO_2 emissions from ammonia production, N_2O emissions from nitric acid production and CO_2 emissions relating to energy use
- Applies even when CO_2 is captured – for urea production or industrial uses
- Benchmarking means that currently the most efficient ammonia plants incur modest costs - although as emission benchmarks are reduced cost potentially will increase
- European plants are the most efficient in the world.
- N_2O emissions from nitric acid plants being reduced by retrofitting of plants
- However, the collapse of the carbon price to under €5/t CO_2 has made the scheme meaningless and there are calls for it to be scrapped

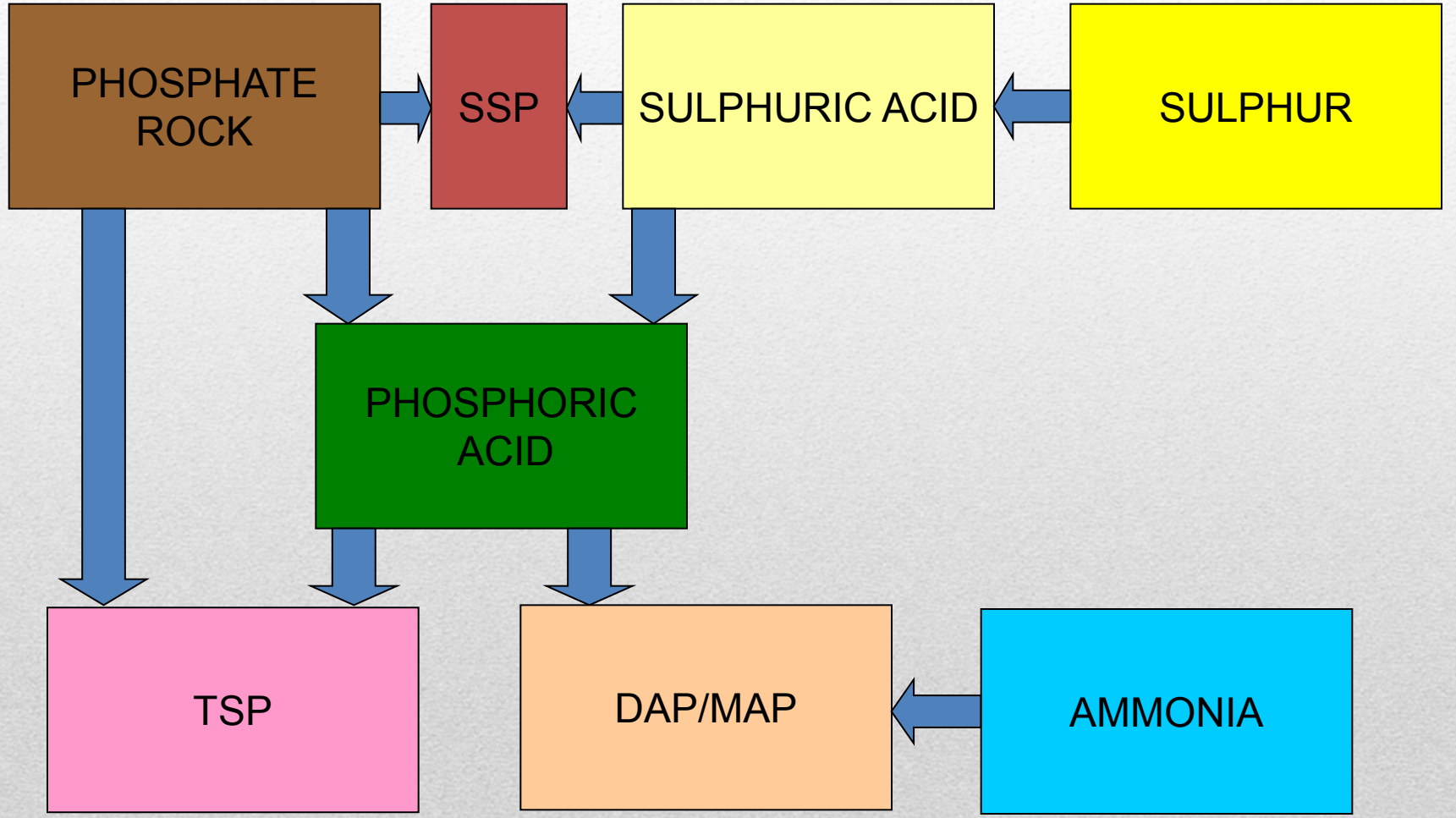
AMMONIA /UREA PRICE OUTLOOK



PHOSPHATES

You will profit by the failure, and will avoid it another time

PHOSPHATE PRODUCTION



PHOSPHATE

- Phosphate prices had been high due to tight supply, but fell in 2012
- As the Ma'aden project in Saudi Arabia, plus expansions in Morocco and elsewhere ramp up, the market has become more balanced
- Prices have picked up recently, but are expected to fall again in second half 2013
- The very high phosphate prices of 2007-2008 have stimulated a massive interest in developing phosphate rock reserves – in Central Asia, Africa, Australia and Latin America

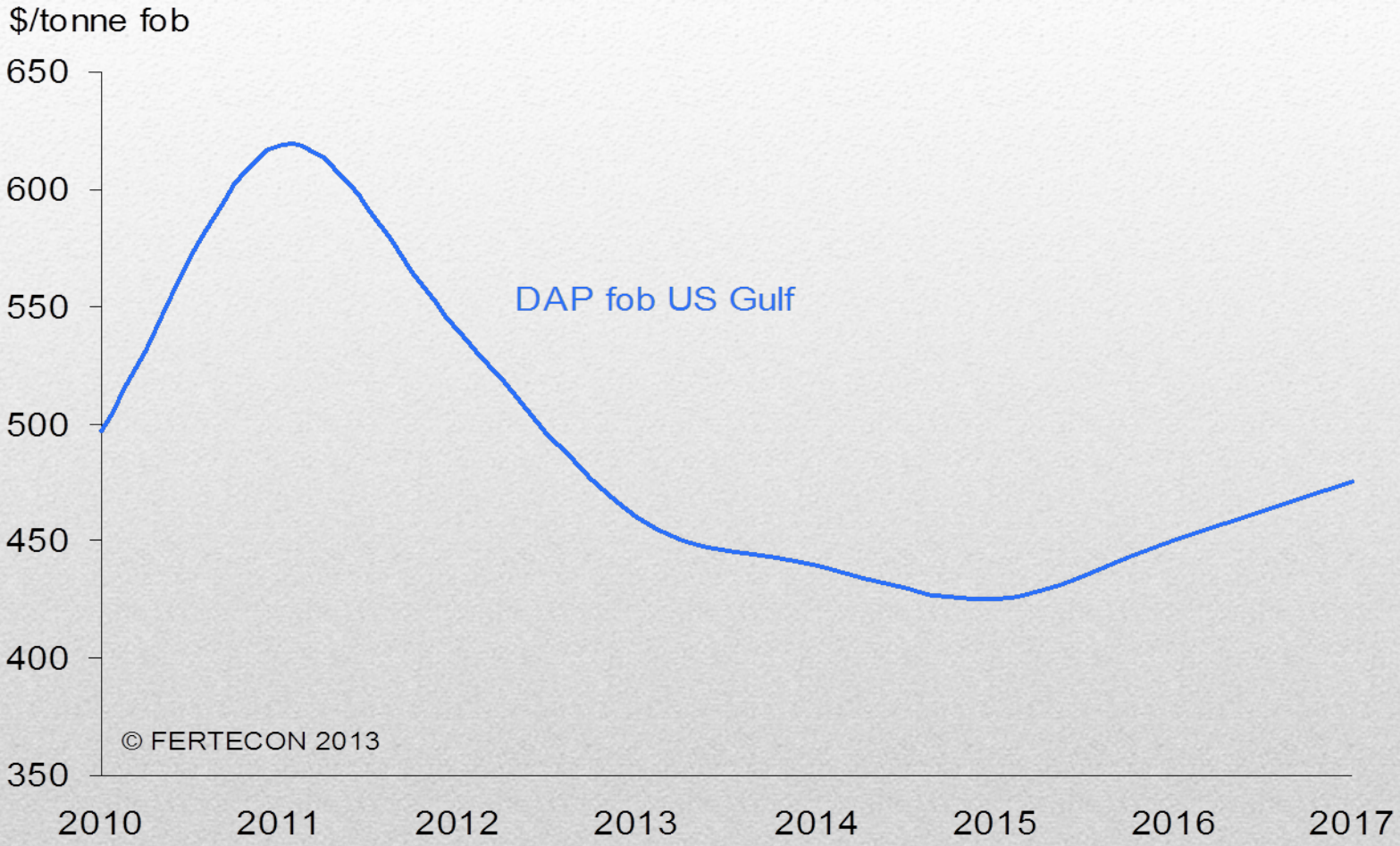
MOROCCO – AMBITIOUS EXPANSION PLANS

- State-owned OCP has ambitious expansion plans for its phosphate operations
- It has been looking for j-v partners, but is willing to go it alone
- It has the following projects for finished phosphate fertilizers:
- 2013 – 1 million t/y
- 2014 – 2 million t/y
- 2015 – 1 million t/y
- There are likely to be delays but will are likely to see at least part of this come on-stream

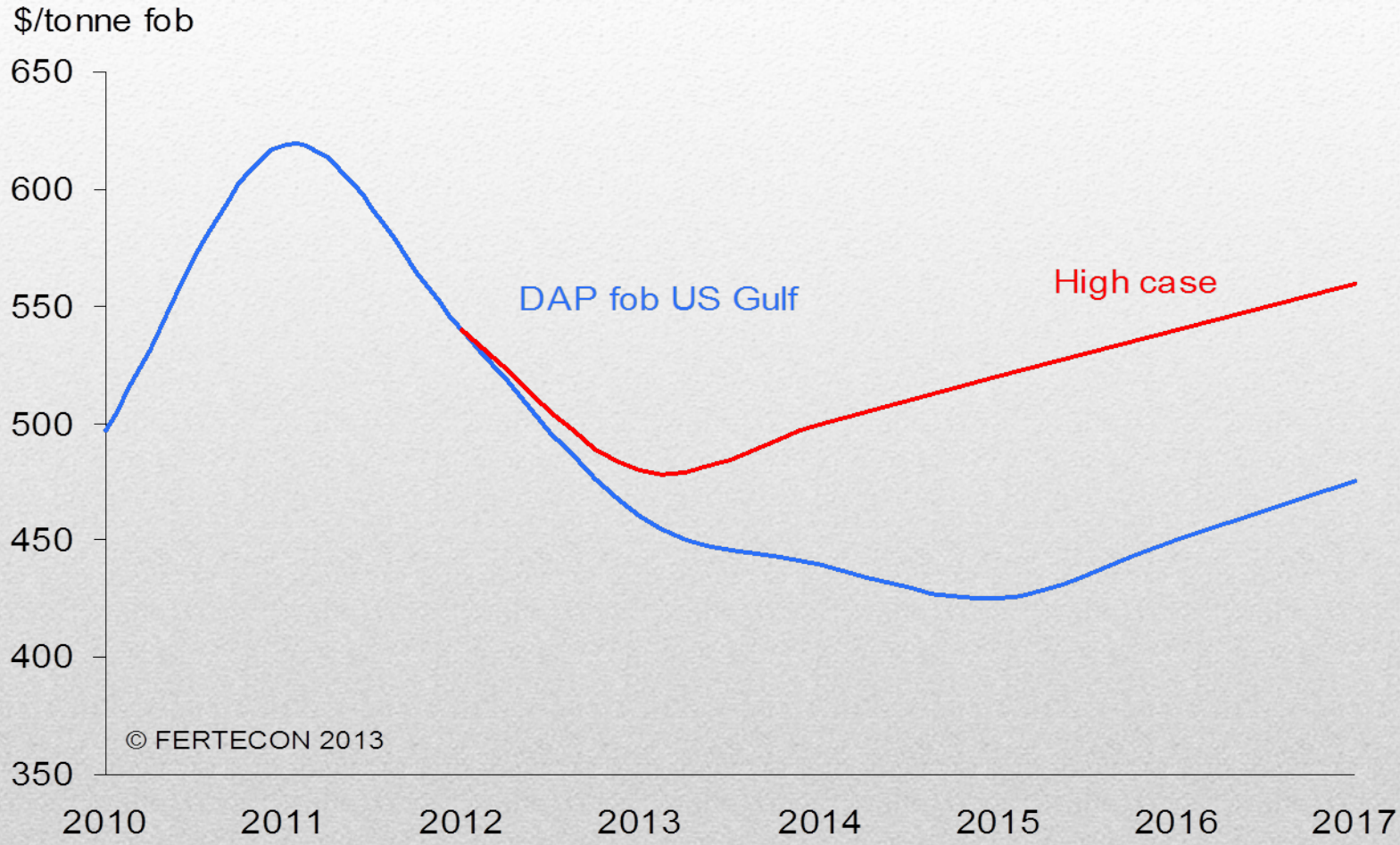
MA'ADEN 3 MILLION T/Y DAP PROJECT

- The Ma'aden phosphate project finally came on-stream last year. Full operation will be achieved soon
- Originally scheduled for 2009
- Represents 18% of global DAP export supply
- Delay means that supply was initially easily absorbed into the market given strong demand
- Go ahead for a new project (now as a j-v with Mosaic) and expansion of existing plant will see Saudi Arabian supply increase substantially over the next 5 years

PHOSPHATE PRICE OUTLOOK



PHOSPHATE PRICE OUTLOOK

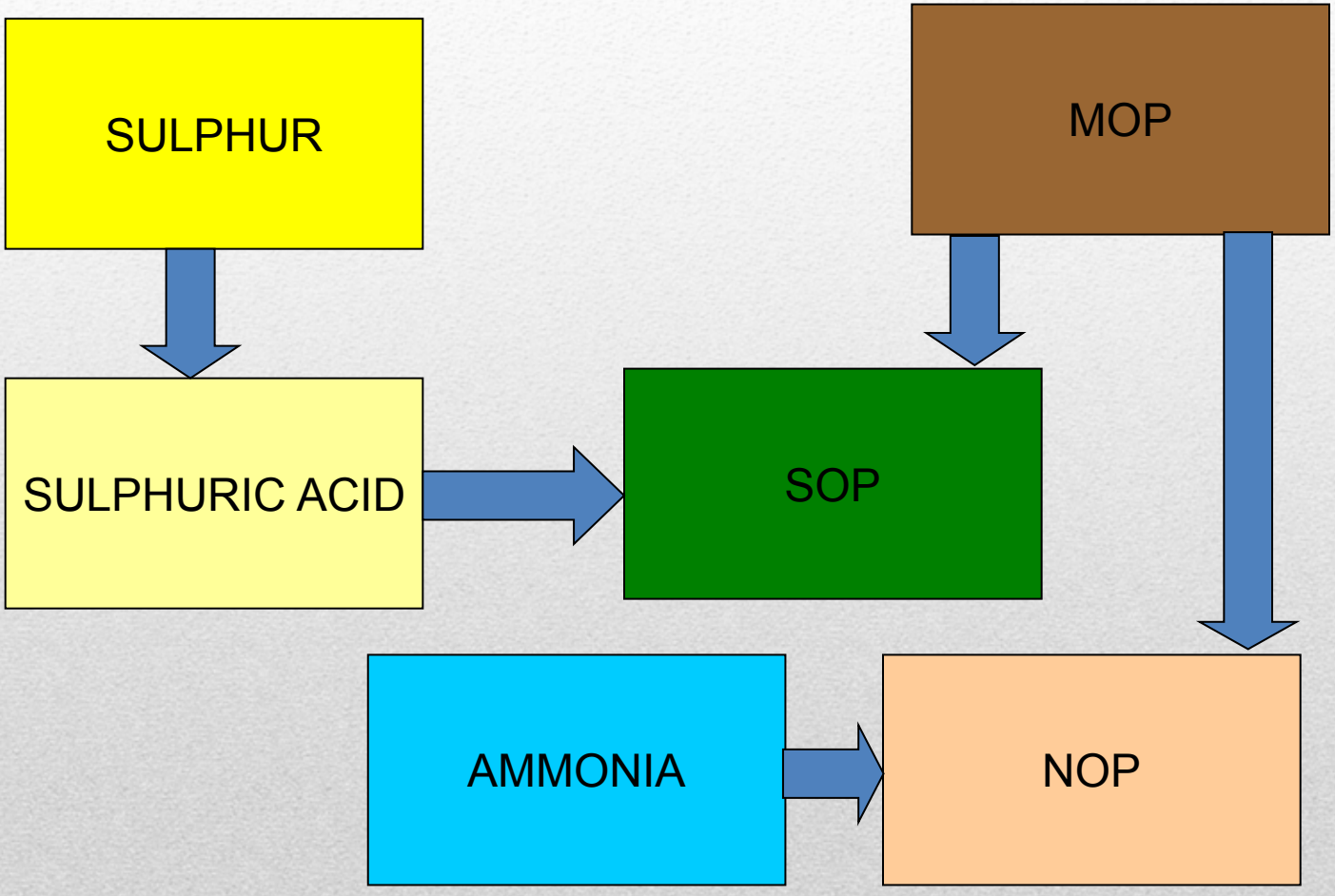


POTASH

Here is a case unprecedented

If thou will lend this money, lend it not as to thy friends.

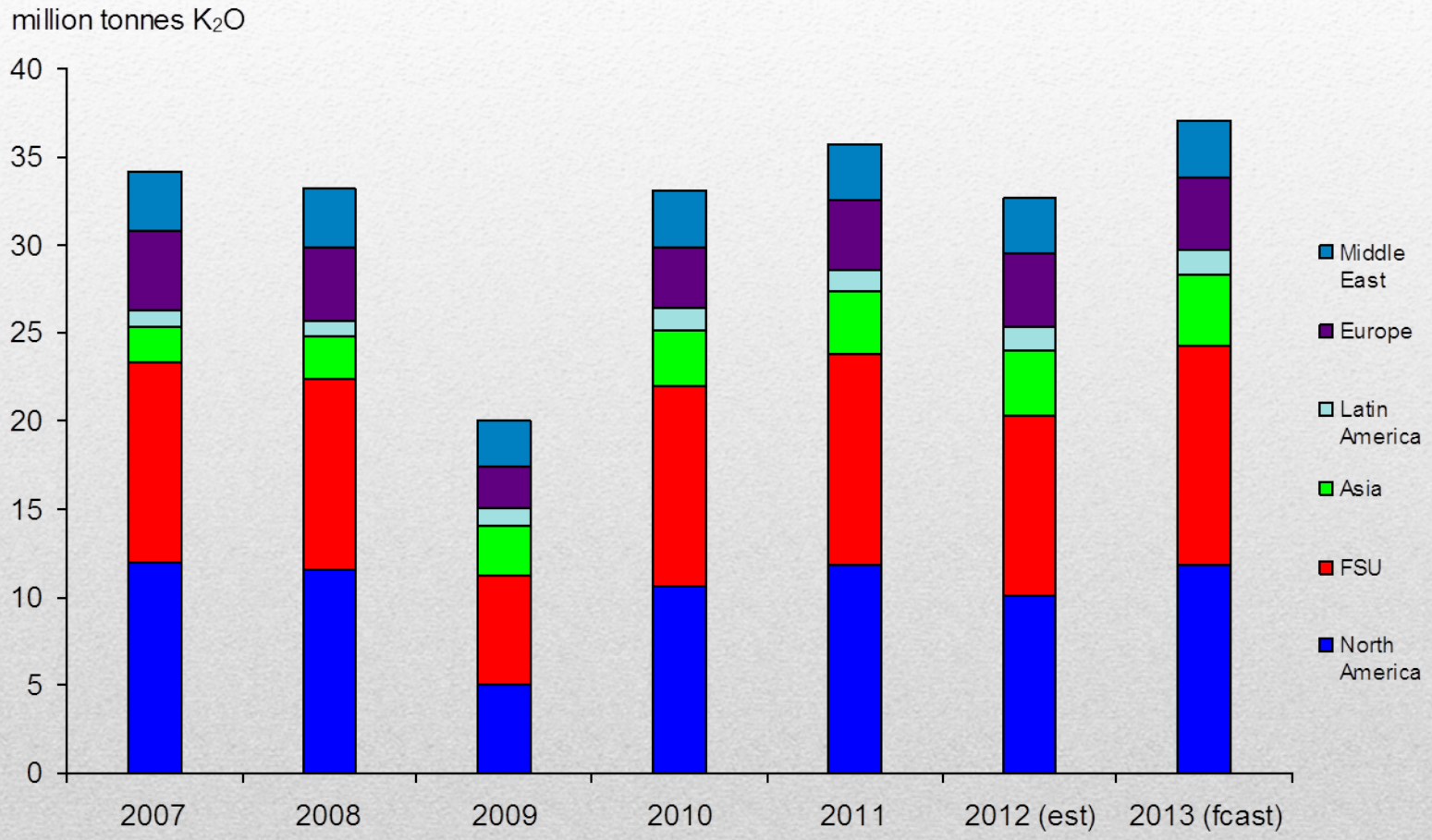
POTASH PRODUCTION



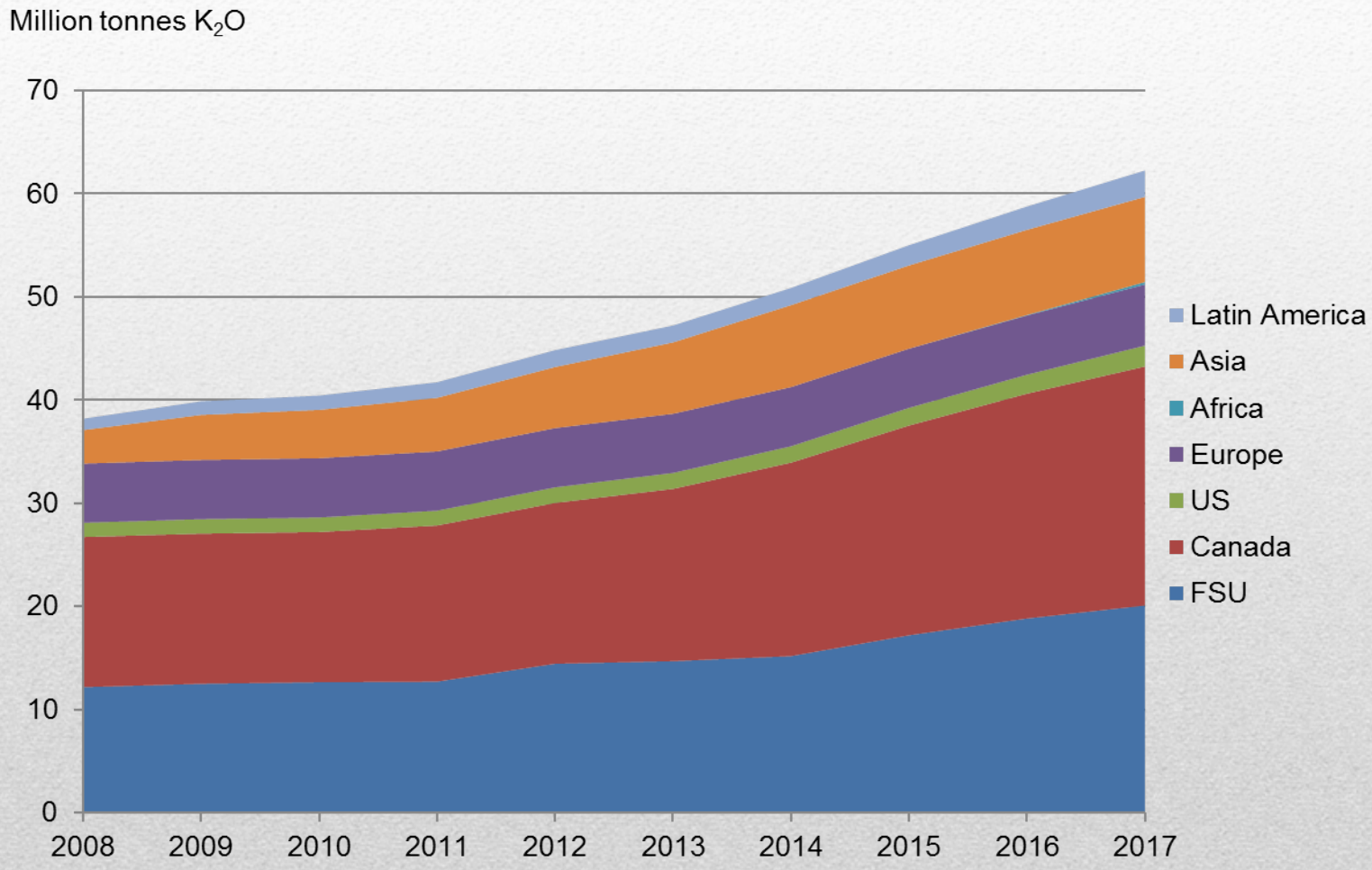
WORLD POTASH PRODUCTION

- Supply very concentrated
- Two major supply points – Canada and FSU – account for two thirds of world production
- This was represented by six producers and three marketing organisations. Now five producers and two marketing organisations
- Three marketing organisations – Canpotex, BPC and K+S – account for over 70% of sales
- Four marketing organisations control 85% of sales.

WORLD POTASH PRODUCTION



NEW POTASH CAPACITY



POTENTIAL NEW POTASH PRODUCERS

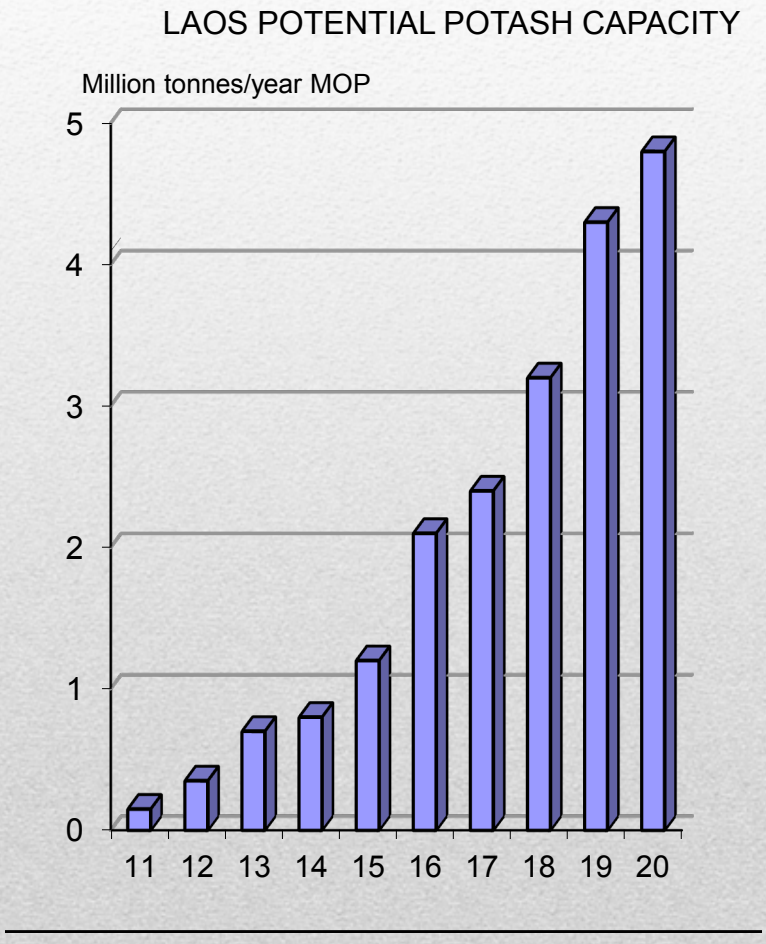
	2012	2020 additions
Europe	K+S, Israel Chemicals	Sirius (UK)
CIS	Uralkali	Acron, EuroChem
Africa	-	Congo, Ethiopia, Eritrea
Asia	around 30 enterprises in China, 1 in Laos	Several enterprises in Laos
North America	Agrium, Mosaic PotashCorp, Compass, Intrepid	IC Potash, several other potential projects
Latin America	SQM, Vale	Potential in Brazil

POTASH PROJECTS

- Lots of greenfield projects have been announced but few will be developed
- Projects from junior mining companies will struggle to get finance
- Even projects from major companies face challenges – e.g. Vale's Rio Colorado in Argentina now suspended, major delays at EuroChem's first Russia project
- The big unknown - BHP Billiton's Jansen project: over $1 billion spent but still no board approval
- The one certainty with greenfield projects the will cost more and take longer to build than forecast

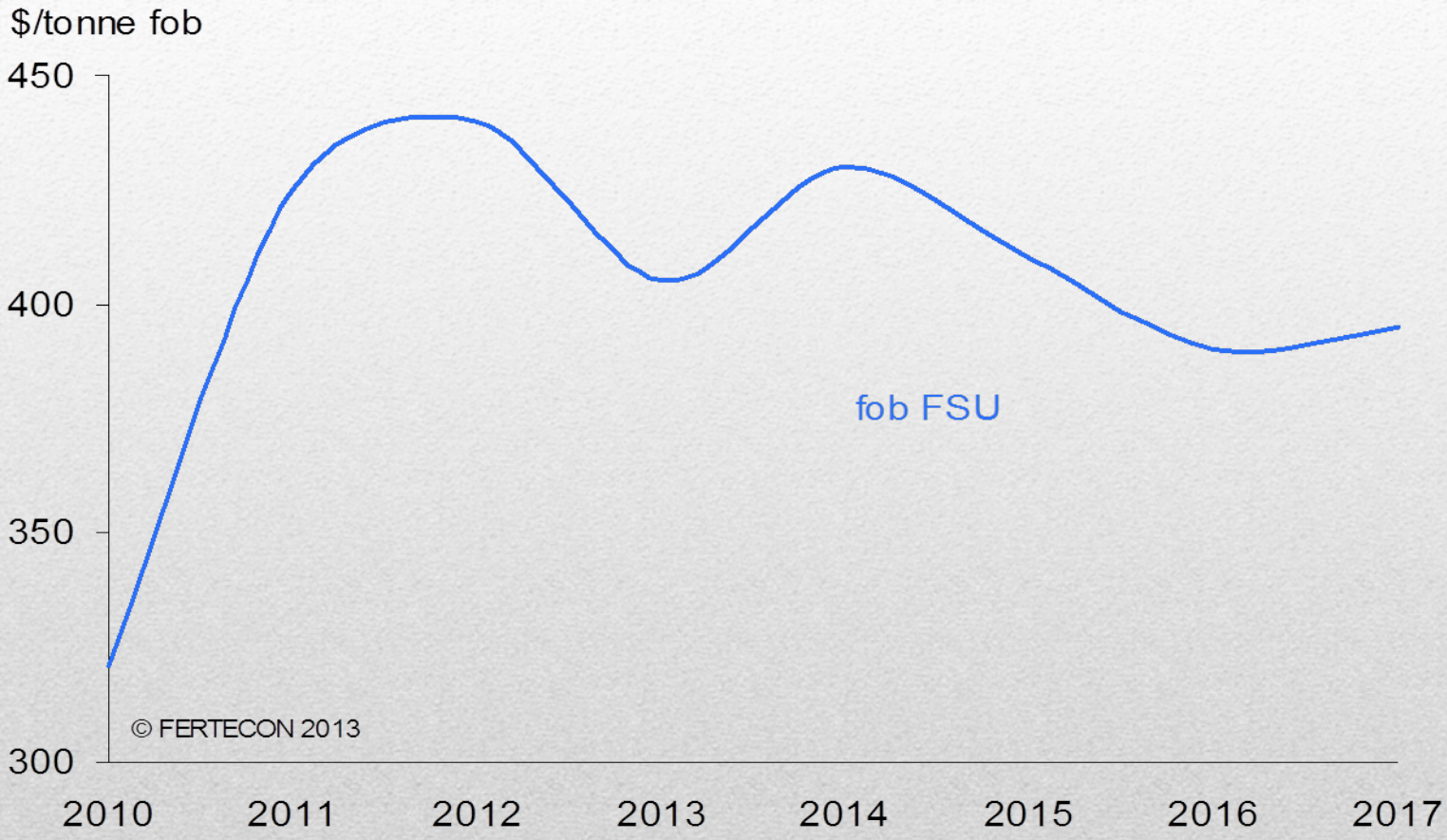
LAOS - NEW POTASH SUPPLY SOURCE

- Rapid development of shallow potash deposits in Laos
- Already some production
- Low capital costs
- Quicker build
- Chinese investment

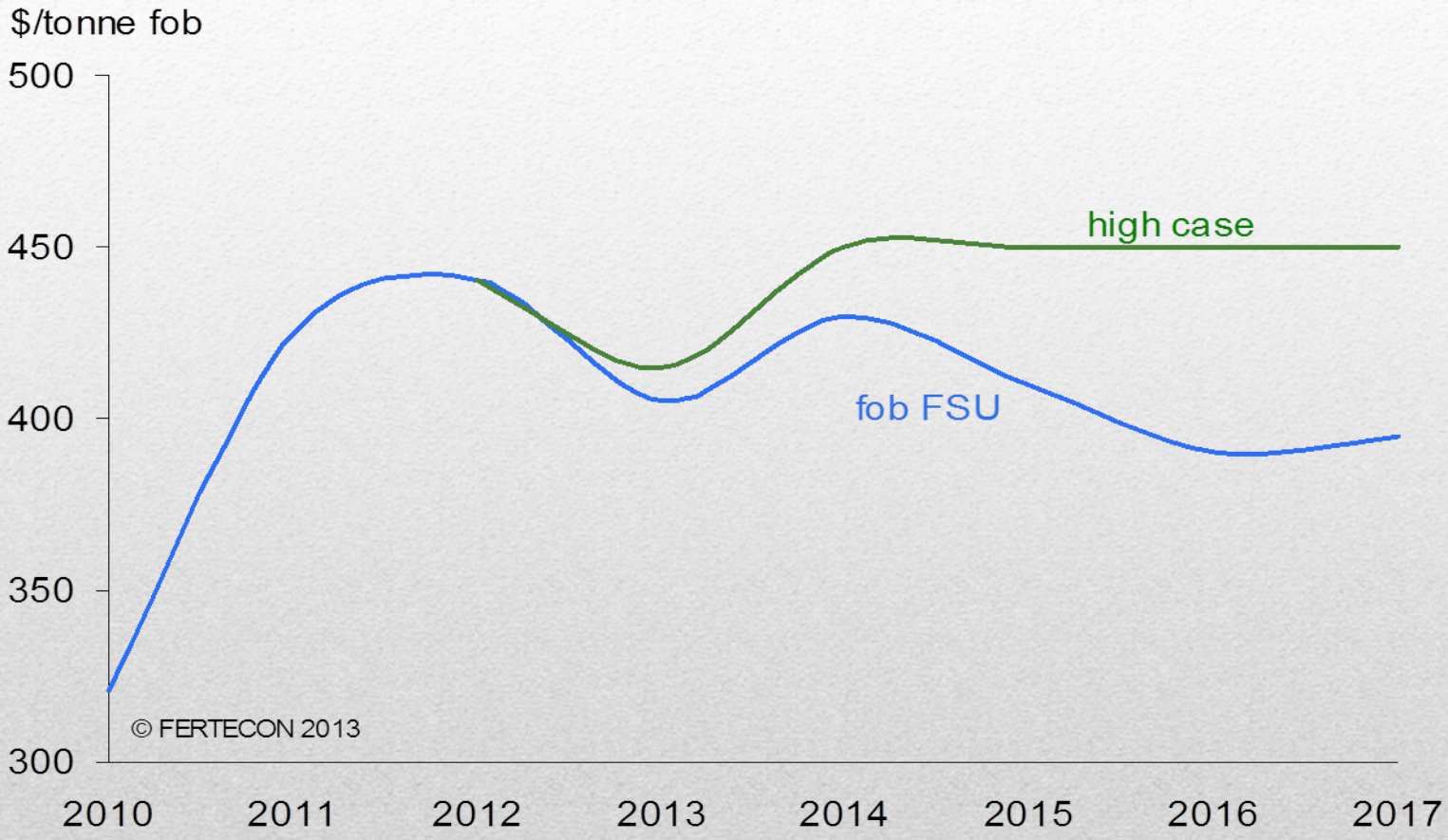


LAOS POTASH MINING

POTASH PRICE OUTLOOK



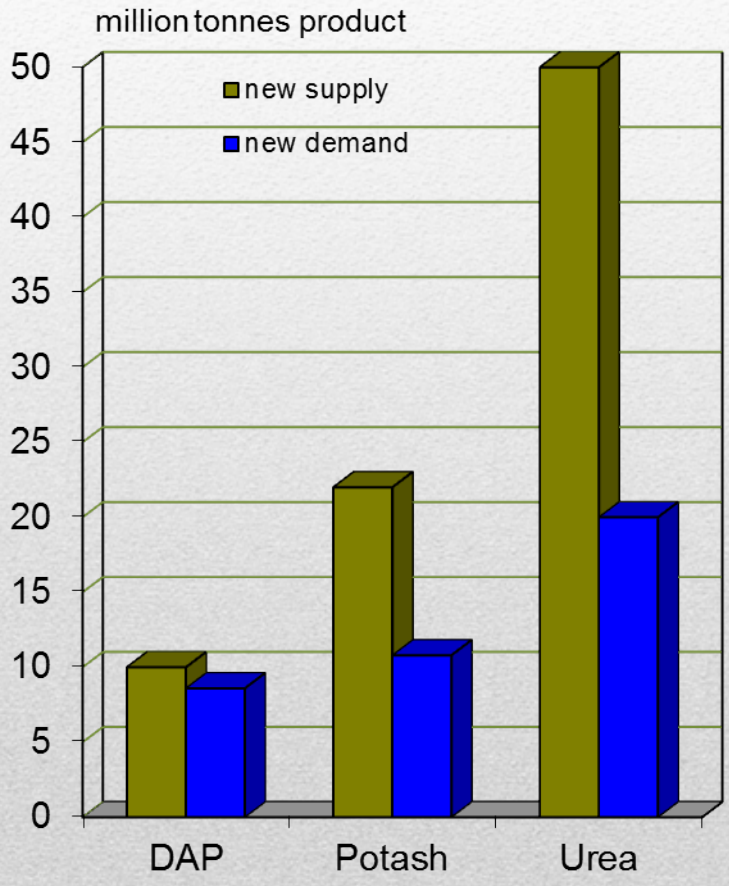
POTASH PRICE OUTLOOK



SUPPLY/DEMAND OUTLOOK

It depends upon what you compare it with

SUPPLY / DEMAND GROWTH 2011-2015



- Supply is growing faster than demand in all three nutrients, particularly nitrogen
- New urea capacity in the will add 50 million tonnes/year (27 million in China)
- New potash supply adds 22 million tonnes MOP (29% increase)

THE QUOTATIONS

- *Knowledge would often confuse them – Death in Venice, Thomas Mann*
- *Either to hath it sterile with idleness or manured with industry – Othello, William Shakespeare*
- *Sometimes, I feel the past and the future pressing so hard on either side that there's no room for the present at all – Brideshead Revisited , Evelyn Waugh*
- *You will profit by the failure, and will avoid it another time – Little Dorrit, Charles Dickens*
- *If thou will lend this money, lend it not as to thy friends - The Merchant of Venice, William Shakespeare*
- *Here is a case unprecedented - The Gondoliers, W.S. Gilbert*
- *It depends upon what you compare it with – The Aspern Papers , Henry James*