

# THE US DROUGHT OF SUMMER 2012 AND ITS IMPLICATIONS

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**As a result of the severe drought that took place in the US in the summer of 2012, cereal prices have reached a record high. US farmers have registered record profits for 2012, partly due to agricultural insurance indemnities. As a result, investments into fertilisers, inputs and new agricultural equipment are set to remain high for the coming 2013 harvest season.**

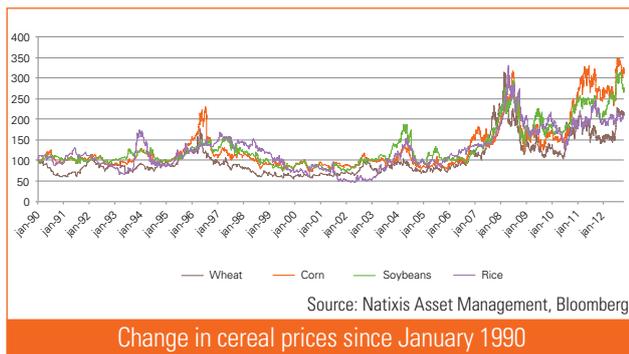
## The worst US drought in over 6 decades

**In July and August 2012, the United States experienced its worst drought since the 1950s.** In mid-August, according to US weather services, a total of 87% of corn acreage and 85% of soya bean acreage were affected by the drought. More than half of these acreages were subject to an extreme or even exceptional drought.

The United States is the number one world corn producer and exporter (almost 60% of global exports) and one of the main exporters of soya beans.

In July and August 2012, cereal prices were up 45%, exceeding even the high price levels incurred during the 2007–08 crisis, marked by the hunger riots in numerous African countries, Indonesia, the Philippines and Haiti. However, the situation in 2012 cannot be compared to that of 2008; farmers no longer face the same liquidity issues as they did during the financial crisis and certain harvests such as wheat and rice remain globally at a satisfactory level.

**Between July and August, the USDA (US Department of Agriculture) cut their corn and soya bean production forecasts by 17% and 12% respectively.** Corn and soya bean yields were revised downward by 26% and 18% respectively over the last 4 months (to 123 bushels/acre and 36 bushels/acre respectively).



→ In 2012, **production of US corn** was set to decline 13% compared to 2011 despite an increase of 5% in cultivated areas. At the end of September, corn stocks represented a mere 5.5% of consumption (stocks to use), the lowest level in 26 years.

→ In 2012, **soya bean production** was expected to decrease by 8% in the United States with a historically low level of stock (130 million bushels). Such weak inventory levels, whether corn or soya beans, mean that prices are set to remain high over the coming months.

## Pressure on protein and bioethanol producer margins

**Meat, poultry and dairy producers were amongst the most affected players** who took the full brunt of the increased prices of cattle feed, largely by-products from corn and soya bean production. These price increases took place while, at the same time, 55% of pastures used by US live-stock producers were in very poor condition. Unlike farmers, few livestock producers benefit from agricultural insurance. On August 12th, in response to the drought, the US Secretary of Agriculture announced a \$170m support plan within the framework of the USDA Federal Food Nutrition Assistance programme for livestock producers (in the form of purchases of different types of meat).

**The cereal price surge during the summer rekindled the debate on the competition imposed on the food industry by the bioethanol industry** ('food vs fuel').

For the record, 40% of domestic corn production in the US goes towards the production of ethanol. Within the framework of the Renewable Fuels Standard (RFS), US oil companies are obliged to blend 10% of ethanol into gasoline they produce.

The mandate set by the RFS forecasts a 5% increase in ethanol production to 13.2 billion gallons in 2012, an amount which is set to reach 15 billion gallons by 2015, before the arrival of second generation ethanol (for a doubling of total production capacity by 2022).

On the 21st August, following numerous calls from American Congress members and José Graziano da Silva, Director-General of FAO, during the summer, the EPA (Environmental Protection Agency) opened a public consultation to help determine an eventual revision of ethanol blending objectives. This consultation does not prejudice in any way the EPA's final decision which must be made no later than 13<sup>th</sup> November 2013.

### Favourable prospects in Latin America

**Other parts of the world have experienced extreme weather conditions which have had a strong impact on harvests.**

**Russia** went through an unusual drought period in the spring, which led to a 30% decrease in yields in numerous regions. Following a 25% decrease in 2012, the production of Russian wheat will barely cover the needs of the domestic market, let alone any export.

**Ukraine and Kazakhstan**, equally confronted with unfavourable weather conditions, saw a decrease in wheat production equivalent to that of Russia. As a result, the price of wheat rose 26% in June and July. At the end of September, stock ratio of wheat to consumption was at 25.5% (the lowest for 5 years).

In **India**, the monsoon season was disappointing in 2012 (22% lower than normal), which delayed the start of the new planting season (usually in mid-June).

In **China**, despite a severe drought in the first half of 2012 (H1 2012), wheat and rice harvests were satisfactory, with an increase of almost 3% in the country's grain production.

**Brazil is amongst the main beneficiaries of the US drought, as the country is set to gain market share in the global cereal trade.**

According to the USDA, Brazil is going to become the number one exporter of **soya** beans in 2012 (37.6 mt) with a global market share of 40%, ahead of the United States (30.2mt).

Some US protein producers have already decided to purchase their grain from Brazil, where **corn** exports should increase by 18% in 2012 (reaching a record level of 15mt).

In 2012, with the spread of the second harvest (between May and July) that benefitted from sufficient rains, total corn production in Brazil is set to increase by 29% to 72.8mt according to BIGS (Brazilian Institute of Geography and Statistics).

This increase in volume should go hand in hand with record margin levels (based on high grain prices) for farmers, supporting high purchases of agricultural input in H2 2012 in this part of the world.

### Record profits for US farmers thanks to insurance proceeds

**The summer 2012 drought was possibly one of the most severe agricultural disasters recorded by the US insurance industry in over five decades.**

According to the risk modelling and consulting firm, AIR Worldwide, the cost of the disaster could rise to \$13bn, borne for the most part by the Federal Government (up to \$10–12bn), the remaining loss of \$1–3bn being borne by private insurers.

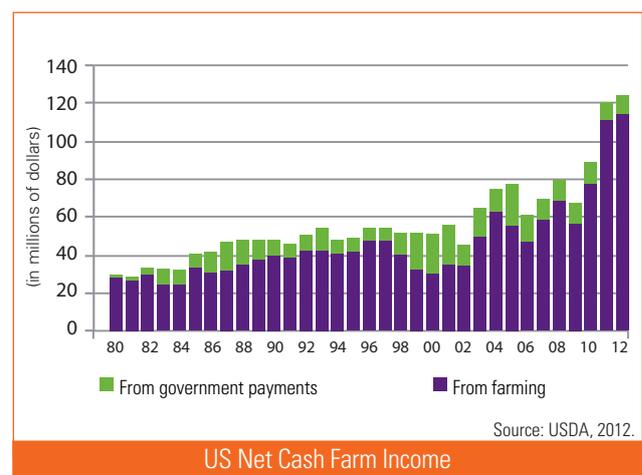
In addition to this loss-sharing system, the FCIC (Federal Crop Insurance Corporation) anticipates that the government will subsidise a portion of the premiums paid by the farmers. Since the 1930s, a large proportion of US farmers have made use of crop insurance. To understand the full extent of the damage caused by the disaster will take until the end of 2012, and will also depend on the price of grain at harvest time.

**According to the USDA, profits made by US farmers increased by 3.4% in 2012 reaching a record level of \$139.3bn** due to both:

- ➔ an increase in cereal prices, partly compensating for the decrease in volume
- ➔ insurance indemnities.

In 2013, US farmers are expected to maximise their yields as a result of a comfortable level of cash-flow and a strong price environment. The area planted should reach a record high of an estimated 96 million acres in 2013 in the United States. On a global level, the USDA forecasts an increase of 1.4% in area cultivated for the 2012–13 season, compared to an average annual growth of 0.2%.

These forecasts are an early indication of increased spending on fertilisers and other agricultural inputs, but also agricultural equipment, in the expectation of a record harvest in the United States in 2013.



## Towards a recovery of investment in agricultural inputs and equipment in 2013

### Agricultural equipment orders postponed to 2013

Demand for agricultural equipment is highly correlated with farmers' gross income. In spite of the drought, the USDA forecasts a 2% increase in revenue for farmers in 2012 (up to \$337m).

In anticipation of receiving insurance indemnities in the latter part of 2012, farmers may have adopted a wait-and-see attitude in the autumn and chosen to postpone any new equipment orders until the beginning of 2013. The events of the summer partly justify the US company, John Deere's announcement of a downward revision of their 2012 sales objectives.

In the long term, the agricultural machinery sector's fundamentals remain favourable due to necessary replacements in mature markets (US, Europe), and increasing mechanisation in emerging markets.

### Fertilisers: weak short-term visibility on the potash market

Given the fall in agricultural yields, fewer inputs were taken from US soil during the 2012 season, which could have an impact on demand for certain fertilisers over the coming months.

→ For **nitrogen fertilisers**, short-term prospects are more favourable as they need to be applied annually. The supply/demand balance on the **urea** market is set to support prices in Q4 2012, with an expected reduction in Chinese exports (a tax increase on urea exports was expected as of 1st November) and a substantial amount of orders from the US and India. However, prospects on the urea market for 2013 are mixed due to the arrival of new capacities in countries where production costs are low, such as the EEC, Russia and North Africa.

→ In North America, **phosphate fertiliser** prices have increased by 6% since July and stocks are 30% below average. The price trend in the last part of the year depended on both the needs of the US farmers in the autumn and the scale of the decrease in demand from India (India represents around half the amount of global imports). Following a cut in government subsidies on the purchase of phosphate fertiliser, Indian farmers have resorted to nitrates, which are more affordable than phosphates.

Demand in Latin America, on the other hand, which represents almost 25% of the phosphate market, continues to grow at a solid rate (+9% per year).

→ Short-term visibility remains weak on the **potash** market, notably due to the delay in new contracts with China and India initially planned for H2 2012 (together, these countries represent almost 40% of world potash consumption).

Two of the main global potash producers, the Canadian company, Potash Corp and the Russian company, Uralkali, have recently announced a cut in their sales forecasts for Q4 2012, mainly due to the postponement of new orders from India (due to a weak Indian currency) and China (increased local production) towards the end of 2012 / beginning of 2013. Besides added pressure from China to obtain a price inferior to \$470/t, as negotiated in H1 2012, the increased level of potash inventory in the US (39% above average in 5 years) at the end of September will no doubt lead to a price decrease in 2013.

### Increasing demand for seeds / crop protection products

Numerous factors support a dynamic growth in demand for crop protection products in 2012–2013:

- High grain prices
- Low level of stock-to-use ratio
- A good start to the season in Latin America in autumn 2012 (increased area planted in soya beans, increased demand for sugar cane crop protection products).

Given the strong correlation between the price of cereal and crop protection products, renegotiations of contracts which took place in the autumn should lead to an average price increase of 5%.

## An increased frequency of extreme weather events?

**The question of a link between an increased frequency of drought periods (and extreme weather events in general) and climate change is the topic of numerous debates** within the scientific community. Part of the community considers that a lack of hindsight and an insufficient amount of reliable statistics concerning these phenomena over the last few centuries make it impossible to come to a conclusion based on past trends.

However, an increasing number of scientists, including experts from the Intergovernmental Panel on Climate Change (IPCC), believe that climate change has already driven changes in weather patterns, such as heat waves, very high temperatures and intense rains, over the last 50 years.

Thus, in its report published in February 2012, the IPCC suggests that the frequency, length and intensity of extremely warm temperatures will multiply in an increasing number of regions across the world. Despite the lack of data and certainty concerning the various factors relating to heat waves, the report suggests that an intensification of drought across Southern Europe, the Mediterranean region, Central Europe, Central North America, Central America, Mexico, North-East Brazil and Southern Africa is likely. Likewise, the report emphasises the probability of an increased frequency of phenomena such as tropical storms, but is more reserved on the question of a link between climate change and floods.

Beyond the role of climate change in the occurrence of extreme weather events, the consequences of these episodes of drought are consistent with the expected impacts of global warming: an increase in temperatures and water cycle disruptions.

## What are the implications for farming methods in the longer term?

**Last summer's US drought highlighted once again the significant volatility of the price of cereal** that farmers have to deal with, and the added risk in the background of food price inflation, particularly in emerging countries. **In this context, reducing the impacts of climate change represents a key challenge for the agricultural sector.** One of the responses lies in the diversification of agricultural practices:

- No-till farming – reducing the use of agricultural machinery in fields allowing for a better carbon sequestration in soil
- Organic farming – respecting natural processes with the use of composting
- Crop rotation – combining crops such as lucerne and sorghum in certain parts of the US where corn dominates.

**Beyond reducing its contribution to greenhouse gas emissions, the agricultural input market also has a key role to play in adapting to climate change.**

### Seeds

The demand for seeds offering an increased resistance to drought is set to increase in years to come.

This will call for:

- A choice of late varieties more resistant to high temperatures
- Research on plants whose roots burrow deeper into the soil
- Hybridisation technique improving corn harvests in a moderate drought environment.

According to the Syngenta group, the market for drought-resistant seeds, even without taking extreme drought episodes like the one in summer 2012 into account, could represent up to \$500m in the United States.

The Swiss company works on integrated solutions, combining drought-resistant hybrid seeds (Agrisure Artesian) with water optimising solutions. To this end, Syngenta went into partnership with the US group Lindsay, a specialist in modern centre-pivot technology and automation (propelled by electric motors) providing a more precise application of fertilisers and crop protection products, with the added benefit of cost savings.

### Crop protection products

In the majority of cases, increased temperatures lead to increased threats to harvests. A rise in humidity in the air encourages plant disease and increased weed competition, particularly for corn, which requires increased prevention efforts. Bio control is an alternative method to protect plants, and one that is less harmful to the environment and human health than the use of chemical products.

This method favours the use of natural mechanisms and interactions (invertebrates, insects, fungi, bacteria, viruses, pheromones, etc.) to fight against various different parasites. Today, biocontrol or the use of 'natural warriors' remains a complementary addition to secondary markets or in association with traditional chemical solutions and seed distribution.

### Fertilisers/agricultural machinery

For this sector, responsible for the majority of the agricultural industry's greenhouse gas emissions, evolution lies in the development of advisory services provided by agronomists and solutions adapted to local conditions.

Examples of such solutions include improving:

- spreading equipment
- developing tools to determine more precisely the right timing
- the right location and amount of fertiliser to add over the course of growth
- the use of slow- or controlled-release fertiliser.

To address the key issue of water management, the use of precise irrigation techniques, such as drip or micro-irrigation, will result in economies in both cost and water.

In terms of technological improvement, the consequences of climate change and the increasing number of drought periods should reinforce the demand for tractors equipped with GPS systems to follow the weather, monitor harvests and carry out precision farming.

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