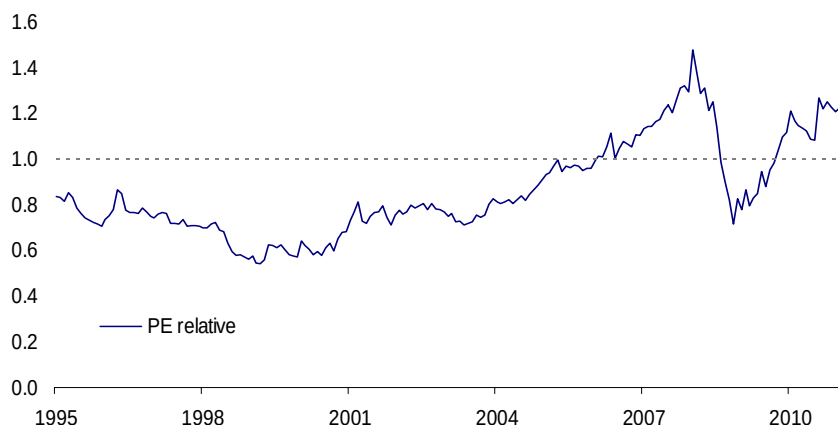


Global Equity Thematics

STRATEGY

Agriculture: A price for everything

Figure 1: Global agriculture: 12-month forward P/E relative to MSCI world



Source: IBES, MSCI, Credit Suisse research

We have been bullish on the global agricultural story for several years. Strong demand, supply-side bottlenecks and supportive valuations has been an effective combination. Structurally, agricultural markets still present a conundrum: demand growth looks solid and there are many reasons to worry about whether supply growth will be able to match it.

However, the valuations of stocks sensitive to the theme have expanded. Soft commodity prices and our agriculture equity index have risen substantially. In real terms, the CRB foodstuffs index has rallied 71% since February 2009 and 38% since the end of June last year. Our agriculture index is up 86% and 42% over the same time periods. It now trades at a 20% premium relative to MSCI world on 12-month forward P/Es (vs a 15-year average discount of 14%).

Further price rises in soft commodities and agriculture-related equities depend on continued bad weather and this is indeed a significant risk. However, we believe the valuations of many of these stocks increasingly require such support.

Given performance, we see three specific reasons for caution: (i) 2010 was a profitable year for farmers (USDA estimates that net farm income in 2010 is up 31% on 2009). Better profitability typically triggers greater investment and production; (ii) adverse weather conditions have been exceptional, much of which relates to the prevailing La Niña; however the latest data suggest that this has started to dissipate; and (iii) speculative positions in several soft commodities (particularly corn and soybeans) are extremely high. We have used Credit Suisse HOLT® analysis alongside specific correlations to the CRB index to highlight potentially vulnerable stocks. These include Intrepid Potash, K&S, Monsanto and Israel Corp.

Research Analysts

Mary Curtis
+44 20 7883 8885
mary.curtis@credit-suisse.com

Tan Ting Min
603 2723 2080
tingmin.tan@credit-suisse.com

Teddy Oetomo
6221 2553 7911
teddy.oetomo@credit-suisse.com

Rhian Tucker
44 20 7888 0300
rhian.tucker@credit-suisse.com

Lars Kjellberg
44 20 7888 4811
lars.kjellberg@credit-suisse.com

Elaine Yip, CFA
212 325 1981
elaine.yip@credit-suisse.com

Robert Moskow
212 538 3095
robert.moskow@credit-suisse.com

Luiz Otavio Campos, CFA
55 11 3841 6312
luizotavio.campos@credit-suisse.com

Richard Kersley
44 20 7888 0313
richard.kersley@credit-suisse.com

Mujtaba Rana
44 20 7883 3773
mujtaba.rana@credit-suisse.com

Table of contents

Executive summary	3
A cyclical peak	3
Palm oil prices similarly look close to peak	3
Reasons we could be wrong	3
Meanwhile, our agriculture index looks relatively expensive	3
What the analysts say: stick to productivity plays, avoid the crop producers	3
A quantitative approach	4
Longer-term, the supply/demand equation remains relatively tight	4
Agriculture: a cyclical peak	5
On a tactical view, we believe the bulk of the rise in food prices has occurred	5
(i) Farm profitability	5
(ii) The weather	6
(iii) Net speculative positions	7
The story on palm oil is similar	7
(1) Reversal of tree stress	7
(2) Ample rainfall in 2010 should boost output in 2011	8
(3) Strong planting in 2007 will mature in 2010/2011	8
Why we could be wrong	9
Market implications	11
(1) Full impact on inflation indices likely to take another six months to materialise	11
(2) Our agriculture index looks relatively expensive	12
(3) What the analysts say: stick to productivity plays, avoid the crop producers	13
Stocks with the strongest bottom-up stories	13
Cautious on the outlook for the palm-oil sector	14
(4) A quantitative screen	14
Valuation screens: most upside and downside potential according to HOLT	15
Quant screen: Most correlated with the greatest downside potential according to HOLT	16
Longer-term: Solid demand and questionable supply	17
Agricultural demand: Solid growth	18
Population growth and food demand	18
Bio-fuels: important for the US and Brazil	20
Agricultural supply: Plenty of potential – if only it can be realised	21
(i) Acreage: Growth hampered by infrastructure bottlenecks	21
Acreage growth: The best case scenario is c.1.0% growth pa	23
(ii) Productivity: Growth has slowed but potential is significant	23

Executive summary

The CRB foodstuffs index has rallied 71% in real terms over the past two years and 38% since the end of June 2010 (our agriculture index is up 86% and 42% over the same periods, respectively). The index is now 11.5% above the peak of June 2008.

A cyclical peak

On a tactical view, we believe the bulk of the rise in food prices has already occurred. There are three key reasons: (i) 2010 was a profitable year for farmers (the USDA estimates that US net farm income in 2010 will be up 31% on 2009 and 26% higher than the last 10-year average). Better profitability typically triggers greater investment and farm productivity growth. Greater clarity on this issue should be afforded by the USDA data on US planting intentions due to be announced on 31 March. (ii) The weather conditions have been exceptionally adverse—much of this can be attributed to the current La Niña. According to the US Climate Prediction Center, this looks set to last through the first half of 2011. However, it also predicts that we are now past the peak (worst) of this weather phenomenon. The December 2010 reading on the strength of the La Niña was the fourth highest on record (and records go back to 1876), but the reading for January confirms that this La Niña has started to dissipate. The CRB soft commodity index is loosely correlated with shifts in these weather patterns and as we pass the worst it should be a reason for food prices to moderate. (iii) The speculative positions in several soft commodities (particularly corn and soybeans) are extremely high.

Palm oil prices similarly look close to peak

Similarly, we expect some pull-back in palm oil prices in Q1. Our analyst in Malaysia, Ting Min Tan, notes that in eight out of the past ten years, palm oil prices have peaked between December and March. There are three reasons why we anticipate a peak in palm oil prices this quarter: (1) Reversal of tree stress: Biological tree stress refers to weaker yields after a period of high productivity. The current bout of tree stress has lasted an exceptionally long 24 months in Malaysia and as a result Malaysian palm oil output has disappointed for two straight years. We expect higher Malaysian palm oil output in 2011 as the tree stress unwinds. (2) Ample rainfall in 2010 should boost output in 2011: Oil palms are hydrophilic (water loving) trees, hence the wet weather currently due to La Niña will likely benefit palms 6-12 months later. (3) Strong planting in 2007 will mature in 2010/2011.

Reasons we could be wrong

A major concern is still the weather. However, recent indications from the authorities in the Ukraine and Russia suggest that conditions are not as bad as was feared just a few months ago. Hence, we might expect some recovery in production from these two markets this season. In China, we are reassured to some extent that US\$1bn in emergency spending by the government will help to mitigate the prevailing drought problem.

Meanwhile, our agriculture index looks relatively expensive

On most metrics, agri-valuations look to be in relatively expensive territory. The 12-month forward P/E is running at 1 standard deviation above its 15-year average at 15.1x, the P/BV is trading at 3.0x. Relative to MSCI World, our agriculture index is trading at a 20% premium on 12-month forward multiples versus a historical discount of 14%. At these levels, the index looks vulnerable to any downturn in soft commodity prices.

What the analysts say: stick to productivity plays, avoid the crop producers

Stocks related to improving agricultural productivity are likely to offer the highest growth potential, both because they should benefit over the next year from the increased profitability of farmers over the last season and because collectively they offer the best **long-term solution** to the potential supply/demand imbalance. These fall into three broad categories: (i) **Ag seed and protection chemicals** have driven significantly higher yields

in developed markets. Monsanto and DuPont are likely to benefit from wider global GM acceptance although valuations leave us with Neutral ratings. We prefer Bayer (Outperform). (ii) **Agri machinery producers:** demand from Asia and South America should be strong. We rate Deere and United Tractors as Outperform. (iii) Within the **fertiliser sector** the potash outlook is positive, driven by robust volume expectations as the nutrient is again attractively priced. We rate POT and Uralkali as Outperform. In phosphates, integrated producers look best positioned given sharply rising input costs (we like Saudi Arabian Mining Co—Outperform). In nitrogen, producers operating in generic low cost gas regions are the main long-term beneficiaries. Industries Qatar and SAFCO are rated Outperform.

We also like the grain processors (Bunge and ADM—Outperform) for their valuations and investments into growth areas.

Any correction in soft commodity prices would negatively affect the crop producers. Valuation concerns mean that many of these are already rated Underperform, including Sime Darby, IOI Corp, London Sumatra and Astra Agro Lestari. Even assuming a relatively positive scenario, we find the valuations for the palm-oil sector look stretched.

A quantitative approach

We can isolate the stocks that look most sensitive to any roll-over in food prices and look expensive by calculating correlation co-efficients between the stock prices and the CRB food stuffs index and then overlaying HOLT valuations. This is a simplistic quantitative exercise that ignores many of the facets that determine overall analyst recommendations. Stocks that fall into this basket include Intrepid Potash, K&S, Monsanto and Israel Corp.

Longer-term, the supply/demand equation remains relatively tight

While the run-up in agri-prices and valuations leave us cautious on the short-term outlook, we note that the supply/demand equation is still relatively tight in the long-term.

Demand growth looks solid. We expect demand growth for agricultural products of 2.3% pa over the next five years. This comprises growth in the global population of 1.1%, continued increase in calorific intake and greater meat consumption (which adds a further 1.0% pa to global food demand) and small net expansion in the bio-fuels industry.

The main story is growth in demand from the emerging economies. The data from China underline the strength of this demand. We note that Chinese demand for soybeans accounted for 57% of the seaborne trade in 2010. Attempts to remain self-sufficient in wheat and corn production have resulted in growing acreage in these crops at the expense of soybeans. Even so, Chinese trade in corn shifted from a net export position to substantial net imports for the first time in 2010.

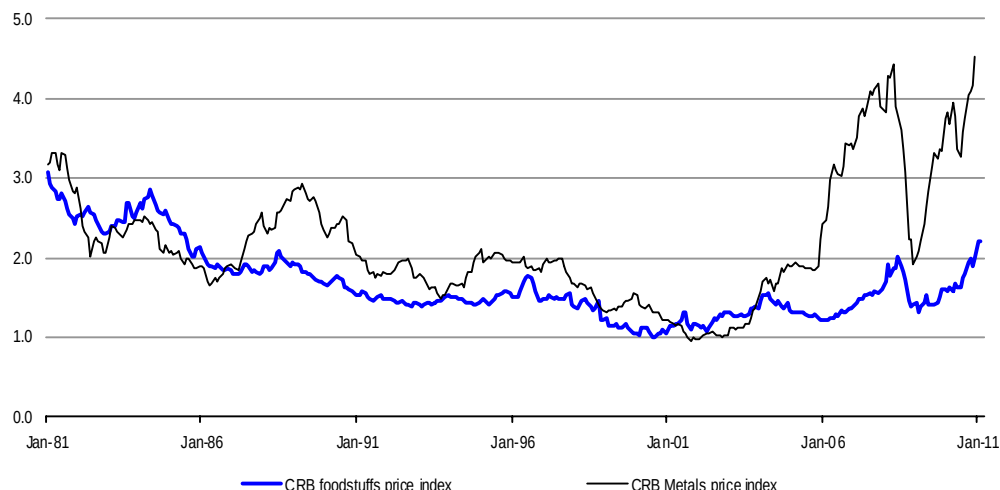
Supply growth faces some structural headwinds. Global arable acreage is limited. On our estimates, there is only 20% of additional land realistically available for agricultural production. Specifically, if we assume that half of the total potential acreage in Indonesia, South America and Russia can be realised over the next ten years, it still only equates to 1.0% pa. Global arable acreage has only averaged growth of 0.2% pa over the past 47 years, hence 1.0% would be an exceptionally large improvement compared to history.

This puts the onus squarely on productivity growth to deliver sufficient supply to match demand. FAO data show that over the past 47 years, world cereal yields have grown by 2.0% pa on average. However, over the past ten years, the rate of growth has slowed to just 1.3% pa. Nevertheless, the gap between yields in developed markets and emerging markets is considerable. Eastern European cereal yields are 57% below the North American average and 45% below the EU average. South American and Asian yields are 46% and 45%, respectively, below the North American average. The food inflation that the emerging economies are currently facing is a great incentive to invest in the land and generate better agricultural output.

Agriculture: a cyclical peak

The CRB foodstuffs index has rallied 71% in real terms over the past two years and 38% since the end of June last year. The index is now 11.5% above the peak of June 2008.

Figure 2: CRB Foodstuffs vs CRB Metals indices (real terms)



Source: CRB, Credit Suisse research

On a tactical view, we believe the bulk of the rise in food prices has occurred

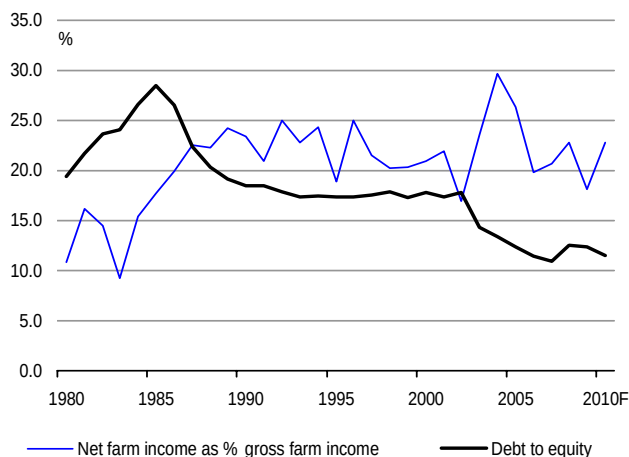
There are three key reasons for our view:

(i) Farm profitability

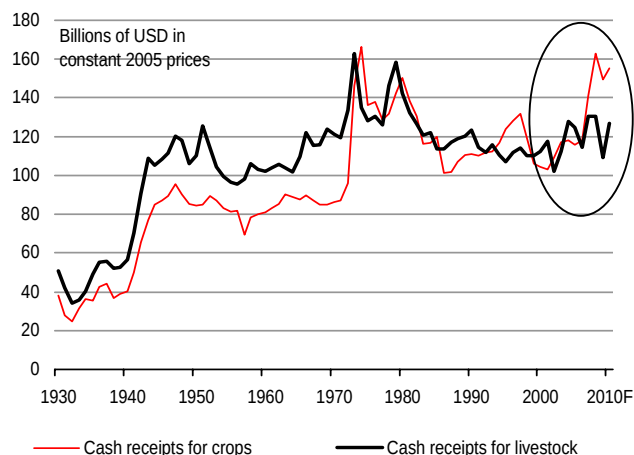
Agricultural production is a very fragmented market, hence strong rises in soft commodity prices (and farm profitability) are typically followed by a step-up in farm productivity growth. Specifically, if we consider the performance of the CRB foodstuffs index, we find that an increase in real terms in excess of 20% over any two-year period is followed, on average, by an increase in the world cereal yield of 3.2% in the next year (vs the long-term average of 2.0%). In other words, farmers tend to respond to improved profitability by increasing their output in the following season through a combination of greater fertiliser application, use of better quality seed, and/or greater use of agricultural machinery.

For many developed (and emerging) market farmers, 2010 was an exceptionally profitable year. The USDA estimates that US net farm income in 2010 will come to around US\$81.6bn, up 31% on 2009 and 26% higher than the last ten-year average. Meanwhile, total US farm debt to equity has trended lower again in 2010 (down to 11.6% vs the average for the past 20 years of 15.5%).

Are farmers investing in their land? Indications from the corporate sector suggest they are: Syngenta has guided that in the US, it has seen substantial pre-payments reflecting strong farmer confidence. Yara has reported a 13% y/y increase in Nitrogen delivery to Western Europe in Q4 2010. We forecast sales growth in double-digit figures for most of the fertiliser companies in 2011 (for Yara we expect 14%, ICL Israel Chemicals 13%, CF Industries 41%, SAFCO 17% and Industries Qatar 24%). Earlier on this month, The Brazilian Council of Food Supply (Conab) upgraded its estimate for total grain production in Brazil for 2010/11 to +2.6% y/y vs the previous estimate of flat production. Most of the increase in production is coming from higher planted area, which is expected to grow to 48.84m ha, up 3.1% y/y.

Figure 3: US farm income and debt to equity

Source: USDA, Credit Suisse research

Figure 4: US farm cash receipts for crops and livestock

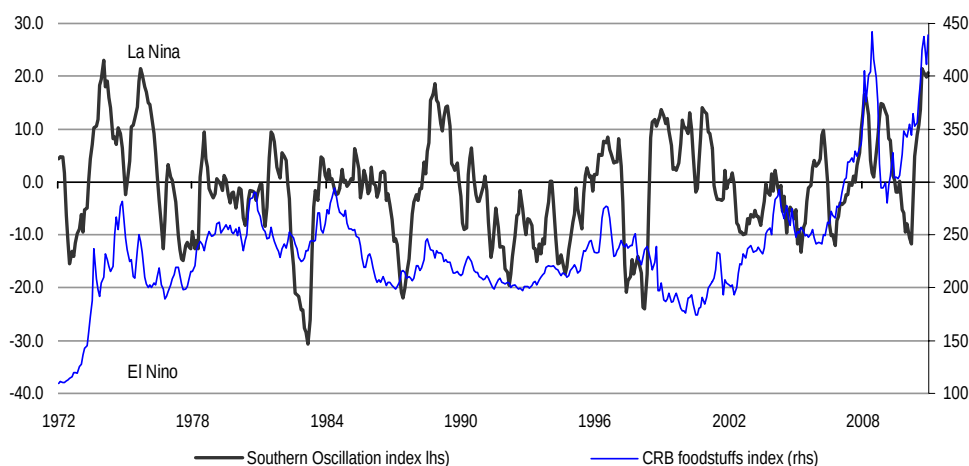
Source: USDA, Credit Suisse research

(ii) The weather

The current La Niña has lasted seven months and, according to the US Climate Prediction Center, looks set to last through the first half of 2011. However, the Climate Prediction Center also predicts that we are now past the peak (worst) of this weather phenomenon. In fact, the December 2010 reading on the strength of the current La Niña was the fourth highest on record (and records go back to 1876). The latest data point (for January 2011) confirms that this La Niña has started to dissipate, although the readings are still high.

A La Niña indicates the cooling of sea surface temperatures in the central Pacific Ocean, which distorts the typical precipitation patterns in many agriculturally important regions of the world. The Southern Oscillation Index (SOI) is the standardised difference in surface atmospheric pressure between Tahiti and Darwin and is used to measure the strength of La Niña and El Niño events. Positive values of the SOI (low pressures at Darwin and high pressures at Tahiti) indicate a La Niña event.

The effects of La Niña are clearly apparent in South East Asia and Australia on the back of an extended wet season and the significant negative impact this is having on current yields in these regions. At the same time, La Niña causes much drier conditions in Peru, Chile and Argentina and wetter than normal weather in Northern Brazil.

Figure 5: Southern Oscillation Index and the CRB foodstuffs index

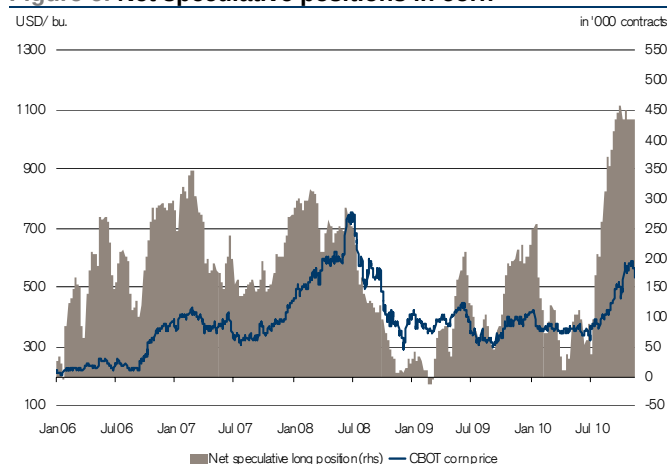
Source: The Australian Bureau of Meteorology, CRB, Credit Suisse research

The CRB soft commodity index is loosely correlated with shifts in these weather patterns and as we pass the worst it should be another reason for food prices to moderate. Specifically, we calculate a correlation co-efficient of 0.32 between six-month changes in the CRB foodstuffs index and the SOI when the latter has a reading in excess of 15.

(iii) Net speculative positions

The speculative positions in several soft commodities (particularly corn and soybeans) are extremely high. If the fundamentals do generate better supply-side conditions over the next year, this could catalyse some aggressive profit-taking.

Figure 6: Net speculative positions in corn



Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse research

Figure 7: Net speculative positions in soybeans



Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse research

The story on palm oil is similar

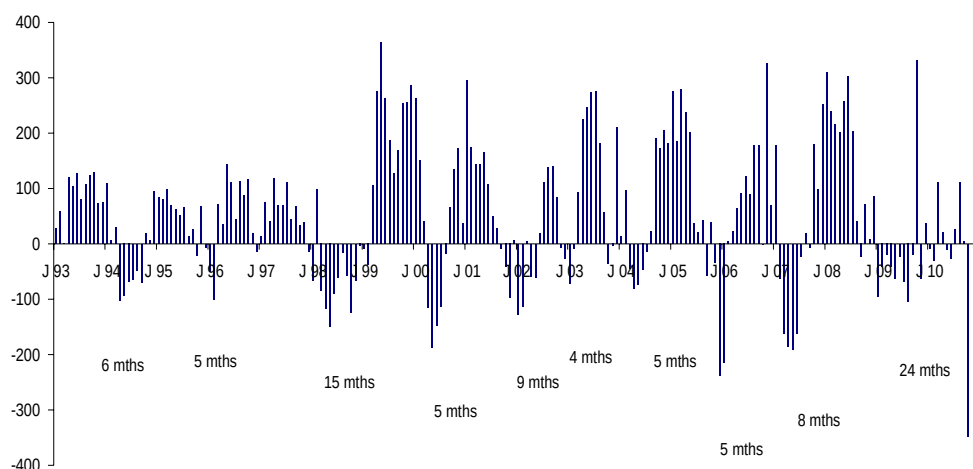
Palm oil spot prices hit an intra-day high of RM3,905 per tonne in early January 2011, close to the historical high of RM4,260 on 5 March 2008. During the commodity rally of 2008, palm oil prices remained above RM4,000 for a mere two days. We believe that the current palm oil rally could be close to its end.

Eight times over the past ten years, palm oil prices peaked between December and March. We stick to our view spelled out in our 5 August 2010 report, *The rise before the fall*. We believe palm oil prices will peak in 1Q11. The demand outlook for 2011 looks stable, but there are three key reasons we expect supply to surprise on the upside this year:

(1) Reversal of tree stress

Biological tree stress refers to weaker yields after a period of high productivity. Tree stress historically lasts for a period of four to nine months. However, this is the first time in decades when the tree stress, which started sometime in early 2009, has lasted for so long—a record 24 months in Malaysia (this was attributed to Peninsular Malaysia). As a result of the tree stress, Malaysia's 2010 palm oil has fallen 3% y/y to 17.3mt. The Malaysian palm oil output has disappointed for two straight years.

A period of disappointing palm oil output is usually followed by a period of strong palm oil production. An example would be 1998, when poor production was followed by strong output years in 1999 and 2000—palm oil prices were down 35% in 1999 and another 29% in 2000. We expect Malaysian palm oil output in 2011 to surprise on the upside.

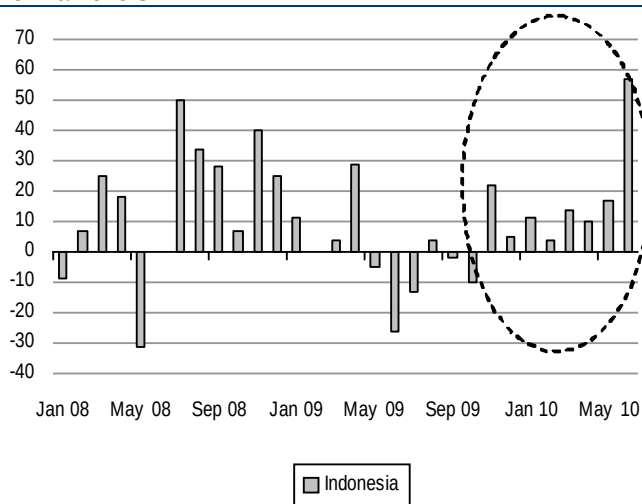
Figure 8: Malaysia's y/y change in FFB – tree stress has lasted 24 months

Source: MPOB

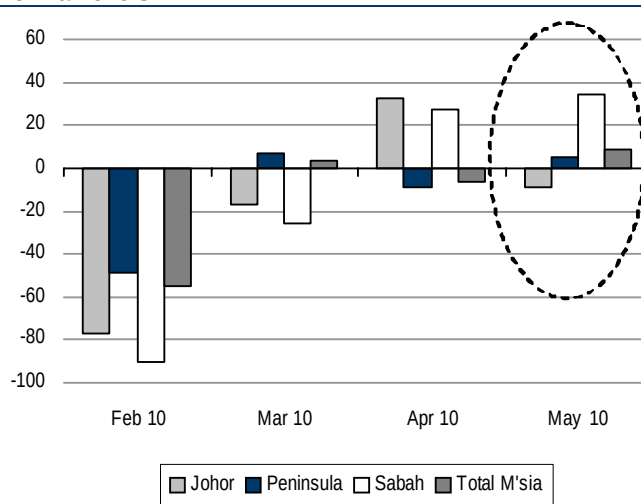
(2) Ample rainfall in 2010 should boost output in 2011

Oil palms are hydrophilic (water loving) trees, hence the wet weather currently due to La Niña will likely benefit palms 6–12 months later. Oil palms grow best between latitudes 11°N and 10°S, where there is well distributed rainfall of 1,800–2,000mm per year, high humidity and at least 1,900 hours of sunshine per year.

Based on rainfall data, precipitation trends in both Malaysia and Indonesia has been positive for the oil palms, which should bode well for future output.

Figure 9: Indonesia – rainfall surplus/(deficit) relative to normal levels

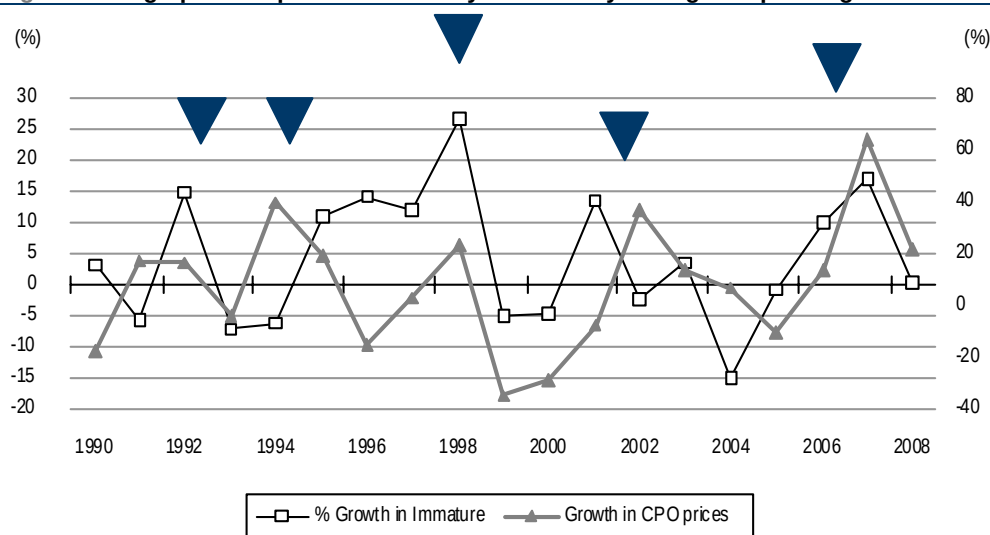
Source: Oil World

Figure 10: Malaysia – rainfall surplus/(deficit) relative to normal levels

Source: Oil World

(3) Strong planting in 2007 will mature in 2010/2011

It is rational that when palm oil prices are high, farmers plant more oil palms. It is evident that when palm oil prices increase, new planting acreage also increases. Therefore, it will not be surprising that in 2007 and early 2008, when palm oil prices were above RM3,000 per year, new planting must have been strong. We believe the same would have happened in Indonesia, although we do not have concrete data. This new acreage should mature in 2010/2011, suggesting again that palm oil output could surprise on the upside.

Figure 11: High palm oil prices are usually followed by strong new planting

Source: MPOB

Why we could be wrong

There are (at least) three reasons why we could be wrong:

(1) The one obvious reason is still the weather. Specific concerns here are:

- (a) the extent to which the **2010 drought in Russia and the Ukraine** has impeded the winter planting schedule. However, recent indications from the Ukrainian Ministry of Agriculture suggest that most of the nation's winter crops are in good condition and that the harvest should yield 24 to 25 million tonnes, up 15% to 20% from 2010, with improved conditions offsetting a 5.5% decline in planted area. The story is similar in Russia: winter wheat planting is roughly 15 million hectares (down from the 18 million average for the winter crop over the past decade), but spring wheat plantings are expected to compensate to some extent (although the yield off these later plantings is roughly 15% lower). Nevertheless, Andrew Klepach, the Russian Deputy Minister of Economic Development and Trade, stated on 31 January 2011 that if grain production in 2011 is on track to exceed 80m tonnes, the grain export ban will be cancelled. According to Klepach, the government will possibly start discussing the cancellation of the grain export ban in a month.
- (b) **The worst drought for 60 years in China.** According to the Ministry of Agriculture, eight major grain-producing provinces, including Shandong, Jiangsu, Henan, Hebei and Shanxi, have been affected by unseasonably low rainfall since October last year. These areas typically account for just over 80% of China's winter wheat production. As of Wednesday 9 February, 42.4% of the total wheat-sown area, according to the Ministry of Agriculture, had been affected by the drought.
- However, according to the Chinese Meteorological Administration, only 5% of annual precipitation normally occurs over the winter months (December to February). At this stage, with temperatures still low, the freshly germinated wheat requires little water. Only when the weather becomes warmer in early March does the wheat require more substantial amounts of precipitation. As a form of insurance against continued drought, the government has pledged to spend an extra 6.7bn yuan (US\$1bn) to boost emergency water supply and irrigation resources. This is in addition to 10 yuan per mu in direct subsidies to encourage farmers to water wheat, and another 10 yuan to fertilise weakened seedlings.

- Drought aside, strong growth in Chinese real incomes has propelled strong growth for food in the form of both greater volumes (calorie consumption) and better quality (greater meat consumption). With limited scope to extend arable acreage, the impact has been clearly visible in the trade numbers. Chinese demand for soybeans accounted for 57% of the seaborne trade in 2010. The Chinese authorities appear to have made a decision to remain self-sufficient in wheat and corn production and hence have grown acreage in these crops at the expense of soybeans. Even so, Chinese trade in corn has shifted from a net export position ten years ago to substantial net imports for the first time in 2010. The Chinese Grain Network has said that Beijing is likely to remain a net importer of grain this year.
- (c) **La Niña could last longer than predicted.** The current La Niña is forecast by the US Climate Prediction Center to last through the Northern hemisphere spring. However, the average duration of a La Niña event is 16 months and some events have lasted three years (as was the case in 1973 to 1976). An extended La Niña would continue to hamper agricultural production and delay the recovery in supply from Argentina, South East Asia and Australia (among others).

(2) **The other major cause for concern is the response from government.** On the one hand, there is continued risk that other governments could curtail agricultural exports in order to protect domestic supplies. On the other, governments could choose to bolster their own reserves and limit domestic price pressures by buying large amounts of grain on international markets. The state grain trader (OAIC) in Algeria has confirmed that it has bought 1.75 million tonnes of wheat since the start of January.

(3) Finally, **oil prices are an issue.** We estimate that c.14% of farm costs are fuel related. Farm margins would be negatively affected should oil prices continue to rise. Moreover, if oil prices continue to rise, vegetable oil prices are likely to follow as biodiesel/bioethanol becomes more commercially viable. Our global commodities team suggests that the fundamental supply/demand balance suggests crude prices should pull back. However, tensions in the Middle East (Egypt, Iran) may mean the fundamentals are a secondary consideration for now.

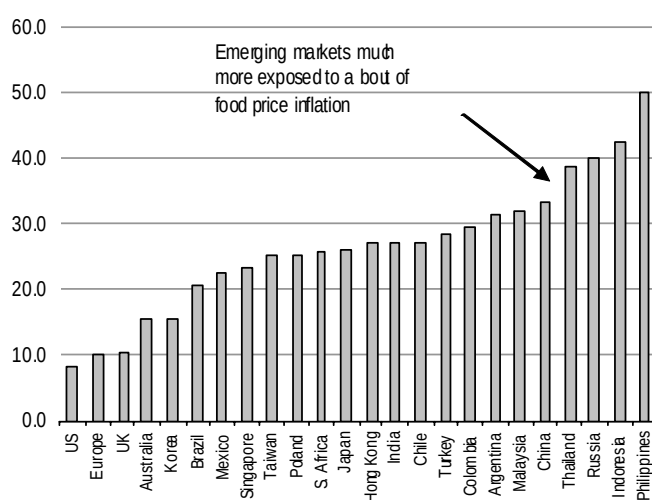
Market implications

(1) Full impact on inflation indices likely to take another six months to materialise

Unfavourable base effects look set to keep food price inflation at extremely elevated levels for some months to come. Even if the CRB foodstuffs index stays at current levels, we calculate the yoy inflation rate will stay above 30% until June. Given the historical three- to six-month lag between commodity prices and food inflation, this implies the worst of the base effects on consumer pockets should be felt towards the end of H2 2011.

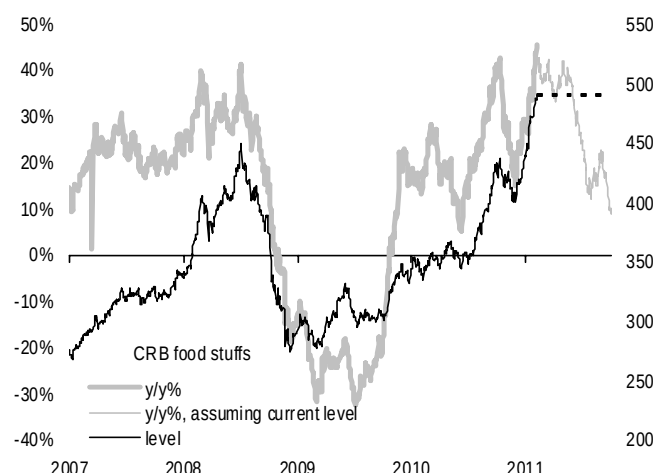
Food accounts for roughly one-third of emerging market consumer price indices, compared with only 15% in developed markets.

Figure 12: Food accounts for roughly one-third of emerging market consumer price indices



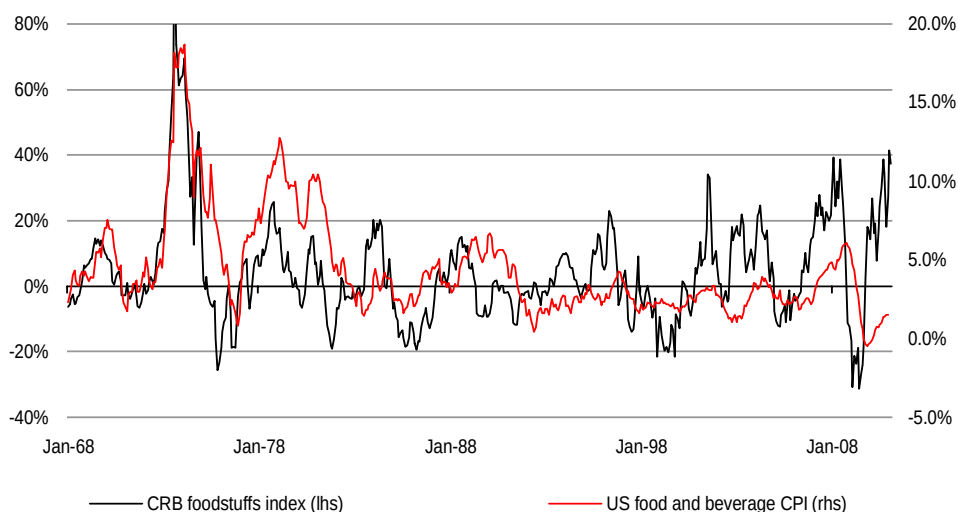
Source: Thomson Reuters, Credit Suisse research

Figure 13: Even if food prices remain at current levels, food inflation does not fall below 30% until June



Source: Thomson Reuters, Credit Suisse research

Figure 14: CRB foodstuffs index vs US food and beverage CPI (% y/y)

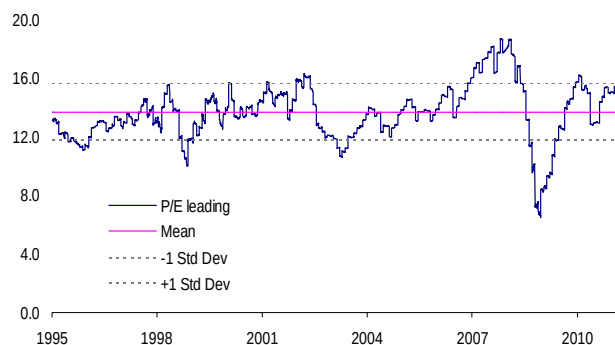


Source: CRB, BLS, Credit Suisse research

(2) Our agriculture index looks relatively expensive

Over the past two years, our global agriculture index is up 86% versus MSCI World performance of 58%. On most metrics compared to history, agri-valuations are in relatively expensive territory. The 12-month forward P/E is running at 1 standard deviation above its 15-year average, at 15.1x, the P/BV is trading at 3.0x.

Figure 15: Global agriculture: 12-month forward P/E



Source: IBES, Credit Suisse research

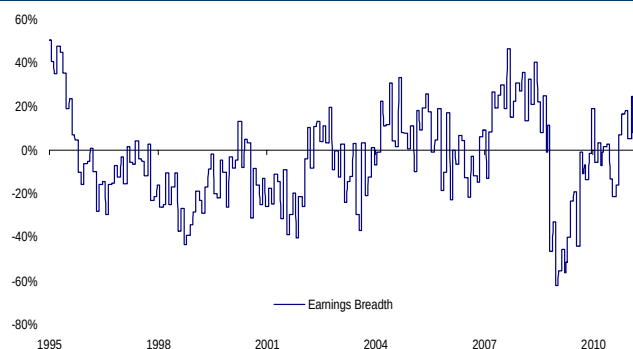
Figure 16: Global agriculture: Trailing PBV



Source: IBES, Credit Suisse research

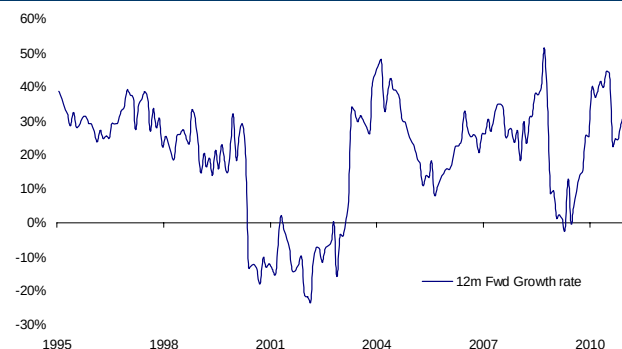
Not surprisingly, earnings revisions have been positive. Forward earnings growth expectations are running at 26%...

Figure 17: Global agriculture: 12-month forward earnings revisions



Source: IBES, Credit Suisse research

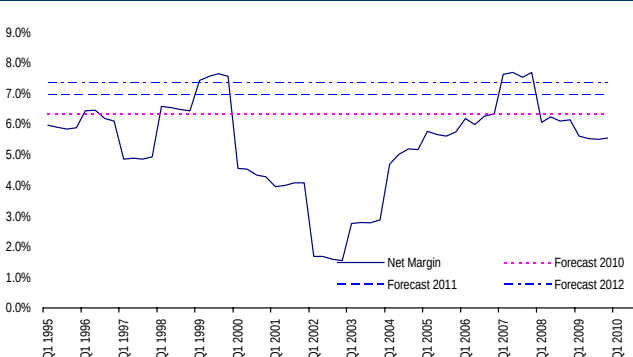
Figure 18: Global agriculture: 12-month forward earnings growth



Source: IBES, Credit Suisse research

... and margins are forecast to match previous peaks for the next two years. In aggregate, our agriculture index is trading on a 20% premium to global equities.

Figure 19: Global agriculture: Net margin history and forecasts



Source: IBES, Credit Suisse research

Figure 20: Global agriculture: 12-month forward P/E relative to MSCI world



Source: IBES, MSCI, Credit Suisse research

(3) What the analysts say: stick to productivity plays, avoid the crop producers

Stocks with the strongest bottom-up stories

Stocks related to improving agricultural productivity offer the best growth potential, in our view, both because they should benefit over the next year from the increased profitability of farmers over the last season and because collectively they offer the best long-term solution to the potential supply/demand imbalance. However, relatively stretched valuations leave us with more Neutral than Outperform ratings overall:

- **Ag seed and protection:** Dow (9% of 2010 sales are derived from Health and Ag Sciences) and Bayer (the Crop Science division accounts for c. 20% of sales) are the two stocks in this sector that we rate Outperform. (Note the significant upside implied by HOLT for Bayer, see Figure 21.) Elsewhere, valuation concerns leave us relatively lukewarm on key players in this space. We rate Both DuPont (34.5% of 2009 sales from the Ag & Nutrition division) and Monsanto Neutral.
- **Agri machinery producers:** This sub-sector arguably offers greater value than the seed and crop protection stocks. Long-term demand for agricultural machinery looks particularly strong from Asia (the ratio of tractors to land in China is still only 30% of the level in France). We rate Deere and United Tractors Outperform and AGCO and Bucher as Neutral.
- **The fertiliser sector** is another beneficiary of the push to improve agricultural productivity. The potash outlook is positive, driven by robust volume expectations as the nutrient is again attractively priced. M&A activity may also slow supply growth and help industry discipline. We rate POT and Uralkali Outperform. In phosphates, integrated producers are best positioned considering sharply rising input costs and include Outperform-rated Saudi Arabian Mining Co and Vale Fertilizantes. In nitrogen, North American producers and producers operating in generic low cost gas regions are the main beneficiaries. Agrium, CF Industries, SAFCO and IQ are rated Outperform. Much of the rest of the sector looks relatively fully valued: Yara, Incitec Pivot and ICL Israel Chemicals are all rated Neutral; HOLT suggests 1.6% downside, 11% downside and 31% downside, respectively, on these names.
- Two stocks where HOLT still suggests plenty of upside potential are Bunge and ADM. Credit Suisse analyst Rob Moskow, has Outperform ratings on these grain processors for four key reasons: (1) Margins: Grain processors inherently earn higher margins when beans are at US\$14/bushel, instead of US\$6 (which is where they were in 2002), but as long as beans stay in the 'low teens', (and we think they will) margins of these companies should stay high. (2) Growth: Investments in commodities with strong fundamental growth characteristics like oilseeds and sugar, and in regions with high long-term demand growth like South America and Asia are a solid platform for growth, we believe. Bunge has made investments in sugar in Brazil and in oilseeds in Vietnam and China. ADM has invested in oilseeds in South America and has opportunities for larger investments in Asia. (3) We expect volumes will remain high even if prices fall. Exports are expected to accelerate in 2011, including 9% soybean meal and oil growth even in the midst of high commodity prices. In fact, a decline in grain prices could actually accelerate demand growth, as it would improve the profitability for protein and biofuel producers. Only ADM, Bunge, and Cargill (private) have the global capacity to access the areas of surplus grain (N. America and S. America) and connect them with areas of need (Asia, Europe, and N. Africa). (4) Volatility: Grain processors not only benefit from higher prices of grain, but also the volatility of grain prices through their trading and merchandising operations. Even if corn prices come off their current highs, the tight stocks of corn ensure that grain price volatility will continue. Grain processors are the first to benefit from supply and

demand fluctuations due to their global 'real-time' network of grain elevators, which are always in communication with farmers. This helps grain processors position themselves in the grain markets and identify areas of opportunity.

Cautious on the outlook for the palm-oil sector

Any correction in soft commodity prices (even if relatively temporary) would negatively affect the crop producers. Valuation concerns mean that many of these have already been cut to Underperform ratings. We rate much of the palm oil sector now as Underperform including Sime Darby, IOI Corp, London Sumatra and Astra Agro Lestari. Even assuming a relatively rosy scenario, valuations for this sector look stretched. Specifically, if we assume a 2011 palm oil average of RM3,000 per tonne, which has never been achieved before (the highest ever palm oil annual average is RM2,833 in 2008), the palm oil sector will trade at a 2011E P/E of 15x, above the NJA P/E average of 13x.

The Brazilian crop producers are a different story. Brazil has a major long-term comparative advantage in arable acreage and, on average, has plenty of scope for yields to rise. Hence, as much as crop producers in this market are sensitive to fluctuations in soft commodity prices, there is a structural underpin to the story in the form of acreage growth and yield expansion. Our favourite stock in this area is SLC Agricola—two specific reasons mean we continue to rate it as Outperform: (1) rising margins on the back of the greater concentration in cotton this season; and (2) rising land prices (latest data from FNP show prices increased 9% over 2010 and 2% in the last two months of last year). We expect SLC to publish an upward revision in its land portfolio value in 2Q11 in the range of 5–10% y/y.

(4) A quantitative screen

Finally, we also take a more quantitative approach to stock exposure within the theme and simply examine correlations of individual stocks with the CRB foodstuffs index. We calculate the correlations based on the weekly change in USD share prices over the last year. We find that the most correlated names are typically fertiliser companies.

If we also screen for relative value (using HOLT) we can then isolate those stocks that appear most sensitive to any roll-over in food prices and look the most expensive on HOLT. Figure 23 lists the stocks that fall into this category. We note this is a simplistic quantitative exercise that ignores many of the facets that determine overall analyst recommendations, but if our central scenario is correct and food prices are close to a peak (however temporary the potential pull-back) this is a list that could be exposed. Stocks that fall into this basket include Du Pont, Monsanto, Potash Corp, ICL-Israel Chemicals, Intrepid Potash and K&S.

Valuation screens: most upside and downside potential according to HOLT

Figure 21: Agriculture-related stocks with the most upside according to HOLT

Name	Country	Sector	-----P/E (12m fwd) -----				----- P/B -----		Yield (2011e)		HOLT		Momentum			Consensus (buy less holds & sells)	Credit Suisse rating
			Mkt Cap (US\$m)	Abs	rel to Industry	rel to mkt % above/below average	Abs	rel to mkt % above/below average	FCY	DY	Implied CFROI less 5-year average	Price, % change to best	1m EPS	3m EPS	3m Sales		
Bayer Ag	GER	Health Care	61,428	12.2	119%	18%	2.5	76%	10.8%	3.1%	-1.7	40.9	0.7	-0.1	0.9	18.0	Outperform
Archer-Daniels-Midland	US	Consumer Staples	23,058	10.6	73%	-4%	1.5	0%	7.7%	1.7%	-2.1	36.5	11.5	11.4	5.6	28.6	Outperform
Bunge Ltd	US	Consumer Staples	10,129	13.0	90%	22%	0.9	-34%	4.0%	1.3%	-2.8	31.6	-0.3	-0.3	2.1	-28.6	Outperform
Graincorp	AUS	Consumer Staples	1,547	11.6	81%	94%	1.2	56%	8.6%	4.5%	1.9	26.0	8.6	-14.9	2.9	33.3	Underperform
Corn Products Intl Inc	US	Consumer Staples	3,646	13.0	91%	n/a	2.0	n/a	6.0%	1.4%	-0.5	25.5	2.2	6.1	5.5	-11.1	NR
Suedzucker Ag	GER	Consumer Staples	5,056	15.2	105%	31%	1.6	-25%	6.4%	2.6%	-0.2	25.4	1.7	6.8	3.7	7.7	NR
Deere & Co	US	Industrials	39,251	16.2	99%	45%	6.3	183%	5.4%	1.3%	-2.5	21.2	1.5	6.8	5.4	44.4	Outperform
Astra Agro Lestari	IDO	Consumer Staples	4,001	13.4	93%	65%	5.3	98%	5.7%	3.8%	-3.2	15.8	2.7	7.5	4.8	9.1	Underperform
Tongaat-Hulett Ltd	SAF	Consumer Staples	1,544	12.3	85%	n/a	2.4	n/a	12.5%	3.5%	0.3	14.5	-1.8	-6.6	NM	n/a	NR
Cf Industries Holdings	US	Materials	10,147	11.7	78%	95%	2.7	127%	7.3%	0.3%	-0.8	14.3	6.9	26.8	8.6	17.7	Outperform
Golden Agri Resour	SNG	Consumer Staples	6,997	14.2	98%	n/a	1.5	n/a	-6.1%	1.2%	-1.7	14.1	4.3	6.7	8.5	50.0	NR
Viterra Inc	CAN	Consumer Staples	4,513	15.4	107%	125%	1.3	59%	7.8%	0.0%	-0.4	12.9	15.9	26.1	8.8	69.2	Outperform
Scotts Miracle-Gro Co	US	Materials	3,481	13.8	92%	20%	4.5	50%	6.7%	1.9%	-1.7	11.1	-1.8	-3.5	-8.1	38.5	NR
Agco Corp	US	Industrials	4,859	18.2	112%	148%	2.0	93%	4.5%	0.0%	-2.9	10.3	1.8	4.5	3.3	-38.5	Neutral
Wilmar Interl Ltd	SNG	Consumer Staples	26,977	15.1	105%	123%	3.3	158%	4.8%	1.5%	-2.4	8.6	-2.1	-11.9	6.4	-14.3	Outperform

Figure 22: Agriculture-related stocks with the greatest downside according to HOLT

Name	Country	Sector	-----P/E (12m fwd) -----				----- P/B -----		Yield (2011e)		HOLT		Momentum			Consensus (buy less holds & sells)	Credit Suisse rating
			Mkt Cap (US\$m)	Abs	rel to Industry	rel to mkt % above/below average	Abs	rel to mkt % above/below average	FCY	DY	Implied CFROI less 5-year average	Price, % change to best	1m EPS	3m EPS	3m Sales		
Syngenta	SWI	Materials	30,623	17.4	116%	41%	4.3	107%	5.9%	2.2%	3.8	-26.8	2.3	3.5	1.9	23.1	NR
Dow Chemical	US	Materials	42,958	13.7	91%	19%	2.4	21%	7.9%	1.7%	3.5	-27.3	5.8	6.3	4.0	-22.2	Outperform
Indofood Agri Re	SNG	Consumer Staples	2,952	14.5	100%	117%	0.0	0%	2.2%	0.8%	2.0	-27.9	2.8	5.8	-3.8	15.8	Underperform
Makhteshim Agan In	ISR	Materials	2,108	19.0	126%	138%	6.4	303%	5.8%	1.9%	0.2	-29.7	0.7	0.7	0.1	-81.8	NR
Nufarm	AUS	Materials	1,500	14.2	94%	115%	1.0	47%	6.9%	1.5%	-0.9	-30.6	0.2	5.1	-0.5	-28.6	Underperform
Ich-Israel Chem	ISR	Materials	20,845	14.7	97%	41%	31.3	1496%	7.1%	4.2%	5.0	-31.0	0.4	5.1	0.5	9.1	Neutral
Danisco A/S	DEN	Consumer Staples	5,688	20.5	142%	98%	2.6	87%	4.1%	1.8%	4.4	-32.4	1.0	6.0	2.7	-16.7	Neutral
Israel Corp	ISR	Materials	8,913	34.5	229%	294%	4.1	179%	3.7%	1.2%	2.4	-32.6	NM	NM	NM	20.0	NR
China Foods Ltd	HKG	Consumer Staples	1,783	21.1	146%	86%	2.5	84%	3.3%	1.6%	3.0	-32.8	-0.3	-9.7	-0.7	-66.7	NR
SAFCO	SAU	Materials	11,866	13.5	116%	109%	6.2	294%	7.7%	6.4%	7.3	-34.5	13.2	21.9	16.9	-16.7	Outperform
Noble Group	HKG	Industrials	10,844	14.9	175%	88%	4.2	104%	6.6%	1.8%	1.9	-34.9	-0.5	5.8	23.9	87.5	Outperform
Koor Inds	ISR	Industrials	1,129	n/a	n/a	n/a	1.1	12%	0.0%	n/a	6.4	-36.4	n/a	n/a	@NA	n/a	NR
Intrepid Potash Inc	US	Materials	2,778	25.2	167%	205%	3.8	178%	2.2%	0.0%	-3.5	-36.4	1.7	4.0	4.1	-88.9	Neutral
Cosan Sa Industria	BRA	Consumer Staples	6,249	14.3	99%	-47%	2.0	-18%	4.8%	1.8%	2.2	-44.4	4.6	6.2	5.2	60.0	Outperform
Taiwan Fertilizer	TAI	Materials	3,696	28.4	188%	45%	2.1	157%	3.2%	2.4%	15.6	-54.8	-5.5	-3.6	-4.9	61.9	Outperform

Source: MSCI, IBES, Thomson Reuters, HOLT ValueSearch, Credit Suisse research

Quant screen: Most correlated with the greatest downside potential according to HOLT

Figure 23: Agriculture-related stocks with the greatest downside according to HOLT

Name	Mkt	Sector	-----P/E (12m fwd) -----					----- P/B -----		Yield (2011e)		HOLT		Momentum			Consensus (buy less holds & sells)	CS rating
			Correl* with CRB foodstuffs	Mkt Cap (US\$m)	Abs	rel to Industry	rel to mkt % above/below average	Abs	rel to mkt % above/below average	FCY	DY	Implied CFROI less 5 yr avg	Price, % change to best	1m EPS	3m EPS	3m Sales		
Intrepid Potash Inc	US	Materials	0.46	2,778	25.2	167%	205%	3.8	178%	2.2%	0.0%	-3.5	-36.4	1.7	4.0	4.1	-88.9	N
Koor Inds	ISR	Industrials	0.40	1,129	n/a	n/a	n/a	1.1	12%	0.0%	n/a	6.4	-36.4	n/a	n/a	@NA	n/a	NR
Noble Group	HKG	Industrials	0.33	10,844	14.9	175%	88%	4.2	104%	6.6%	1.8%	1.9	-34.9	-0.5	5.8	23.9	87.5	O
SAFCO	SAU	Materials	0.36	11,866	13.5	116%	109%	6.2	294%	7.7%	6.4%	7.3	-34.5	13.2	21.9	16.9	-16.7	O
China Foods Ltd	HKG	Consumer Staples	0.30	1,783	21.1	146%	86%	2.5	84%	3.3%	1.6%	3.0	-32.8	-0.3	-9.7	-0.7	-66.7	NR
Israel Corp	ISR	Materials	0.41	8,913	34.5	229%	294%	4.1	179%	3.7%	1.2%	2.4	-32.6	NM	NM	NM	20.0	NR
Icl-Israel Chem	ISR	Materials	0.31	20,845	14.7	97%	41%	31.3	1496%	7.1%	4.2%	5.0	-31.0	0.4	5.1	0.5	9.1	N
Makhteshim Agan	ISR	Materials	0.30	2,108	19.0	126%	138%	6.4	303%	5.8%	1.9%	0.2	-29.7	0.7	0.7	0.1	-81.8	NR
Dow Chemical	US	Materials	0.41	42,958	13.7	91%	19%	2.4	21%	7.9%	1.7%	3.5	-27.3	5.8	6.3	4.0	-22.2	O
Toro Co	US	Industrials	0.32	1,910	17.5	107%	n/a	7.0	n/a	5.8%	1.3%	2.4	-24.6	0.0	1.5	NM	n/a	NR
Monsanto Co	US	Materials	0.34	40,070	24.3	161%	28%	4.0	30%	3.5%	1.5%	1.2	-22.7	-0.1	1.6	2.1	-21.7	N
K&S Ag	GER	Materials	0.53	14,915	16.5	110%	6%	4.5	53%	5.4%	2.5%	0.0	-21.6	-0.2	2.7	2.2	22.2	NR
Mosaic Co	US	Materials	0.50	36,821	16.8	111%	n/a	3.6	n/a	5.0%	0.2%	1.3	-20.5	4.6	12.8	9.9	-30.0	R
Potash Corp Sask Inc	CAN	Materials	0.41	51,612	18.5	122%	43%	6.9	183%	4.1%	0.2%	0.1	-19.7	17.6	15.3	NM	14.3	O
Sinofert Holdings	HKG	Materials	0.39	4,031	15.9	105%	7%	2.2	-49%	5.7%	0.7%	4.2	-16.1	1.4	-4.1	1.8	-7.7	NR
Incitec Pivot	AUS	Materials	0.32	7,509	13.9	92%	113%	2.0	96%	1.6%	2.1%	-1.1	-11.2	0.7	12.2	-1.0	33.3	N
Du Pont	US	Materials	0.39	48,186	14.1	93%	17%	5.4	79%	6.5%	3.1%	1.7	-7.8	5.3	9.6	4.9	20.0	N
China Bluechemical	CHI	Materials	0.32	4,198	15.1	100%	n/a	3.2	n/a	-0.8%	2.1%	-0.5	-3.1	1.7	0.2	1.3	64.7	NR
Agrium Inc	CAN	Materials	0.41	14,393	14.2	94%	23%	2.8	36%	7.2%	0.1%	-0.6	-0.9	6.6	12.1	4.4	40.0	O

Source: MSCI, IBES, Thomson Reuters, HOLT ValueSearch, Credit Suisse research

* Correlation co-efficients between each stock and the CBR Foodstuffs index based on weekly % changes in USD prices over the last year

Longer-term: Solid demand and questionable supply

Although in the short-term we think that the substantial run-up in prices over the past two years means that the market is now a little ahead of itself and due some correction, longer-term trends in the supply-demand dynamics for agricultural production are still relatively tight.

Figure 24 summarises why: Historically, demand growth has averaged 2.2% pa and supply growth has matched this given strong growth in productivity. As productivity growth has slowed (the average growth in world cereal yields is just 1.3% p.a. between 1999 and 2009), inventories have been used to meet the gap between supply and demand.

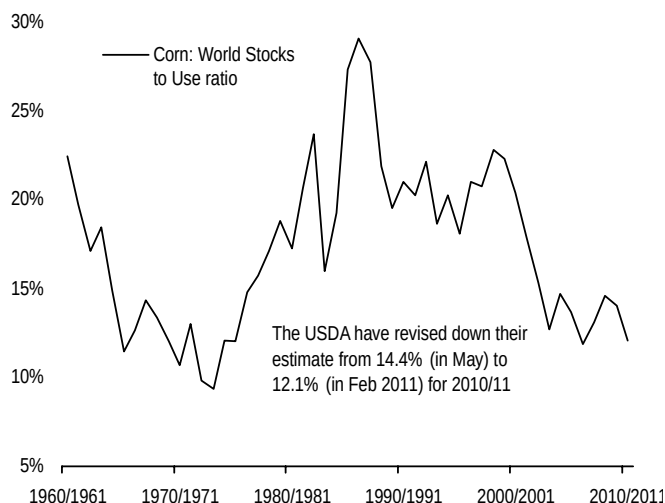
Figure 24: Supply and demand growth in global agricultural produce

	Average annual growth (%)		
	Since 1960	Past 10 years	Next 5 years
Global demand for agriculture	2.2	2.3	2.3
Global supply of agriculture			
from arable land	0.2	0.2	-
from productivity*	2.0	1.3	-

Source: FAO, Credit Suisse research and estimates. * productivity growth based on cereal yields

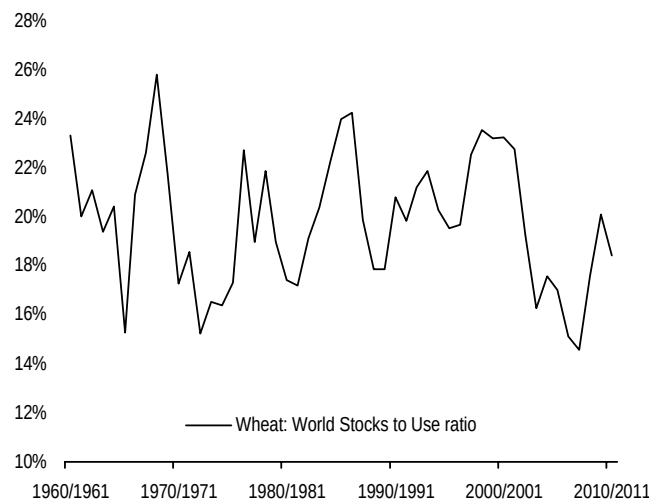
Inventories for some of the major soft commodities are now at relatively low levels:

Figure 25: World corn: stocks-to-use ratio



Source: USDA, Credit Suisse research

Figure 26: World wheat: stocks-to-use ratio



Source: USDA, Credit Suisse research

To some extent, this decline in inventories was by design. Governments in Europe cut farm subsidies partly to improve fiscal obligations, but also to reduce the wine lakes and grain mountains that were a significant feature of the 1980s. Hence, part of the rise in soft commodity prices that we have seen is simply the private sector offsetting the fall in public sector funding to the agriculture sector.

The question is what it will take for supply to match demand growth over the long term. Higher prices are the obvious catalyst to promote sufficient supply.

We summarise our demand projections and supply potential in the discussion below.

Agricultural demand: Solid growth

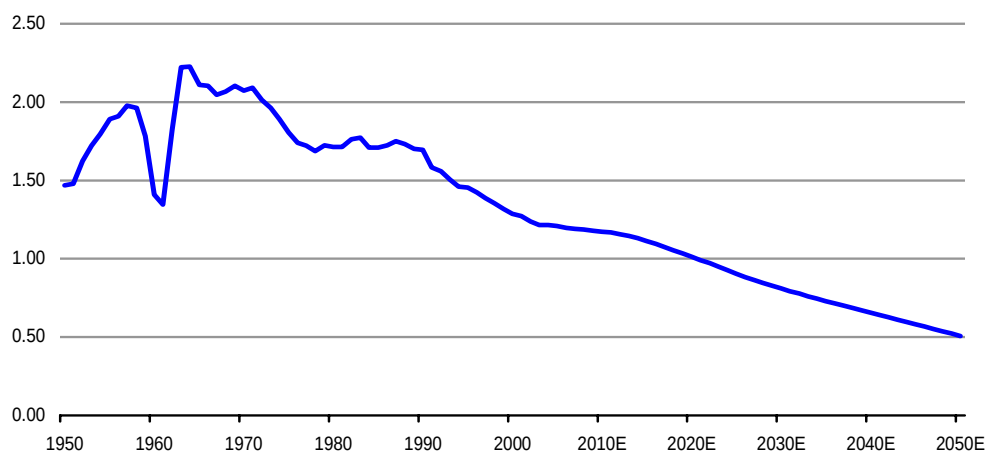
We forecast demand growth will continue in the region of 2.3% pa. This comprises three main components:

- growth in the global population equal to 1.1% growth pa over the next five years;
- continued increase in calorific intake and shift in dietary trends (greater meat consumption), which adds a further 1.0% pa to global food demand;
- biofuels expansion: Even in a worst-case scenario (ie, assuming the European biodiesel industry is phased out), we estimate growth in biofuel demand of some 10bps pa over the next five years; in the best-case scenario, additional demand from the global biofuel industry could be in excess of 40bps pa.

Population growth and food demand

The global population is forecast to deliver compound annual growth of roughly 1% through to 2030 (1.1% CAGR over the next five years), according to the UN. As is well known, however, this is a declining rate of growth.

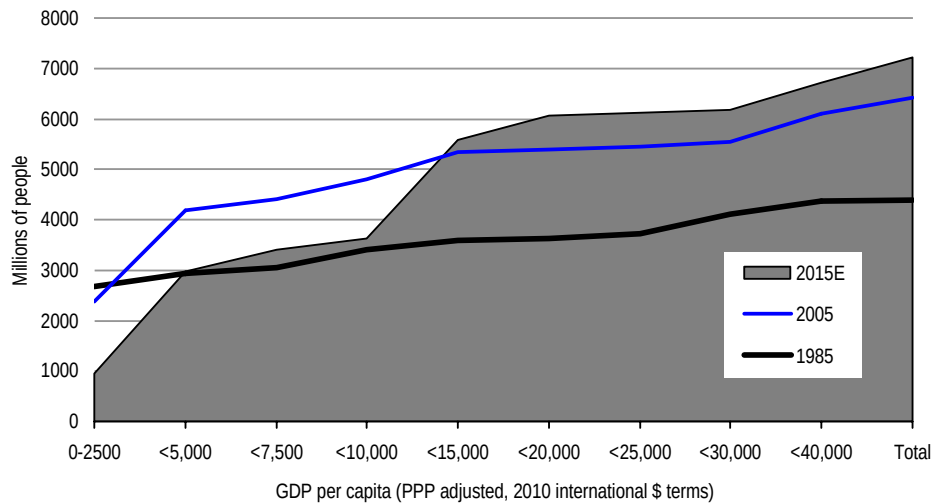
Figure 27: Global population growth (% yoy)



Source: US Census Bureau, International Data Base, Credit Suisse research

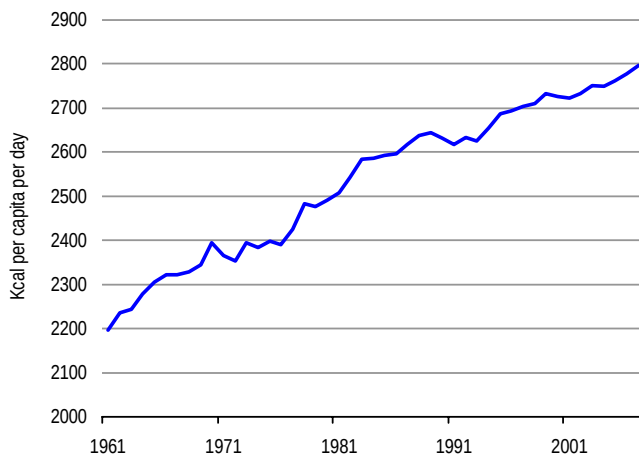
However, this growth benefits the agricultural industry more now than it has historically because of continued relative improvement in the gross income of the poorest segment of the global population (which is where the population growth is concentrated).

As we illustrate in Figure 28, in 1985, some 67% of the world population (2.9bn people) lived in countries with GDP per capita of less than US\$5,000 (based on 2010 prices and adjusted for PPP). By 2010, this had fallen to 45% of the global population (equivalent to 3.0bn people) and by 2015, on IMF estimates, this should have declined further to 41% (or 2.9bn people). Hence, the global population is forecast to grow by 1.1% CAGR over the next five years, but the number of people in the world living in countries with GDP per capita in excess of US\$5,000 grows by 2.5% CAGR to 2015 and the number of people in countries with GDP per capita over US\$10,000 (on 2010 prices and PPP adjusted) grows by 12.8% CAGR to 2015.

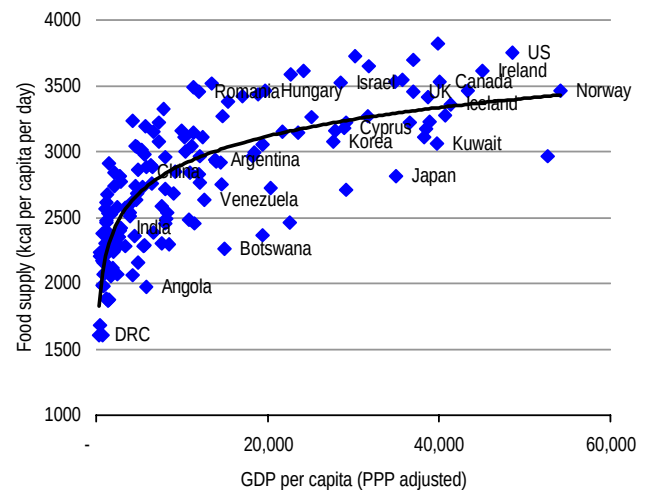
Figure 28: Income distribution across the global population

Source: IMF, Credit Suisse research

As the proportion of the global population on extremely low incomes diminishes, there is likely to be further uptake in global calorie consumption per capita, as well as continued improvement in levels of nutrition. As we illustrate in Figure 29 and Figure 30, global calorie consumption per capita has been on a steady upward trend over the past 40 years and the strong relationship between consumption and the level of GDP per capita suggests this trend should continue if emerging market incomes continue to converge on developed market levels.

Figure 29: World calorie supply (kcal per capita per day)

Source: FAOSTAT, Credit Suisse research

Figure 30: Calorie supply per capita versus GDP per capita

Source: FAOSTAT, IMF, Credit Suisse research

Growth in calorie consumption is much stronger as real incomes move away from low levels of GDP per capita. Calorie consumption is largely insensitive to changes in higher relative levels of income per capita. The corollary to this is that higher levels of GDP per capita in low income economies have a more positive effect on global food consumption than commensurate falls in income in wealthy economies have a negative impact.

If we assume that the relationship between GDP and calorie consumption per capita continues to hold, we can derive the calorie consumption per capita numbers for each market from the five-year GDP per capita forecasts in the latest IMF outlook. This implies growth in calorie consumption per capita of 0.5% pa over the next five years (from the end of 2010 through to 2015E).

Moreover, practically half of the increase in global calorie consumption in the past ten years has come from greater meat consumption, according to the FAO. The rationale is obvious: higher incomes foster better nutrition and hence more protein in the diet. Feed conversion factors range from just less than 2:1 (for chickens), to roughly 5:1 (for pork) and 6:1 (for beef). If we conservatively assume that the weighted average feed conversion factor for all animal products is 3, then we can roughly estimate that growth in global food demand over the next five years comes to 2.2%:

Figure 31: Estimated CAGR in global food demand over the next five years

Factor	Calculation	Result
Population growth % pa		1.20% pa
Growth in calorie consumption (from vegetable products)	0.5% pa x 50% (ie, growth in calorie consumption implied by IMF GDP per capita forecasts multiplied by the contribution of vegetable products to calorie consumption growth)	0.25% pa
Growth in calorie consumption (from animal products)	0.5% pa x 50% x 3 (ie, growth in calorie consumption implied by IMF GDP per capita forecasts multiplied by the contribution of animal products to calorie consumption growth multiplied by the feed conversion factor of 3:1)	0.75% pa
Growth in global food demand		2.20% pa

Source: UN, IMF, Credit Suisse estimates

Bio-fuels: important for the US and Brazil

Finally, the bio-fuel industry also adds to the demand equation. We have previously estimated that relative demand from the bio-fuel industry is relatively small—we estimate that only c.3% of *global* arable acreage would have been allocated towards bio-fuel production in 2009. However, the sector does represent a meaningful proportion of US and Brazilian agricultural demand (approximately 16% of total US acreage and 10% of Brazilian acreage). The US EIA expects ethanol production to increase by 6% in 2011 (vs nearly 8% in H2 2010). This reflects the start-up of ongoing projects and the restart of some plants that were idled during the recession. The EIA expects that this growth will slow to 1% in 2012.

Taking into account bio-fuel programmes across the major markets, we estimate that the industry will account for between 10bps (worst case scenario) and 40bps (assuming most bio-fuel mandates and targets around the world are adhered to) over the next three years in terms of global agricultural demand. This is small but not insignificant given issues with supply.

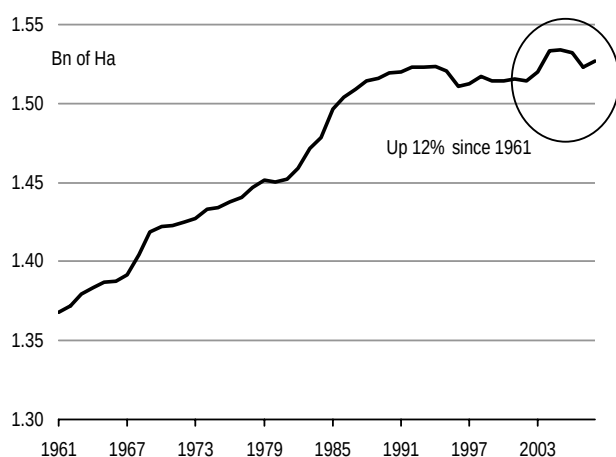
Agricultural supply: Plenty of potential—if only it can be realised

The two avenues to increase agricultural supply are: (i) arable acreage and (ii) productivity growth.

(i) Acreage: Growth hampered by infrastructure bottlenecks

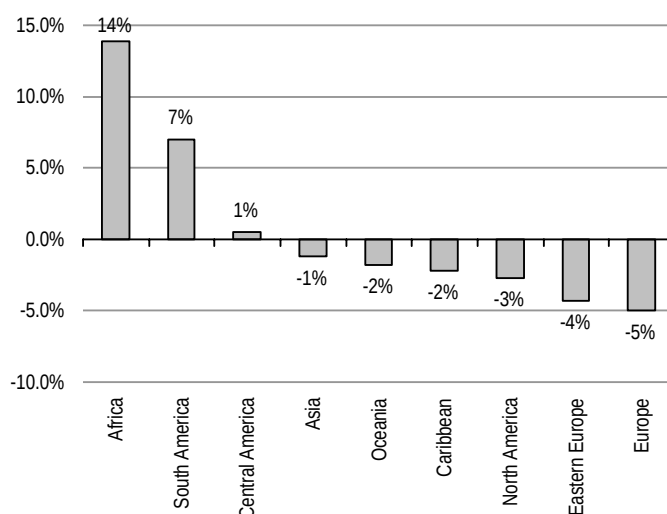
Cultivated acreage has expanded by 12% globally since 1961, according to the FAO. Most of this increase can be attributed to South America (Brazilian cropland has increased by 141% since 1961 and now accounts for 4.5% of the world's agricultural land). More recently, the rate of growth in arable land has slowed to close to zero on aggregate. Negative growth rates in Europe and North America have been offset by expansion in Africa and South America.

Figure 32: World total – Arable and permanent cropland



Source: FAO, Credit Suisse research

Figure 33: Regional growth in arable and permanent cropland over the past 10 years



Source: FAO, Credit Suisse research

However, there are still areas where acreage could be expanded. This is particularly the case in Brazil (and other South American markets), in Indonesia and in the Black Sea region. In Figure 34 we summarise various estimates on arable acreage potential.

Figure 34: Areas of potential acreage expansion

Area (1000 Ha)	Current	Additional potential acreage
Europe	94,294	1,000
US	173,158	12,950
Brazil	66,500	106,000
Other Latam	59,290	76,000
Indonesia	37,500	102,000
Russia*	123,368	10,397
Ukraine*	33,333	1,120
World total	1,553,689	309,468
as % of world total		20%

Source: Conab, Indonesian Ministry of Agriculture, USDA, FAO, Credit Suisse research

* Numbers for additional potential acreage in Russia and the Ukraine reflect the difference between the area of land that is currently cultivated in these markets and the much greater area that was being used back in 1992. Potential acreage could be significantly higher than this.

The greatest untapped potential lies in **Brazil and other South American** markets. Using statistics from the Inter-American Development Bank, we previously estimated that maximising cultivation in Colombia, Paraguay and Argentina would add 76 million hectares (or 4.9% to the world's pool of arable land). In Brazil, Conab estimates that there are 106m ha of unallocated land potentially available for agricultural development, which would add another 6.9% to global arable acreage, plus there is scope to convert some of Brazil's 220m ha of pasture if more intensive techniques in livestock farming are used.

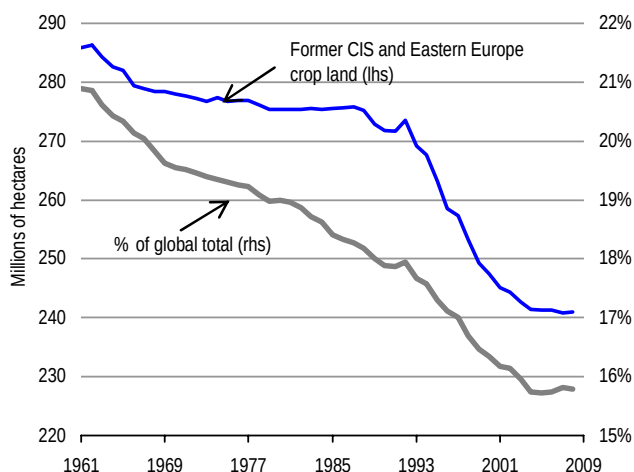
However, the major issue across South America is infrastructure. The main agricultural production areas of Brazil (in the mid-west) are situated, on average, 1,500km from the nearest of the country's three main ports. Argentina is somewhat better off: the distance to the main ports (Rosario and Buenos Aires) is c300km. Paved highways are also relatively limited: 30% of Argentina's highways are paved compared with 10% in Brazil.

The major cap on greater agri-exports from Brazil is still the infrastructure

Indonesia also has potential for expansion and has been aggressively expanding its oil palm cultivation in the past ten years at a CAGR of about 6–7%. Indonesia potentially still has half of its land available for planting, according to government statistics. Indonesia is aggressively going ahead with planting oil palms on this logged-over land now, but faces some resistance from NGOs to the extent that this encroaches on virgin jungle. Nevertheless, using all the temporary fallow land (102m ha) could add 6.6% to the pool of total global arable land. This will take time to realise.

Arable acreage in the **Black Sea region is dominated by Russia, the Ukraine and Kazakhstan**. Post the decline of the communist era, the former CIS and eastern European markets saw a considerable slump in arable acreage (latest data show acreage is down 11% on 1992 levels) as well as crop yields. Crop yields have revived over the past ten years but relative to global developments the region is still a considerable laggard.

Figure 35: Former CIS and Eastern European arable acreage

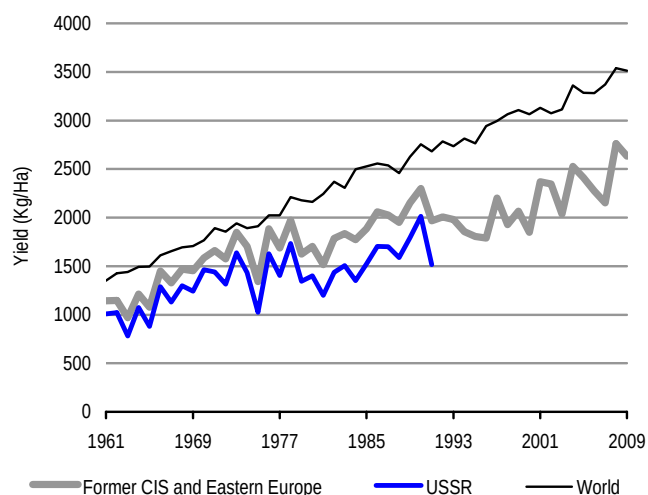


Source: FAO, Credit Suisse research

Returning to the same level of arable acreage as in 1992 would add 32 million hectares or 1.9% to the total of global arable acreage. In addition, if we assumed that yields in the former CIS and Eastern European markets had improved by the same degree as global yields since 1992, this would add a further 2.0% to global agricultural production.

However, it is probably unrealistic to anticipate a rapid improvement in large parts of the agricultural production of the Former Eastern bloc as many of these markets lack the scale to attract substantial foreign capital. Russia is the clear exception. It accounts for 51% of the arable acreage of the region. Returning arable acreage in Russia to 1992 levels would add just over 10m hectares, or 0.6%, to the total of global arable acreage.

Figure 36: Former CIS and Eastern European cereal yields



Source: FAO, Credit Suisse research

Agricultural reform in Russia is slowly taking place. The government launched an agricultural renovation programme in 2001 that restricted farm imports, reduced taxes, subsidised loans and provided farmers with cheap equipment leasing. In 2002, Putin ratified new laws opening farms up to purchase, ownership or lease by private firms, be they domestic or foreign. These sales were slow to take effect at first, but have picked up in recent years. Large private agro-holdings have been making steady gains and now cultivate about 20% of employed land. Foreign investment in Russian agriculture went up from US\$156m in 2005 to US\$862m in 2008, according to the national statistics agency. More recently, in February 2010, President Medvedev approved a national food security doctrine, which sets minimum self-sufficiency production goals as well as quality targets in all main food production categories. Specifically, the aim of the doctrine is to boost the production of basic foodstuffs by 80% by 2020.

The main obstacles for investors in the region are: (a) infrastructure—lack of paved roads and port capacity to transport goods to market; (b) political risks—lessons may have been learned in the energy sector where foreign investors lost control of certain assets to the Kremlin as oil profits soared; (c) labour shortage—urban migration over the 1990s has left rural populations skewed towards the very old or very young.

Acreage growth: The best case scenario is c.1.0% growth pa

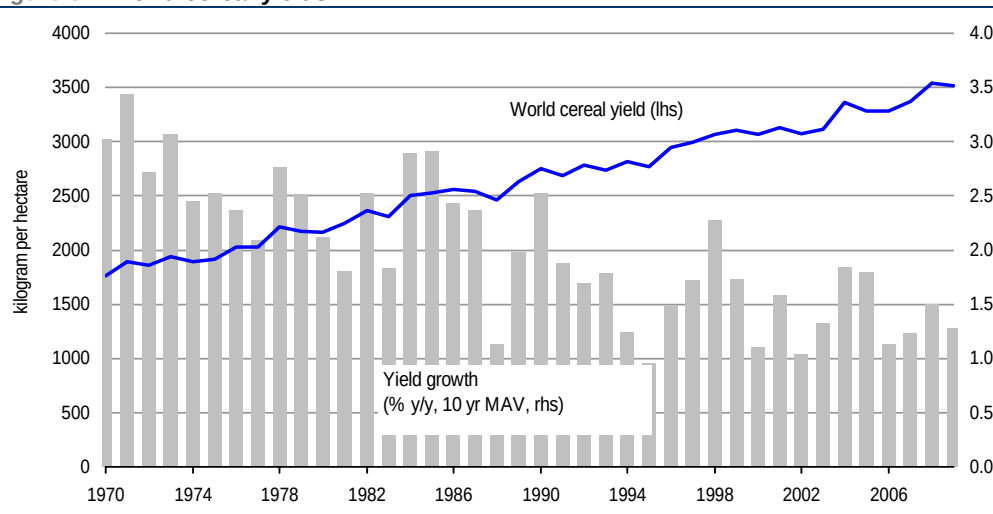
To summarise, there are three key points on acreage:

- Adding up all the land that could be put to agricultural production still only reaches 20% of current acreage, which is not particularly high given the long-term outlook for demand growth.
- If we assume that half of the total potential in Indonesia, South America and Russia can be realised over the next ten years, it still only equates to 1.0% pa. Reducing the amount of land tied up in the US CRP (Conservation Reserve Program) could also add to global arable acreage, but this is quite small in a global context.
- Finally, we note that global arable acreage has only averaged growth of 0.2% pa over the past 50 years, hence it would be a considerable improvement if arable acreage could grow at 1.0%.

(ii) Productivity: Growth has slowed but potential is significant

Over the past 50 years, world cereal yields have grown by 2.0% pa on average, but over the past ten years, the rate of growth has slowed to just 1.3% pa.

Figure 37: World cereal yields

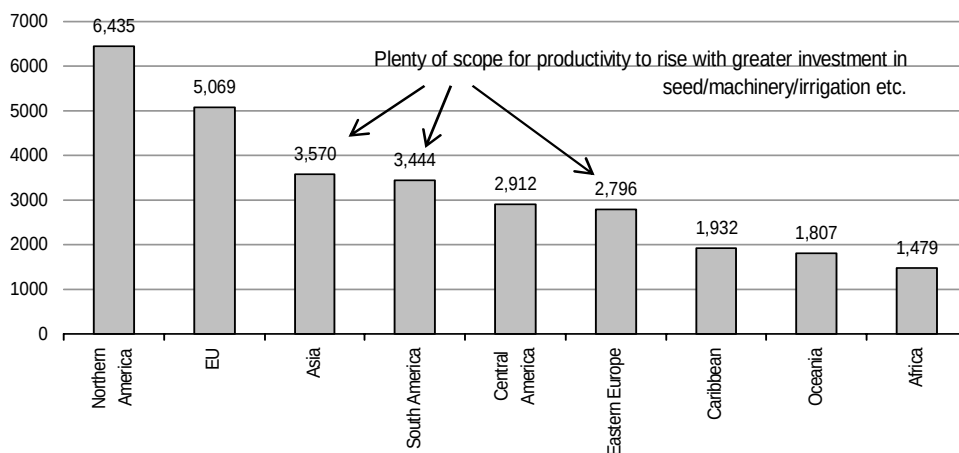


Source: FAO, Credit Suisse research

It comes as no particular surprise to us that the rate of growth has slowed. Maintaining the same output growth at higher output levels is naturally a tougher proposition for any industry. However, there is arguably still significant potential to boost yields.

We note that the gap between the average yields in the emerging regions and the more developed markets is significant. According to the FAO, the latest data (2009) show that Eastern European cereal yields are 57% below the North American average and 45% below the EU average (where the use of GM seed remains extremely limited). South American and Asian yields are 46% and 45%, respectively, below the North American average.

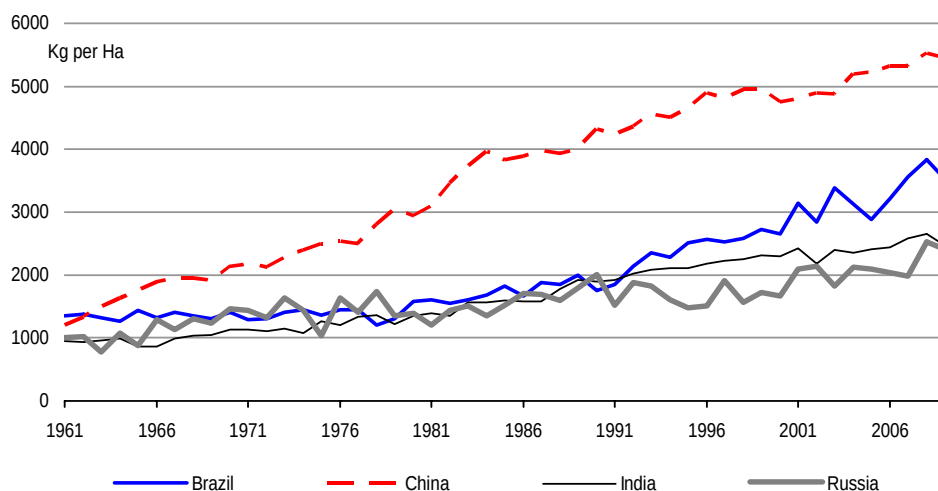
Figure 38: Regional cereal yields (kg per Ha)



Source: FAO, Credit Suisse research

Within the BRIC markets, China is well ahead of the pack. Cereal yields averaged 5,460kg per ha in China compared with 3,526kg in Brazil in 2009. However, the relative outperformance of Chinese yields was strongest in the 1970s and 1980s compared with the other BRIC economies (mainly through the increase of fertiliser utilisation). More recently, Brazil has delivered the strongest momentum in yield growth (due to the rapid professionalisation of agriculture in the country).

Figure 39: Cereal yields (kg per Ha) in the BRIC markets (1961–2009)



Source: FAO, Credit Suisse research

Yield determination depends on a wide variety of factors, many of which are largely inflexible (eg soil type and climate), but other inputs are variable and the data suggest that much can still be done to deliver higher yields across many of the emerging economies.

(1) The use of better seed technology (GM or otherwise) and wider application of pest control products has meant an exceptionally large boost to yields in certain regions. While these practices are widely undertaken across the developed markets, penetration across many of the emerging regions is still relatively low.

This was apparent during the recession: seed and crop protection companies still delivered strong sales growth despite the downturn partly because they were not exposed to smaller and less profitable farmers.

Data on GM penetration illustrate the point. The use of GM seed is relatively high in some markets, but across many major agricultural producers it is still close to zero. As this changes, we can expect global yields to continue to improve.

Figure 40: Cultivation areas for GM crops in 2009

Country	GM Acreage	Type of GM crops planted	GM as % total acreage
US	64	Soybean, maize, cotton, canola, squash, papaya, alfalfa, sugar beet	37.5%
Brazil	21.4	Soybean, maize, cotton	35.1%
Argentina	21.3	Soybean, maize, cotton	66.6%
India	8.4	Cotton	5.3%
Canada	8.2	Canola, maize, soybean, sugar beet	18.2%
China	3.7	Cotton, tomato, poplar, petunia, papaya, sweet pepper	3.4%
Paraguay	2.2	Soybean	52.4%
South Africa	2.1	Maize, soybean, cotton	14.5%
Uruguay	0.8	Soybean, maize	48.8%
Bolivia	0.8	Soybean	22.2%
Philippines	0.5	Maize	9.4%
Australia	0.2	Cotton, canola	0.5%
Burkina Faso	0.1	Cotton	1.6%
Mexico	0.1	Cotton, soybean	0.4%
Spain	0.1	Maize	0.8%

Source: ISAAA (International Service for the Acquisition of Agri-biotech Applications)

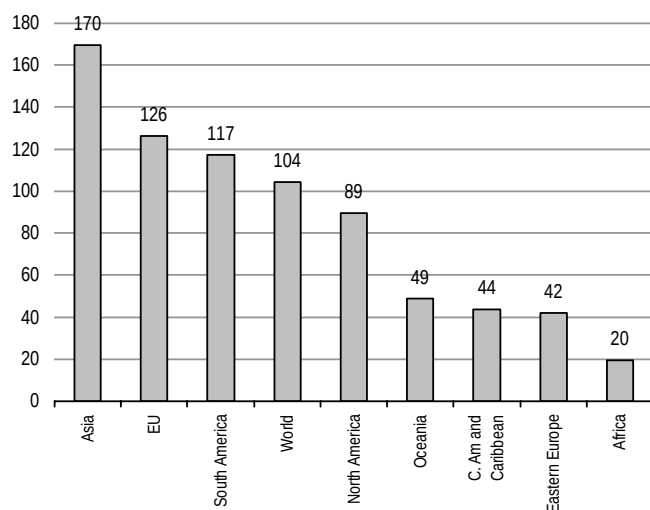
In the US, most corn, soybean, and cotton acreage is already planted with GM seeds, but seed producers are working on upgrading their product offerings and developing new traits that will drive additional yield improvement. Products in the pipeline include drought-tolerant corn, other forms of herbicide tolerance, and nitrogen-utilisation corn. Over the long term, the companies look to expand into the sugarcane and wheat markets.

Outside the US, seed companies are focused on increasing GM use in Brazil and Argentina over the near term. Monsanto is also working on an insect-protection soybean trait for the Brazilian market with a targeted commercial launch in 2013.

For Syngenta, the focus markets are Brazil and the Ukraine: sales in these markets have achieved a 19% and 30% CAGR, respectively, over the past five years.

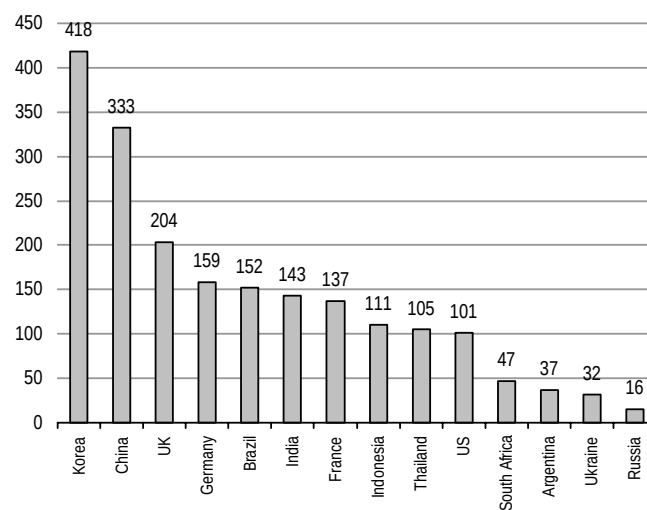
(2) Fertiliser usage is still exceptionally low in Africa (18% of the global average per ha was used in 2009) as well as in Eastern Europe and key parts of South America.

Figure 41: Regional fertiliser consumption (tonnes of nutrients per 1,000 Ha of arable acreage)



Source: FAO, Credit Suisse research

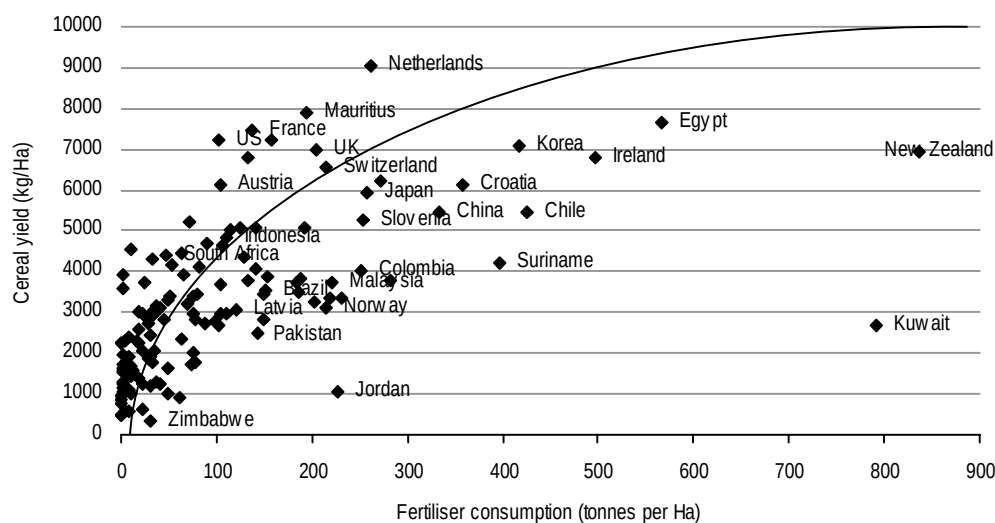
Figure 42: Fertiliser consumption by market (tonnes of nutrients per 1,000 Ha of arable acreage)



Source: FAO, Credit Suisse research

There is plenty of evidence to suggest that greater use of fertilisers boosts yields. However, there is clearly an optimum level of application (depending on the soil type, the slope of the land and climatic conditions). Korea and China (among other markets) are probably using above the optimum level of fertilisers.

Figure 43: Fertiliser consumption versus cereal yields (2009)



Source: FAO, Credit Suisse research

We expect long-term fertilizer consumption to grow 2–4%, depending on the nutrient. We expect Potash demand to see the highest growth of 3–4%, driven by rising domestic demand in China and India, the need to replenish potassium-deficient soils in Brazil, and increasing Brazilian crop acreage. The industry is relatively consolidated, with the majority of quality reserves located in Canada and Russia and 80% of global supply controlled by six producers. New supply outside of PotashCorp's ongoing capacity expansions is limited over the next five years, and potash prices will likely need to move higher in order to incentivise greenfield investments.

We expect Phosphate demand to grow 2–3%, driven by increasing demand in China, India, and Brazil. We anticipate substantial new supply from Saudi Arabia and Morocco over the next 5–10 years.

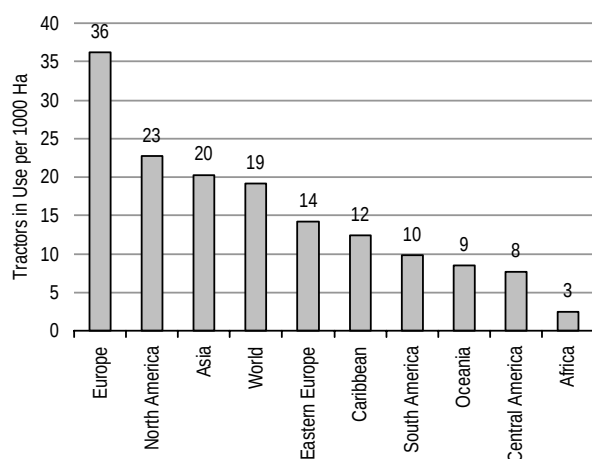
We see nitrogen demand for fertilizer use growing more modestly at 1–2% annually. Nitrogen application rates have historically been higher than phosphate and potash owing to the easier access to nitrogen and the greater awareness of nitrogen benefits (nitrogen use has an immediate impact on crop yields). Nitrogen supply is plentiful, with new export supply expected from the Middle East and Africa over the next few years. Increased industrial use of nitrogen is likely to boost overall nitrogen demand growth by an additional 1–2% pa over the next five years.

(3) Productivity and yields could also be considerably boosted through greater use of farm equipment.

Farm equipment sales into Asia have been growing particularly strongly over the past couple of years.

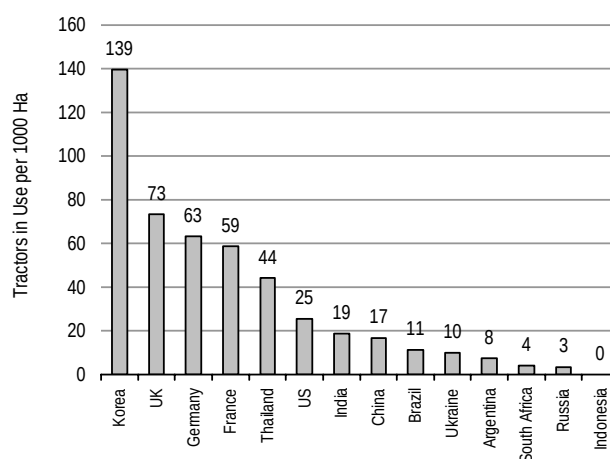
However, according to the FAO, the use of farm equipment in several significant agricultural centres is still exceptionally low. Russia, South Africa, Argentina, Ukraine, Brazil and China all register a particularly low use of tractors per hectare.

Figure 44: Tractors per 1,000 Ha by region



Source: FAO, Credit Suisse research

Figure 45: Tractors per 1,000 Ha by market



Source: FAO, Credit Suisse research

Greater mechanisation in these markets is under way and we can expect momentum to be well supported by better farm profitability.

Companies Mentioned (Price as of 15 Feb 11)

Acron (AKRN.RTS, \$47.10, NEUTRAL [V], TP \$45.80)
 AGCO Corp (AGCO, \$53.62, NEUTRAL, TP \$55.00)
 Agrium Inc. (AGU, \$95.35, OUTPERFORM [V], TP \$105.00)
 Archer Daniels Midland Inc. (ADM, \$36.46, OUTPERFORM, TP \$40.00)
 Bayer (BAYGn.DE, Eu56.00, OUTPERFORM, TP Eu66.00, OVERWEIGHT)
 Bucher Industries (BUCN.S, SFr195.00, NEUTRAL, TP SFr185.00, OVERWEIGHT)
 Bunge Limited (BG, \$72.31, OUTPERFORM, TP \$88.00)
 Cargill Inc (FI136991)
 CF Industries (CF, \$143.90, OUTPERFORM, TP \$162.00)
 Corn Products International (CPO, \$48.05)
 Cosan (CSAN3, R\$24.75, OUTPERFORM [V], TP R\$32.00)
 Danisco (DCO.CO, DKr661.00, NEUTRAL, TP DKr665.00, OVERWEIGHT)
 Deere & Co. (DE, \$93.62, OUTPERFORM, TP \$91.00)
 Dow Chemical Company (DOW, \$37.96, OUTPERFORM [V], TP \$44.00)
 E.I. du Pont de Nemours and Company (DD, \$54.11, NEUTRAL, TP \$58.00)
 Golden Resources Development (0677.HK, HK\$55)
 Graincorp (GNC.AX, A\$7.69, UNDERPERFORM, TP A\$8.00)
 Incitec Pivot (IPL.AX, A\$4.54, NEUTRAL, TP A\$5.00)
 Indofood Agri Resources Ltd (IFAR.SI, S\$2.49, UNDERPERFORM [V], TP S\$2.12)
 Industries Qatar (IQCD.QA, QR148.50, OUTPERFORM, TP QR160.00)
 Intrepid Potash Inc. (IPI, \$38.27, NEUTRAL [V], TP \$35.00)
 IOI Corporation (IOIB.KL, RM5.58, UNDERPERFORM, TP RM5.00)
 Israel Chemicals (ICL.TA, NIS62.60, NEUTRAL, TP NIS68.40)
 K + S (SDFG.DE, Eu58.60)
 Makhteshmin-Agan Industries (MAIN.TA, NIS18.59)
 Monsanto Company (MON, \$71.54, NEUTRAL, TP \$59.00)
 Mosaic Co (MOS, \$84.92, RESTRICTED [V])
 Noble Group Ltd (NOBG.SI, S\$2.11, OUTPERFORM, TP S\$2.60)
 Nufarm (NUF.AX, A\$5.50, UNDERPERFORM [V], TP A\$4.65)
 Potash Corporation of Saskatchewan (POT, \$183.64, OUTPERFORM [V], TP \$189.00)
 PT Astra Agro Lestari Tbk (AALI.JK, Rp23000.00, UNDERPERFORM, TP Rp16988.00)
 PT London Sumatra Indonesia (LSIP.JK, Rp11100.00, UNDERPERFORM, TP Rp9852.00)
 Saudi Arabian Fertilizer Company (2020.SE, SRIs191.75, OUTPERFORM, TP SRIs232.00)
 Saudi Arabian Mining Co. (1211.SE, SRIs24.30, OUTPERFORM, TP SRIs27.99)
 Sime Darby (SIME.KL, RM9.28, UNDERPERFORM, TP RM7.80)
 SLC Agrícola (SLCE3, R\$19.75, OUTPERFORM, TP R\$27.00)
 Suedzucker (SZUG.DE, Eu20.60)
 Syngenta (SYNN.VX, SFr320.60)
 Taiwan Fertilizer Co Ltd (1722.TW, NT\$98.00, OUTPERFORM, TP NT\$139.20)
 Tekfen Holding (TKFEN.IS, TRY6.70, OUTPERFORM, TP TRY7.94)
 The Scotts Company (SMG, \$52.43)
 United Tractors (UNTR.JK, Rp23200.00, OUTPERFORM, TP Rp28000.00)
 Uralkali (URKAq.L, \$37.97, OUTPERFORM [V], TP \$46.00)
 Vale Fertilizantes (FFTL4, R\$18.29, OUTPERFORM, TP R\$27.00)
 Viterra (VT.TO, C\$11.79, OUTPERFORM, TP C\$13.00)
 Wilmar International Ltd (WLIL.SI, S\$5.30, OUTPERFORM, TP S\$6.60)
 Yara International ASA (YAR.OL, NKr324.90, NEUTRAL [V], TP NKr341.00, MARKET WEIGHT)

Disclosure Appendix

Important Global Disclosures

The analysts identified in this report each certify, with respect to the companies or securities that the individual analyzes, that (1) the views expressed in this report accurately reflect his or her personal views about all of the subject companies and securities and (2) no part of his or her compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors including Credit Suisse's total revenues, a portion of which are generated by Credit Suisse's investment banking activities.

Analysts' stock ratings are defined as follows:

Outperform (O): The stock's total return is expected to outperform the relevant benchmark* by at least 10-15% (or more, depending on perceived risk) over the next 12 months.

Neutral (N): The stock's total return is expected to be in line with the relevant benchmark* (range of ± 10 -15%) over the next 12 months.

Underperform (U): The stock's total return is expected to underperform the relevant benchmark* by 10-15% or more over the next 12 months.

Relevant benchmark by region: As of 29th May 2009, Australia, New Zealand, U.S. and Canadian ratings are based on (1) a stock's absolute total return potential to its current share price and (2) the relative attractiveness of a stock's total return potential within an analyst's coverage universe, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. Some U.S. and Canadian ratings may fall outside the absolute total return ranges defined above, depending on market conditions and industry factors. For Latin American, Japanese, and non-Japan Asia stocks, ratings are based on a stock's total return relative to the average total return of the relevant country or regional benchmark; for European stocks, ratings are based on a stock's total return relative to the analyst's coverage universe**. For Australian and New Zealand stocks a 22% and a 12% threshold replace the 10-15% level in the Outperform and Underperform stock rating definitions, respectively, subject to analysts' perceived risk. The 22% and 12% thresholds replace the +10-15% and -10-15% levels in the Neutral stock rating definition, respectively, subject to analysts' perceived risk.*

***An analyst's coverage universe consists of all companies covered by the analyst within the relevant sector.*

Restricted (R): In certain circumstances, Credit Suisse policy and/or applicable law and regulations preclude certain types of communications, including an investment recommendation, during the course of Credit Suisse's engagement in an investment banking transaction and in certain other circumstances.

Volatility Indicator [V]: A stock is defined as volatile if the stock price has moved up or down by 20% or more in a month in at least 8 of the past 24 months or the analyst expects significant volatility going forward.

Analysts' coverage universe weightings are distinct from analysts' stock ratings and are based on the expected performance of an analyst's coverage universe* versus the relevant broad market benchmark:**

Overweight: Industry expected to outperform the relevant broad market benchmark over the next 12 months.

Market Weight: Industry expected to perform in-line with the relevant broad market benchmark over the next 12 months.

Underweight: Industry expected to underperform the relevant broad market benchmark over the next 12 months.

**An analyst's coverage universe consists of all companies covered by the analyst within the relevant sector.*

***The broad market benchmark is based on the expected return of the local market index (e.g., the S&P 500 in the U.S.) over the next 12 months.*

Credit Suisse's distribution of stock ratings (and banking clients) is:

Global Ratings Distribution		
Outperform/Buy*	46%	(63% banking clients)
Neutral/Hold*	41%	(60% banking clients)
Underperform/Sell*	11%	(52% banking clients)
Restricted	2%	

**For purposes of the NYSE and NASD ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor's decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.*

Credit Suisse's policy is to update research reports as it deems appropriate, based on developments with the subject company, the sector or the market that may have a material impact on the research views or opinions stated herein.

Credit Suisse's policy is only to publish investment research that is impartial, independent, clear, fair and not misleading. For more detail please refer to Credit Suisse's Policies for Managing Conflicts of Interest in connection with Investment Research: http://www.csfb.com/research-and-analytics/disclaimer/managing_conflicts_disclaimer.html

Credit Suisse does not provide any tax advice. Any statement herein regarding any US federal tax is not intended or written to be used, and cannot be used, by any taxpayer for the purposes of avoiding any penalties.

Important Regional Disclosures

Singapore recipients should contact a Singapore financial adviser for any matters arising from this research report.

Restrictions on certain Canadian securities are indicated by the following abbreviations: NVS--Non-Voting shares; RVS--Restricted Voting Shares; SVS--Subordinate Voting Shares.

Individuals receiving this report from a Canadian investment dealer that is not affiliated with Credit Suisse should be advised that this report may not contain regulatory disclosures the non-affiliated Canadian investment dealer would be required to make if this were its own report.

For Credit Suisse Securities (Canada), Inc.'s policies and procedures regarding the dissemination of equity research, please visit http://www.csfb.com/legal_terms/canada_research_policy.shtml.

The following disclosed European company/ies have estimates that comply with IFRS: BUCN.S, DCO.CO, SYNN.VX, YAR.OL.

As of the date of this report, Credit Suisse acts as a market maker or liquidity provider in the equities securities that are the subject of this report.

Principal is not guaranteed in the case of equities because equity prices are variable.

Commission is the commission rate or the amount agreed with a customer when setting up an account or at anytime after that.

To the extent this is a report authored in whole or in part by a non-U.S. analyst and is made available in the U.S., the following are important disclosures regarding any non-U.S. analyst contributors:

The non-U.S. research analysts listed below (if any) are not registered/qualified as research analysts with FINRA. The non-U.S. research analysts listed below may not be associated persons of CSSU and therefore may not be subject to the NASD Rule 2711 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

- Mary Curtis, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Europe) Limited.
- Tan Ting Min, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Malaysia) Sdn Bhd..

- Teddy Oetomo, non-U.S. analyst, is a research analyst employed by PT Credit Suisse Securities Indonesia.
- Rhian Tucker, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Europe) Limited.
- Lars Kjellberg, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Europe) Limited.
- Luiz Otavio Campos, CFA, non-U.S. analyst, is a research analyst employed by Banco de Investimentos Credit Suisse (Brasil) S.A. or its affiliates.
- Richard Kersley, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Europe) Limited.
- Mujtaba Rana, non-U.S. analyst, is a research analyst employed by Credit Suisse Securities (Europe) Limited.

Where this research report is about a non-Taiwanese company, written by a Taiwan-based analyst, it is not a recommendation to buy or sell securities

Important Credit Suisse HOLT Disclosures

With respect to the analysis in this report based on the Credit Suisse HOLT methodology, Credit Suisse certifies that (1) the views expressed in this report accurately reflect the Credit Suisse HOLT methodology and (2) no part of the Firm's compensation was, is, or will be directly related to the specific views disclosed in this report.

The Credit Suisse HOLT methodology does not assign ratings to a security. It is an analytical tool that involves use of a set of proprietary quantitative algorithms and warranted value calculations, collectively called the Credit Suisse HOLT valuation model, that are consistently applied to all the companies included in its database. Third-party data (including consensus earnings estimates) are systematically translated into a number of default variables and incorporated into the algorithms available in the Credit Suisse HOLT valuation model. The source financial statement, pricing, and earnings data provided by outside data vendors are subject to quality control and may also be adjusted to more closely measure the underlying economics of firm performance. These adjustments provide consistency when analyzing a single company across time, or analyzing multiple companies across industries or national borders. The default scenario that is produced by the Credit Suisse HOLT valuation model establishes the baseline valuation for a security, and a user then may adjust the default variables to produce alternative scenarios, any of which could occur. Additional information about the Credit Suisse HOLT methodology is available on request.

The Credit Suisse HOLT methodology does not assign a price target to a security. The default scenario that is produced by the Credit Suisse HOLT valuation model establishes a warranted price for a security, and as the third-party data are updated, the warranted price may also change. The default variables may also be adjusted to produce alternative warranted prices, any of which could occur.

CFROI®, HOLT, HOLTfolio, HOLTselect, ValueSearch, AggreGator, Signal Flag and "Powered by HOLT" are trademarks or service marks or registered trademarks or registered service marks of Credit Suisse or its affiliates in the United States and other countries. HOLT is a corporate performance and valuation advisory service of Credit Suisse.

Additional information about the Credit Suisse HOLT methodology is available on request.

Important MSCI Disclosures

The MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, re-disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates.

The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of Morgan Stanley Capital International Inc. and Standard & Poor's. GICS is a service mark of MSCI and S&P and has been licensed for use by Credit Suisse.

For Credit Suisse disclosure information on other companies mentioned in this report, please visit the website at www.credit-suisse.com/researchdisclosures or call +1 (877) 291-2683.

Disclaimers continue on next page.

This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Credit Suisse AG, the Swiss bank, or its subsidiaries or its affiliates ("CS") to any registration or licensing requirement within such jurisdiction. All material presented in this report, unless specifically indicated otherwise, is under copyright to CS. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior express written permission of CS. All trademarks, service marks and logos used in this report are trademarks or service marks or registered trademarks or service marks of CS or its affiliates.

The information, tools and material presented in this report are provided to you for information purposes only and are not to be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. CS may not have taken any steps to ensure that the securities referred to in this report are suitable for any particular investor. CS will not treat recipients as its customers by virtue of their receiving the report. The investments or services contained or referred to in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about such investments or investment services. Nothing in this report constitutes investment, legal, accounting or tax advice or a representation that any investment or strategy is suitable or appropriate to your individual circumstances or otherwise constitutes a personal recommendation to you. CS does not offer advice on the tax consequences of investment and you are advised to contact an independent tax adviser. Please note in particular that the bases and levels of taxation may change.

CS believes the information and opinions in the Disclosure Appendix of this report are accurate and complete. Information and opinions presented in the other sections of the report were obtained or derived from sources CS believes are reliable, but CS makes no representations as to their accuracy or completeness. Additional information is available upon request. CS accepts no liability for loss arising from the use of the material presented in this report, except that this exclusion of liability does not apply to the extent that liability arises under specific statutes or regulations applicable to CS. This report is not to be relied upon in substitution for the exercise of independent judgment. CS may have issued, and may in the future issue, a trading call regarding this security. Trading calls are short term trading opportunities based on market events and catalysts, while stock ratings reflect investment recommendations based on expected total return over a 12-month period as defined in the disclosure section. Because trading calls and stock ratings reflect different assumptions and analytical methods, trading calls may differ directionally from the stock rating. In addition, CS may have issued, and may in the future issue, other reports that are inconsistent with, and reach different conclusions from, the information presented in this report. Those reports reflect the different assumptions, views and analytical methods of the analysts who prepared them and CS is under no obligation to ensure that such other reports are brought to the attention of any recipient of this report. CS is involved in many businesses that relate to companies mentioned in this report. These businesses include specialized trading, risk arbitrage, market making, and other proprietary trading.

Past performance should not be taken as an indication or guarantee of future performance, and no representation or warranty, express or implied, is made regarding future performance. Information, opinions and estimates contained in this report reflect a judgement at its original date of publication by CS and are subject to change without notice. The price, value of and income from any of the securities or financial instruments mentioned in this report can fall as well as rise. The value of securities and financial instruments is subject to exchange rate fluctuation that may have a positive or adverse effect on the price or income of such securities or financial instruments. Investors in securities such as ADR's, the values of which are influenced by currency volatility, effectively assume this risk.

Structured securities are complex instruments, typically involve a high degree of risk and are intended for sale only to sophisticated investors who are capable of understanding and assuming the risks involved. The market value of any structured security may be affected by changes in economic, financial and political factors (including, but not limited to, spot and forward interest and exchange rates), time to maturity, market conditions and volatility, and the credit quality of any issuer or reference issuer. Any investor interested in purchasing a structured product should conduct their own investigation and analysis of the product and consult with their own professional advisers as to the risks involved in making such a purchase.

Some investments discussed in this report have a high level of volatility. High volatility investments may experience sudden and large falls in their value causing losses when that investment is realised. Those losses may equal your original investment. Indeed, in the case of some investments the potential losses may exceed the amount of initial investment, in such circumstances you may be required to pay more money to support those losses. Income yields from investments may fluctuate and, in consequence, initial capital paid to make the investment may be used as part of that income yield. Some investments may not be readily realisable and it may be difficult to sell or realise those investments, similarly it may prove difficult for you to obtain reliable information about the value, or risks, to which such an investment is exposed.

This report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the report refers to website material of CS, CS has not reviewed the linked site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to CS's own website material) is provided solely for your convenience and information and the content of the linked site does not in any way form part of this document. Accessing such website or following such link through this report or CS's website shall be at your own risk.

This report is issued and distributed in Europe (except Switzerland) by Credit Suisse Securities (Europe) Limited, One Cabot Square, London E14 4QJ, England, which is regulated in the United Kingdom by The Financial Services Authority ("FSA"). This report is being distributed in Germany by Credit Suisse Securities (Europe) Limited Niederlassung Frankfurt am Main regulated by the Bundesanstalt fuer Finanzdienstleistungsaufsicht ("BaFin"). This report is being distributed in the United States by Credit Suisse Securities (USA) LLC ; in Switzerland by Credit Suisse AG; in Canada by Credit Suisse Securities (Canada), Inc.; in Brazil by Banco de Investimentos Credit Suisse (Brasil) S.A. or its affiliates; in Mexico by Banco Credit Suisse (México), S.A. (transactions related to the securities mentioned in this report will only be effected in compliance with applicable regulation); in Japan by Credit Suisse Securities (Japan) Limited, Financial Instrument Firm, Director-General of Kanto Local Finance Bureau (Kinsho) No. 66, a member of Japan Securities Dealers Association, The Financial Futures Association of Japan, Japan Securities Investment Advisers Association; elsewhere in Asia/Pacific by whichever of the following is the appropriately authorised entity in the relevant jurisdiction: Credit Suisse (Hong Kong) Limited, Credit Suisse Equities (Australia) Limited, Credit Suisse Securities (Thailand) Limited, Credit Suisse Securities (Malaysia) Sdn Bhd, Credit Suisse AG, Singapore Branch, Credit Suisse Securities (India) Private Limited, Credit Suisse Securities (Europe) Limited, Seoul Branch, Credit Suisse AG, Taipei Securities Branch, PT Credit Suisse Securities Indonesia, and elsewhere in the world by the relevant authorised affiliate of the above. Research on Taiwanese securities produced by Credit Suisse AG, Taipei Securities Branch has been prepared by a registered Senior Business Person. Research provided to residents of Malaysia is authorised by the Head of Research for Credit Suisse Securities (Malaysia) Sdn. Bhd., to whom they should direct any queries on +603 2723 2020.

In jurisdictions where CS is not already registered or licensed to trade in securities, transactions will only be effected in accordance with applicable securities legislation, which will vary from jurisdiction to jurisdiction and may require that the trade be made in accordance with applicable exemptions from registration or licensing requirements. Non-U.S. customers wishing to effect a transaction should contact a CS entity in their local jurisdiction unless governing law permits otherwise. U.S. customers wishing to effect a transaction should do so only by contacting a representative at Credit Suisse Securities (USA) LLC in the U.S.

Please note that this report was originally prepared and issued by CS for distribution to their market professional and institutional investor customers. Recipients who are not market professional or institutional investor customers of CS should seek the advice of their independent financial advisor prior to taking any investment decision based on this report or for any necessary explanation of its contents. This research may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA or in respect of which the protections of the FSA for private customers and/or the UK compensation scheme may not be available, and further details as to where this may be the case are available upon request in respect of this report.

Any Nielsen Media Research material contained in this report represents Nielsen Media Research's estimates and does not represent facts. NMR has neither reviewed nor approved this report and/or any of the statements made herein.

If this report is being distributed by a financial institution other than Credit Suisse AG, or its affiliates, that financial institution is solely responsible for distribution. Clients of that institution should contact that institution to effect a transaction in the securities mentioned in this report or require further information. This report does not constitute investment advice by Credit Suisse to the clients of the distributing financial institution, and neither Credit Suisse AG, its affiliates, and their respective officers, directors and employees accept any liability whatsoever for any direct or consequential loss arising from their use of this report or its content.

Copyright 2011 CREDIT SUISSE AG and/or its affiliates. All rights reserved.

CREDIT SUISSE SECURITIES (Europe) Limited

Europe: +44 (20) 7888-8888