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# Fertilizer Outlook 2011 - 2015

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This public summary report was prepared by Patrick Heffer, Director of the IFA Agriculture Committee, and Michel Prud'homme, Director of the IFA Production and International Trade Committee. The first part looks at the global context and agricultural situation. The second part provides global and regional fertilizer consumption projections for the period 2010/11 to 2015/16. The third part provides IFA projections of fertilizer supply and supply/demand balances for the period 2011 to 2015.

This report is available to the general public on the IFA web site (<http://www.fertilizer.org>) or by request to the IFA Secretariat.

The Fertilizer Outlook draws on the final versions of two reports presented at the 79<sup>th</sup> IFA Annual Conference held in Montreal in May 2011: the IFA report *Medium-Term Outlook for World Agriculture and Fertilizer Demand: 2010/11-2015/16 (A/11/68)*, and the IFA report *Global Fertilizers and Raw Materials Supply and Supply/Demand Balances: 2011-2015 (A/11/60b)*. These two comprehensive reports are strictly reserved for IFA members.

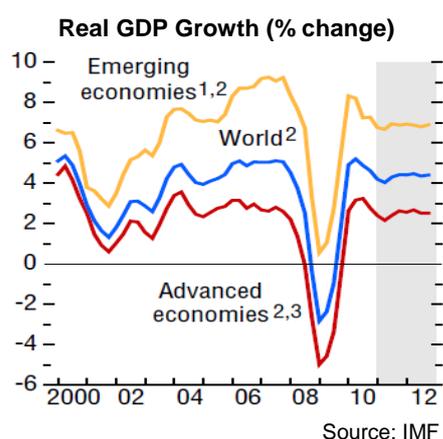
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## PART 1 – GLOBAL ECONOMIC CONTEXT AND AGRICULTURAL SITUATION

### 1.1. Global Context

#### ***The economic recovery remains fragile***

The economic recovery is gaining strength, supported by buoyant activity in emerging and developing markets. In many emerging economies, the real gross domestic product (GDP) in 2010 was already above pre-crisis levels, particularly in Argentina, Brazil, China, India and Indonesia. The International Monetary Fund (IMF) forecasts an increase in the global GDP of 4.4% in 2011 and 4.5% in 2012, after a 5.0% rebound in 2010. Uncertainty about the short-term outlook is declining, but the downside risk remains significant, mainly because of unrest in several West Asian and North African countries and potential oil supply disruption. High fiscal deficits and public debt in several European Union (EU) countries and in the United States are also major risks.



After a major contraction in 2009, commodity prices have strongly rebounded since the middle of 2010 in response to capacity constraints. High price volatility, a key feature since 2007, is expected to continue in the short term.

The current economic and financial situation is expected to impact world agriculture and fertilizer demand in several ways. High crude oil prices provide strong incentives for biofuel production. This also pulls agricultural commodity prices, which stimulates intensification and higher fertilizer applications.

With the return to strong economic growth and higher income, consumption of meat and dairy products is rebounding in emerging economies. However, current high price volatility is a significant disincentive for investing in inputs as the return on investment may be highly uncertain. The uncertainty is increased by high variations in currency exchange rates.

#### ***Reducing hunger and price volatility are high priorities on the policy agenda***

Since the beginning of 2011, the Food Price Index of the Food and Agriculture Organization of the United Nations (FAO) has remained above the 2008 peak values, led by firm sugar, wheat, maize and vegetable oil prices. High food prices have generated unrest in several developing countries, particularly in the Middle East and Africa. At the same time, high agricultural commodity prices provide incentives for farmers to improve productivity and therefore play an important positive role. The main concern of governments is the high volatility of prices, which increases risks associated with farming. As a result, farmers are reluctant to invest in inputs and technologies needed for higher productivity. This complicates efforts to expand local production. The challenge ahead for policy makers is to find solutions to meet the combined needs of protecting low-income consumers from higher food prices, maintaining incentives to increase productivity, and protecting farmers against excessive volatility of agricultural commodity prices.

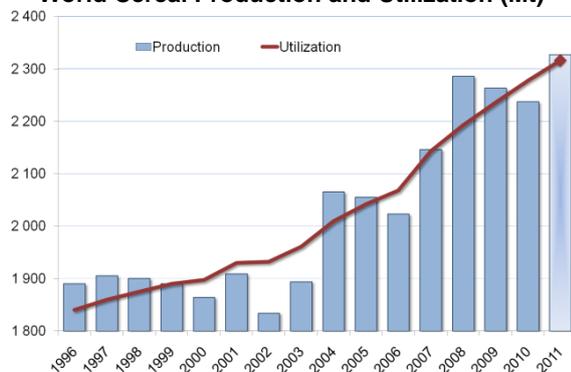
### 1.2. Agricultural Situation

#### ***Reduced inventories and strong prices are expected to persist in agricultural commodity markets***

After a 0.3% contraction in 2009, world cereal production further declined in 2010, by 2.2%, to 2.18 billion metric tonnes (Bt) as the world output was impacted by a severe drought in Russia and Ukraine, hot and wet summer conditions in the US Corn Belt, and La Niña in the southern hemisphere. The United States Department of Agriculture (USDA) anticipates a strong rebound in 2011.

World production would reach a new record, at 2.27 Bt, up 4.1% from the previous year. These forecasts may, however, be strongly affected by the acute drought prevailing in northern Europe and excess rainfall in the northern part of the United States.

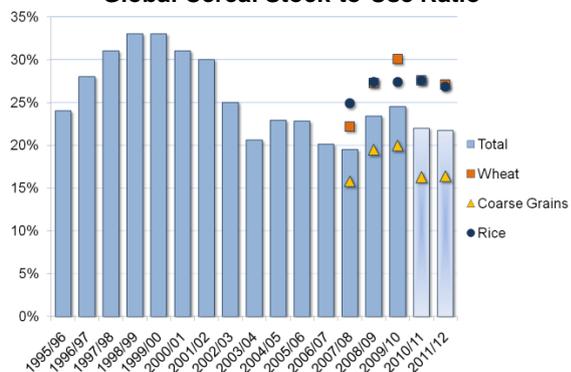
**World Cereal Production and Utilization (Mt)**



Sources: FAO until 2010, and USDA for projected changes between 2010 and 2011

World cereal inventories dropped by 10% in 2010/11. With world cereal utilization seen as up 1.7%, at 2.27 Bt in 2011/12, cereal stocks at the end of the 2011/12 campaign would remain virtually unchanged. The aggregate stock-to-use ratio would marginally decline. It would be the lowest ratio since 2007/08, at the time of the food crisis.

**Global Cereal Stock-to-Use Ratio**

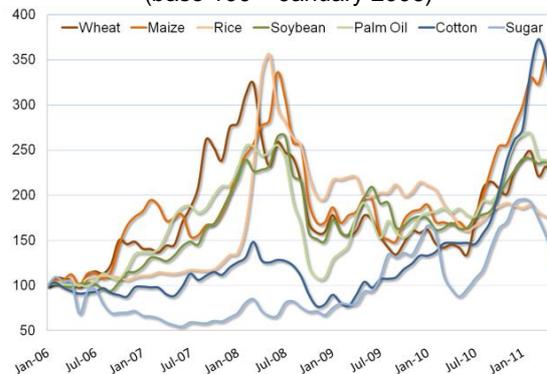


Sources: FAO until 2009/10, and USDA for projected changes between 2009/10 and 2011/12

In response to tight market conditions, prices of maize and wheat have sharply increased since the middle of 2010. At the beginning of April 2011, international maize prices outperformed their high of 2008. Due to competition for scarce land, oilseed and cotton prices have been following maize prices. Sugar prices surged in the second half of 2010, reaching a new 30-year high in January 2011.

Rice prices are the exception, as inventories for this crop are estimated to be satisfactory and there is little competition with maize and wheat for land.

**Relative Evolution of Selected Agricultural Commodity Prices**  
(base 100 = January 2006)



Sources: Financial Times, IMF and MPOB

Biofuel production remains a key driver of the outlook. In 2010, according to the Food and Agriculture Policy Research Institute (FAPRI), some 118 million metric tonnes (Mt) of maize and 348 Mt of sugarcane were used to produce ethanol in the United States and Brazil, respectively, while the amount of rapeseed oil transformed into biodiesel in the EU was 7.6 Mt.

With demographic growth and robust economic activity in emerging markets, world production of meat and milk increased by 0.8 and 1.7%, respectively. Despite increasing meat and milk prices, current high feed prices prevent faster recovery of livestock production.

In the medium term, agricultural production will grow steadily to meet the food, feed, fibre and bioenergy requirements of a fast-increasing world population. Most of this growth is expected to come from yield gains, but cropped area would continue to expand in Latin America, Sub-Saharan Africa and South-east Asia. Production of livestock products and of fruits and vegetables is also seen as rising steadily in response to demographic and income growth. According to the Organisation for Economic Co-operation and Development (OECD), FAO and the Food and Agricultural Policy Research Institute (FAPRI), the world stock-to-use ratio for the main agricultural commodities is not seen as evolving much over the next five years, and prices of all agricultural commodities would stay firm, well above pre-crisis levels. It is also likely that food prices will remain volatile in the near future, as short

inventories would exacerbate the impact of any weather-related shock.

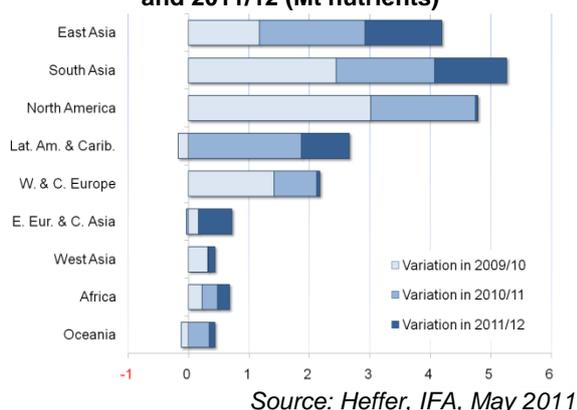
demand are seen as more moderate: +1.8% for N and +2.1% for P.

## PART 2 – GLOBAL FERTILIZER DEMAND

### ***World fertilizer demand is firmly rebounding and seen as reaching 191 Mt in 2015/16***

After a 7.6% contraction in 2008/09, global fertilizer consumption started to recover (+5.4%) in 2009/10, reaching 163.9 Mt. This is 4.3 Mt below the record of 2007/08. Regionally, fertilizer consumption in 2009/10 increased in all the regions but Latin America and Oceania. World demand in 2010/11 is estimated as up 5.0%, to 172.1 Mt. Demand for nitrogen (N) and phosphorus (P) fertilizers would increase by 2.1 and 6.7%, respectively. Potassium (K) demand would strongly rebound (+15%), but would still remain 1.5 Mt below its record of 2007/08. Aggregate demand is forecast to decline in Eastern Europe and Central Asia (EECA). It would remain almost unchanged in West Asia, and would sharply rebound in Oceania and Latin America. Demand would continue to expand in all the other regions. The largest increases in volume are seen in Latin America, East Asia, North America and South Asia. In the case of nutrients, N demand is forecast to grow in all the regions but East Asia, West Asia, and Eastern Europe and Central Asia; P demand would rise in all the regions but West Asia, and Eastern Europe and Central Asia; and K demand is seen as up in all the regions but South Asia.

**Historical and Anticipated Annual Variation in Regional Fertilizer Demand between 2008/09 and 2011/12 (Mt nutrients)**



Global fertilizer demand in 2011/12 is seen as rising more modestly, by 2.5%, to 176.4 Mt. K demand would fully recover (+5.5%), back to the 2007/08 high. Growth rates for N and P

Fertilizer consumption would rise in all the regions, with a strong rebound in Eastern Europe and Central Asia. The largest gains in volume are anticipated in East Asia, South Asia and Latin America. Increases for all three nutrients are anticipated in all the regions, with the exception of P in Western and Central Europe and K in Oceania.

In the medium term, the positive agricultural outlook is expected to stimulate fertilizer demand. World demand is anticipated to reach 191.1 Mt in 2015/16, corresponding to an average annual growth rate of 2.6% from the base year (average consumption between 2008/09 and 2010/11). Because of its depressed level in 2008/09 and 2009/10, K fertilizer demand is forecast to grow much faster (+4.7% per annum) than demand for N (+1.9% p.a.) and P (+3.1% p.a.) fertilizers.

**Global Fertilizer Demand (Mt nutrients)**

	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
07/08	100.7	38.5	29.0	168.2
08/09	98.4	33.6	23.4	155.4
09/10	101.6	38.3	24.0	163.9
<i>Change</i>	<i>+3.3%</i>	<i>+13.9%</i>	<i>+2.4%</i>	<i>+5.4%</i>
10/11 (e)	103.7	40.9	27.5	172.1
<i>Change</i>	<i>+2.1%</i>	<i>+6.7%</i>	<i>+14.9%</i>	<i>+5.0%</i>
11/12 (f)	105.6	41.7	29.0	176.4
<i>Change</i>	<i>+1.8%</i>	<i>+2.1%</i>	<i>+5.5%</i>	<i>+2.5%</i>
15/16 (f)	113.0	45.2	32.9	191.1
<i>Average Annual Change*</i>	<i>+1.9%</i>	<i>+3.1%</i>	<i>+4.7%</i>	<i>+2.6%</i>

(e) estimated; (f) forecast

\*Compared to the average, 2008/09 to 2010/11

Source: Heffer, IFA, May 2011

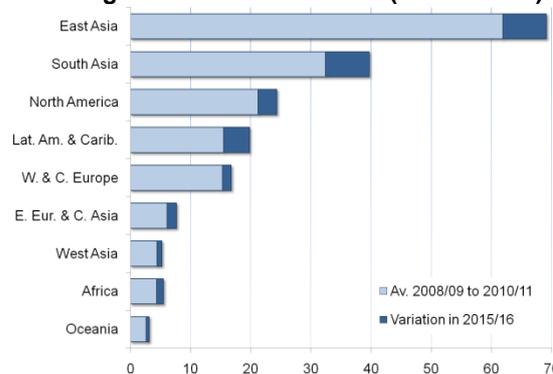
### Asia and the Americas still drive the medium-term outlook

In East Asia, growth of regional N and P demand is seen as slowing down compared to the historical trend since demand for these two nutrients would increase only modestly in China. In contrast, K demand is projected to sharply increase, particularly in China, Indonesia and Malaysia. Average regional demand is seen as increasing by 1.9% p.a. Any evolution of agricultural and environmental policy priorities in China could significantly influence the outlook.

Growth of regional demand in South Asia is seen as remaining strong, under the impulsion of India. Demand is forecast to increase by 3.4% p.a. to meet the requirements of the fast-expanding regional population.

N demand is seen rising at a more moderate pace than P and K demand, as there is a need to progressively rebalance fertilization. Future evolution of the Nutrient Based Subsidy scheme in India may impact the outlook.

**Projected Medium-Term Evolution of Regional Fertilizer Demand (Mt nutrients)**



Source: Heffer, IFA, May 2011

After a sharp market contraction in 2008/09, regional demand recovered quickly in North America. In view of the favourable maize outlook, regional demand is seen as remaining strong. It is forecast to increase by 2.3% p.a., with higher growth rates for P and K as these two nutrients have been severely impacted by the downturn.

After a strong rebound in 2010, fertilizer demand in Latin America is expected to expand firmly as the outlook for regional agriculture is very positive. Argentina and Brazil will capture a large share of the anticipated increase in world cereal, oilseed, sugar and ethanol trade. Regional fertilizer demand is projected to be up 4.1% p.a., with growth rates of similar magnitude for all three nutrients.

Fertilizer demand in Western and Central Europe has only partly recovered from its sharp contraction in 2008/09. It is seen as remaining depressed in the next five years, with an anticipated increase of 1.5% p.a. Regional demand in 2015/16 would remain well below its 2007/08 level, particularly for P and K.

In response to export opportunities and supportive policy, agricultural production is expanding in Eastern Europe and Central Asia, particularly in Russia and Ukraine. It is expected to pull fertilizer demand, which has remained depressed for two decades. Regional demand is forecast to increase by 3.8% p.a. over the next five years, with relatively similar growth rates for the three nutrients.

African agriculture is picking up as greater investments are made in the farming sector in the region. Boosting production requires increasing fertilizer consumption. The number of countries subsidizing fertilizers is rising. Regional demand is seen as up 4.0% p.a., with large differences between countries.

Fertilizer demand in West Asia is seen as growing moderately since the potential for increasing crop production in the region is limited. Consumption is projected to be up 2.7% p.a. in the next five years.

Agriculture in Oceania is progressively recovering from consecutive droughts and the economic downturn. Fertilizer demand is projected to increase by 3.0% p.a. in the next five years.

**The forecast remains subject to major uncertainties**

IFA's baseline forecast is subject to a number of uncertainties. Apart from weather conditions, the main ones that could influence the forecast are the world economic context, the evolution of biofuel mandates, agricultural commodity prices, fertilizer prices relative to crop prices, fertilizer subsidies, and new policies aimed at increasing nutrient use efficiency and recycling organic nutrient sources.

**PART 3 – GLOBAL FERTILIZER SUPPLY**

World fertilizer demand in 2010 was characterized by a stronger than anticipated recovery in traditional markets and a sustained level of consumption in emerging markets. Global total nutrient production rose by 10% to 213.5 Mt *nutrients*, converging with world consumption. In 2010, the fertilizer industry operated at an average of 81% of nameplate capacity, showing improved conditions compared with an average of 76% in 2009.

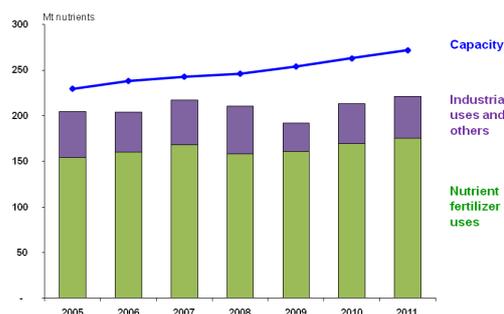
Global total nutrient production in 2010 marked a strong rebound from the low levels of 2008 and 2009. It rose by 10% to 213.5 Mt *nutrients*, a level that converged towards world consumption as consumer stocks were relatively depleted at the beginning of the year.

Potassium accounted for half of the net 20 Mt production increase over 2009, while

phosphate and nitrogen contributed 30% and 20%, respectively.

Global *nutrient* sales for all uses is projected to grow by 3.5% in 2011, reaching 220 Mt *nutrients*, with increases of about 3% for nitrogen and phosphate products and up to 5-6% for potassium. Global capacity further expanded in 2010 by 3.5%, notably in the nitrogen and phosphate segments. Global capacity was close to 263 Mt *nutrients* in 2010, compared with 230 Mt in 2005.

World Fertilizer Supply and Demand Recent Trend



Source: IFA FIT Committee, May 2011

**Strong recovery of fertilizer demand in the near term**

According to the May 2011 forecast of the IFA Agriculture Committee, global fertilizer demand is projected to expand at an average annual rate of 2.4% between 2010 and 2015. World fertilizer consumption is projected to be close to 190 Mt *nutrients* in 2015. The strength of this growth exceeds the historical growth rate of the past decade, which was 2.2% per annum.

World Fertilizer Consumption Calendar Year Basis			
Mt nutrients	2010	2011(e)	2015(f)
Nitrogen N	102.6	105.2	112.4
Phosphorus P <sub>2</sub> O <sub>5</sub>	39.9	41.4	44.9
Potassium K <sub>2</sub> O	27.2	28.7	32.6
<b>Total</b>	<b>169.7</b>	<b>175.3</b>	<b>189.9</b>

Source: Heffer, IFA, May 2011

### Massive investments to secure future supply in the near term

Over the next five years, global capacity will further increase with close to 250 capacity-related projects being carried out worldwide along with a large number of expansions at existing sites. IFA estimates that about US\$88 billion will be invested by the fertilizer industry between 2010 and 2015.

### 3.1. Nitrogen Outlook

The main drivers fostering high interest in the nitrogen sector are a strong desire to optimize the use of local resources and a resolve on the part of the main urea consuming countries to reduce their reliance on imports. In parallel, there is sustained interest in adding new capacity in large consuming countries, with the potential to transform these countries into net exporters in the distant future.

#### Growing nitrogen capacity in China, West Asia and North Africa

According to IFA's 2011 global capacity survey, global ammonia capacity is projected to grow 19% over 2010, reaching 229.6 Mt in 2015. It is planned that up to 67 new plants under construction will be commissioned between 2010 and 2015. China would account for one-third of these plants. The main additions to capacity would occur in East Asia, Africa, West Asia, Latin America and South Asia. Only ten new stand-alone operations will add new supply in the global merchant ammonia market in the near future, while another six will be dedicated to downstream products other than urea.

#### Relatively slow increase in ammonia seaborne supply until 2014

IFA estimates that global seaborne trade in 2010 was 17 Mt NH<sub>3</sub>, accounting for 87% of global ammonia trade. The remaining 13% is considered to be continental trade, comprising shipments within Europe and within North America. Global seaborne ammonia availability would reach 20.4 Mt in 2015, assuming all projects are completed on schedule. This represents a net 2 Mt increase over 2010. Virtually all this expansion will take place in the regions West of Suez, while the ammonia export availability from the regions East of Suez would remain static.

### Nitrogen surplus potentially accelerating after 2014

Global nitrogen supply would grow at an annual rate of 3.7% between 2010 and 2015, compared to growth in demand of 2.3% per annum.

The global nitrogen supply/demand balance will move from a moderate potential surplus in 2010, at 3.8 Mt N, rising to 6-7 Mt N in 2012/13 and accelerating to reach 15 Mt in 2015.

World Nitrogen Supply / Demand Balance : 2010 - 2015



Source: IFA/PIT Committee, May 2011

### World Nitrogen Supply/Demand Balance (million metric tonnes N)

	2011	2012	2013	2014	2015
<b>Supply</b>					
Capacity	163.2	171.5	175.9	182.7	188.8
<b>Total Supply*</b>	<b>134.5</b>	<b>140.2</b>	<b>143.7</b>	<b>149.9</b>	<b>156.3</b>
<b>Demand</b>					
Fertilizer Demand	105.2	107.0	108.8	110.6	112.4
Non-fertilizer Demand	<b>23.2</b>	<b>24.3</b>	<b>25.2</b>	<b>26.0</b>	<b>26.3</b>
Distribution Losses	2.2	2.3	2.3	2.4	2.4
<b>Total Demand</b>	<b>130.7</b>	<b>133.6</b>	<b>136.4</b>	<b>139.0</b>	<b>141.2</b>
<b>Potential Balance</b>	<b>3.8</b>	<b>6.6</b>	<b>7.3</b>	<b>10.9</b>	<b>15.1</b>
% of Supply	2.8	4.7	5.1	7.2	9.7

\* Supply is capability, equating to the maximum achievable production. It is derived by multiplying capacity by the highest achievable operating rate.

Source: Prud'homme, IFA, May 2011

### The growth in ammonia capacity is driven by new urea capacity

Urea represents the major driver in the growth of nitrogen capacity.

Since 1999, urea production has expanded by an overall 44%. It accounted for 90% of growth in ammonia-based products between 1999 and 2010.

**Significant expansion of urea capacity outside China during the next five years**

Between 2010 and 2015, 58 new plants are planned to come on stream, of which 41 will be located outside China. World urea capacity will increase by 45 Mt, to 224.5 Mt, in 2015.

On a regional basis, South Asia will contribute 26% of the net increase in capacity, followed by East Asia, Africa, West Asia, Latin America, EECA and Oceania.

**Global markets moving to sizeable potential surpluses, as urea supply expands by 25% over 2010**

Taking into account historical operating rates by country, and the ramp-up rates of new projects with a high probability of realization, world urea supply is estimated at 152 Mt in 2010, 155.6 Mt in 2011 and 190.5 Mt in 2015, growing at an average annual rate of 5% over 2010.

Demand for urea is forecast to increase from 148 Mt in 2010 to 171.7 Mt in 2015, representing growth of 3.2% per annum. Three-quarters of the net 24 Mt increase is for the use of urea in fertilizers. Between 2010 and 2015, world urea markets will experience a relatively tight balance in 2011, followed by a large increment in supply leading to a potential surplus in excess of 18 Mt in 2015.

**World Urea Supply/Demand Balance**  
(million metric tonnes urea)

	2011	2012	2013	2014	2015
Supply					
Capacity	184.1	198.2	205.4	218.6	224.5
<b>Total Supply*</b>	155.6	165.1	171.7	182.1	190.5
Demand					
Fertilizer Demand	134.5	138.6	142.6	146.4	150.4
Non-fertilizer Demand	18.7	19.6	20.2	21.0	21.3
<b>Total Demand</b>	153.3	158.2	162.8	167.4	171.7
<b>Potential Balance</b>	<b>2.3</b>	<b>6.9</b>	<b>8.9</b>	<b>14.7</b>	<b>18.8</b>
<i>% of Supply</i>	<b>1.5</b>	<b>4.2</b>	<b>5.2</b>	<b>8.1</b>	<b>9.9</b>

Source: Prud'homme, IFA, May 2011

### 3.2. Phosphate Outlook

#### **Phosphate rock capacity expanding by 26% during the next five years**

World phosphate rock capacity is projected to increase by an overall 26%, from 203 Mt in 2010 to 256 Mt in 2015. This growth will come from expansions at existing operations, new mines by current producers, and new capacity from emerging suppliers. Potential supply is projected to increase in almost all regions, but the largest increment will occur in Africa, accounting for half of the growth between 2010 and 2015.

Between 15 and 20 Mt of new rock exportable capacity would emerge between 2010 and 2015, representing a 56% increase of export availability over the 2010 level of trade, at 30 Mt. If all these projects proceed as planned, there will be no shortage of phosphate concentrates in the medium term.

#### **Limited addition of merchant phosphoric acid capacity in the near term**

Global phosphoric acid capacity is forecast to increase by 9.2 Mt to 57.6 Mt  $P_2O_5$  between 2010 and 2015. Expansions in China account for one-third of this increase. Close to 34 new acid units are planned for completion between 2010 and 2015, of which 15 would be located in China, 6 in Morocco and 3 in Saudi Arabia. On a global basis, the net addition to merchant grade acid capacity is estimated at 1 Mt  $P_2O_5$ , of which 0.86 Mt will come from two large stand-alone units in Tunisia and Jordan.

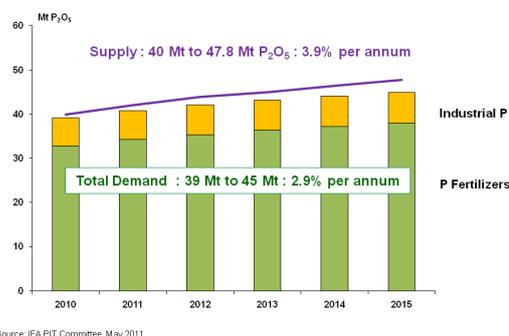
#### **Tight to balanced supply/demand balances for phosphoric acid-based fertilizers through 2014**

The global supply of phosphoric acid is projected to be 47.8 Mt  $P_2O_5$  in 2015, increasing at 3.9% per annum over 2010. Global demand is forecast to grow at an annual rate of 2.9% over 2010, to reach 44.9 Mt  $P_2O_5$  in 2015.

Between 2011 and 2015, the global phosphoric acid supply/demand balance shows a very small potential surplus in 2011 of less than 3% of available supply.

This imbalance will increase very moderately to 1.8-2.3 Mt per annum between 2012 and 2014. It will expand to 2.9 Mt  $P_2O_5$  in 2015 with the commissioning in 2014/2015 of large-capacity projects planned in Morocco.

World Phosphoric Acid Supply / Demand Balance 2010 - 2015



#### **World Phosphoric Acid Supply/Demand Balance** (million metric tonnes $P_2O_5$ )

	2011	2012	2013	2014	2015	
<b>Supply</b>						
Capacity	51.4	52.9	54.9	56.6	57.6	
<b>Total Supply*</b>	<b>42.1</b>	<b>44.0</b>	<b>45.0</b>	<b>46.4</b>	<b>47.8</b>	
<b>Demand</b>						
Fertilizer Demand	34.3	35.4	36.3	37.2	38.0	
Non-fertilizer Use	5.6	5.9	6.0	6.1	6.0	
Distribution Losses	0.8	0.8	0.8	0.9	0.9	
<b>Total Demand</b>	<b>40.7</b>	<b>42.1</b>	<b>43.1</b>	<b>44.1</b>	<b>44.9</b>	
<b>Potential Balance</b>	<b>1.4</b>	<b>1.9</b>	<b>1.9</b>	<b>2.2</b>	<b>2.9</b>	
<b>% of Supply</b>		3	4	4	5	6

Source: Prud'homme, IFA, May 2011

#### **Major capacity expansions for DAP through 2015**

Over the next five years, close to 40 new MAP, DAP and TSP units are planned to come on stream in eleven countries. New facilities are planned in Africa (Algeria, Morocco and Tunisia), West Asia (Saudi Arabia), Asia (Bangladesh, China, Indonesia and Viet Nam), Latin America (Brazil and Venezuela) and EECA (Kazakhstan).

Global capacity for the main processed phosphate fertilizers is projected to be 44.4 Mt  $P_2O_5$  in 2015, representing a net increase of 7.8 Mt  $P_2O_5$  over 2010. Expansion of DAP capacity would account for three-quarters of this increase.

**World DAP market conditions to remain relatively tight until 2014**

The global DAP supply/demand balance shows relatively tight market conditions from 2011 to 2013, with a potential surplus of less than 1 Mt DAP over this period. By 2014, the potential surplus may expand to 1.3 Mt.

**3.3. Potash Outlook**

World potash sales showed a marked recovery in 2010, due to stronger than expected worldwide demand for fertilizers and anticipated purchases in late 2010 prior to seasonal demand in 2011.

**Large potash capacity expansions in the medium term, adding 34% of additional supply**

Close to 30 potash-related projects are currently being undertaken by existing producers, with completion planned between 2011 and 2015. Global potash capacity is forecast to increase from 42.7 Mt  $K_2O$  in 2010 to 59.6 Mt in 2015. The bulk of new potash capacity will be in the form of MOP.

On a regional basis, North America will be the world's largest supplying region in 2015, with a 39% share of the potential world supply, followed by EECA (29%), East Asia (10%), West Asia (8%) and Latin America (5%).

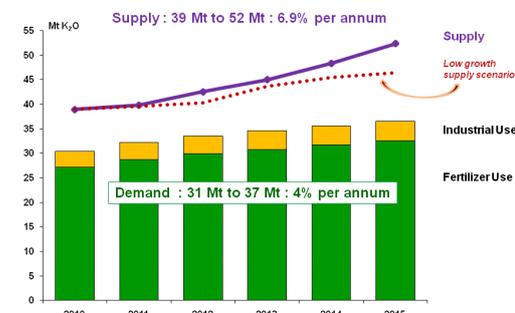
World potash effective supply is projected to increase from 38.6 Mt  $K_2O$  in 2010 to 52.3 Mt  $K_2O$  in 2015. This represents growth of 7% per annum.

**Adequate potash supply to meet growing demand, with large potential surpluses emerging by 2014**

Between 2010 and 2015, global potash demand would grow by an overall 20%, while supply would expand faster during the same period, by 34%.

The global potash supply/demand balance shows a reduced potential surplus in 2011, moving to large potential surpluses after 2012. A potential imbalance of close to 16 Mt  $K_2O$  may emerge in 2015, assuming all planned projects are completed on schedule.

World Potassium Supply / Demand Balance : 2010 - 2015



Source: IFA/PIT Committee, May 2011

If demand expands above the current forecast growth and capacity increment suffers from delays, the combination of these two factors would lead to a tightening supply/demand balance in 2011 and 2012, moving towards a static potential surplus of 6-7 Mt/a  $K_2O$  from 2013 to 2015.

**World Potash Supply/Demand Balance (million metric tonnes  $K_2O$ )**

	2011	2012	2013	2014	2015
<b>Supply</b>					
Capacity	43.7	48.0	51.2	56.0	59.7
<b>Total Supply*</b>	<b>39.8</b>	<b>42.5</b>	<b>45.0</b>	<b>48.3</b>	<b>52.3</b>
<b>Demand</b>					
Fertilizer Demand	28.7	29.9	30.8	31.7	32.6
Non-fertilizer Demand	2.6	2.7	2.8	2.9	2.9
Distribution Losses	0.9	0.9	1.0	1.0	1.0
<b>Total Demand</b>	<b>32.2</b>	<b>33.5</b>	<b>34.6</b>	<b>35.6</b>	<b>36.5</b>
<b>Potential Balance</b>	<b>7.6</b>	<b>9.0</b>	<b>10.4</b>	<b>12.7</b>	<b>15.8</b>
<b>% of Supply</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>26</b>	<b>30</b>

Source: Prud'homme, IFA, May 2011

### 3.4. Sulphur Outlook

Between 2010 and 2015, world production of elemental sulphur is projected to grow at an average annual rate of 6.7%, to 67.2 Mt S in 2015. Close to 60% of the 16.8 Mt increase will be generated in the natural gas processing sector.

#### ***Sustained growth in demand for elemental sulphur and sulphuric acid in the near term***

Global consumption of elemental sulphur is projected to grow at an annual rate of 5% over 2010, reaching 64 Mt S in 2015. This increase results from a combination of sustained growth in the use of sulphuric acid in the manufacture of fertilizers and firm industrial demand, notably for ore leaching.

Global sulphuric acid consumption, which accounts for 87% of total sulphur demand, is forecast to grow at an annual rate of 5% over 2010. The manufacture of fertilizers, which contributes half of total sulphuric acid use, is projected to increase at an annual rate of 3% over 2010.

#### ***Sulphur balances showing a deficit in 2011, moving towards a moderate surplus in 2015***

In the short to near term, the global supply/demand balance points to a deficit in supply in 2011, tight conditions in 2012 to 2014, and the emergence of a potential but moderate surplus in 2015. Between 2012 and 2014, the potential surplus will represent only 1-2% of global supply.

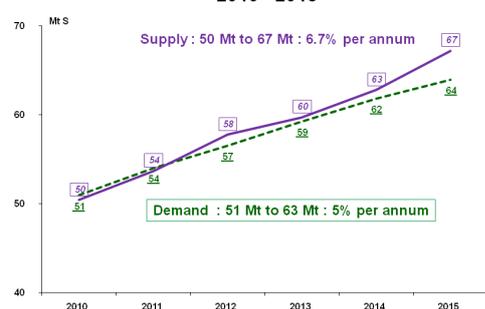
This low-production scenario would further exacerbate the tight conditions foreseen between 2011 and 2014, showing a resilient imbalance, and would further reduce the potential surplus to 2 Mt in 2015.

#### **World Elemental Sulphur Supply/Demand Balance** (million metric tonnes S)

	2011	2012	2013	2014	2015
<b>Sulphur Demand</b>					
Sulphur for sulphuric acid	47.3	49.7	52.3	54.7	56.7
Non-sulphuric acid uses	6.7	6.8	7.0	7.1	7.3
<b>Total Demand</b>	<b>54.0</b>	<b>56.5</b>	<b>59.3</b>	<b>61.8</b>	<b>64.0</b>
<b>Sulphur Supply</b>					
Oil recovered	23.9	25.3	26.3	27.3	28.2
Gas recovered	25.9	28.2	29.0	31.1	34.3
Others, including Frasch	3.9	4.3	4.4	4.4	4.7
<b>Total Supply</b>	<b>53.7</b>	<b>57.8</b>	<b>59.7</b>	<b>62.8</b>	<b>67.2</b>
<b>Potential Balance</b>	<b>-0.3</b>	<b>1.3</b>	<b>0.4</b>	<b>1.0</b>	<b>3.2</b>
<b>% Balance/Supply</b>	<b>-0.6</b>	<b>2.1</b>	<b>0.8</b>	<b>1.5</b>	<b>4.9</b>

Source: Prud'homme, IFA, May 2011

World Elemental Sulphur Supply / Demand Balance  
2010 - 2015



Source: IFA/PIT Committee, May 2011

Under a moderate growth scenario of 6.1% per annum, global supply would be close to 65 Mt S in 2015.