



International Farm Management Association Country Reports May 2019





International Farm Management Association (IFMA)

IFMA is a society of people who are involved directly or indirectly in the agricultural process and who have an interest in the agriculture of parts of the world other than their own, exchange of knowledge and best practice.

This includes the whole spectrum of individual and corporate producers, farmers, managers, advisors, researchers, teachers, policy-makers, suppliers, farming and marketing organizations and agribusiness companies associated with agriculture, horticulture and rural enterprise.

Currently the Association has members in over 50 countries organised and co-ordinated by a Council, with members drawn from around the world.

The objective of the Association is to further the knowledge and understanding of farming and farm business management and to exchange ideas and information about farm management theory and practice throughout the world.

- **International Congresses:**

These are organised every other year in countries around the world. They are organised locally, usually last for 6 days, which together with additional pre- and post congress tours, provide not only an occasion to discuss farm management and agriculture in a global context, but also to learn a great deal about the host country's farming structure and its people. They are truly unique opportunities.

The 2021 IFMA Congress which is the 23rd International Farm Management Conference will be hosted by the University of Copenhagen. The IFMA23 conference will run from 27th June to 2nd July 2021 and will be held at the Frederiksberg Campus in Copenhagen.

The theme of the conference will be Strategic Farming in Scandinavia, and will focus on what it takes to be a successful farm business manager under a variety of circumstances and different conditions. You will be invited to explore the farming challenges, as well as having the opportunity to enjoy the beautiful countryside of Scandinavia during both the conference, and the pre- and post-conference tours. You will experience how world quality products are produced, whilst at the same time, being shown how respect for the environment is embedded in the decision making. The theme of the conference will focus on key elements such as: production, markets, finance, leadership, strategy and regulatory borders. You will have the opportunity to experience Scandinavian hospitality first hand, and gain an understanding of why the three countries are ranked as some of the happiest countries in the world! For further information please visit the Congress website at www.ifma23.org

- **Country Reports:**

Each year members of Council who represent different countries produce a report covering agriculture which provides a good snap shot of agriculture around the world.



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Australia

a) Weather

Weather remains highly variable across the Australian agricultural areas. There are huge contrasts ranging from prolonged drought (around five years) to flood and hypothermia events which resulted in loss of about 800,000 cattle mainly from the tropical and sub-tropical rangelands.

Climate variability is apparent with Tasmania being characterised by a warmer and drier autumn. Australia as a continent has experienced its equal-seventh warmest April on record, with the January to April period being the driest on record. April rainfall has been very much below average for much of mainland south-eastern Australia, while large areas of the continent have experienced below average rainfall for prolonged periods of up to two years.

A combination of lower rainfall and higher temperatures, has resulted in large areas of Australia having average soil moisture for January to April 2019 being significantly below average.

Australia's Bureau of Meteorology (BOM) is predicting a drier and warmer winter, with little likelihood of drought-breaking rain falling in eastern and southern parts of the country.

b) Agriculture Economic Climate

Market conditions for most agricultural commodities are positive largely because of the imbalance between demand and available supply. Regional economic activity is depressed in long term drought affected areas which has a flow on effect to urbanised regional communities.

The economic climate in the short term is largely influenced by seasonal conditions. The lack of an autumn break over much of the southern winter cropping areas has led to delayed sowing and crop emergence, while lack of paddock feed has resulted in a continuation of handfeeding of extensively grazed livestock. Continuing high feed-grain prices is creating financial stress for dairy farmers and intensive livestock industries such as pigs and poultry, while the lack of irrigation water, is having a negative impact on cotton and extensive horticulture production.

Despite the headwinds of climate variability, farmland values have continued to increase over the last twelve months at above average rates, driven largely by record low interest rates and ongoing structural adjustment, especially in the broadacre cropping areas, where larger family farming operations are acquiring their neighbours' land to achieve economies of scale.

Australia continues to achieve significant growth in its agricultural exports, largely due to the strong demand for high quality imports from China's growing middle class.

Australia's top five exports vary from year to year, but beef and veal have dominated for the past decade in both absolute value and growth. While the USA and Europe are the third and fourth largest

individual export markets by value for Australian agricultural produce, Asia imports more than two-thirds of Australian agricultural exports by value.

c) Livestock

As a nation sheep and cattle numbers are below long-term average numbers, but slowly increasing. Flock and herd rebuilding have been impeded by poor seasonal conditions.

The potential loss of live sheep and cattle exports represents a threat to livestock industries, hence the need to develop and implement protocols which minimise the potential for adverse animal welfare outcomes, although many urban based people have a philosophical objection to such trade, or even much broader use of animals for human sustenance.

Cattle prices have recovered some of the decrease in recent years, due to a tightening of supply of slaughter cattle, resulting from improved seasonal conditions in parts of the pastoral zone in northern Australia.

Sheep prices have continued to increase in line with short supply and growing demand for sheepmeat in the USA and Middle East. Restockers are paying record prices for replacement breeding ewes to rebuild their flocks, some of which are replacing crop in mixed farming areas, where running livestock on pastures and fodder crops has less financial risk than winter cropping.

Wool production is at very low levels historically, in line with reduced sheep numbers plus a switch from wool production to sheepmeat production. Wool production is expected to continue to decrease in the short term due to lower numbers being shorn, plus lower average cut per head resulting from drought conditions. Wool prices have come off the recent historically high levels achieved in August 2018, partly due to quality being negatively affected by drought.

d) Arable

Australian grain yields for the past season were very low relative to long term averages. Higher grain prices, some at record levels well above export parity due to the demand for feed grains, helped compensate some growers for lower yields. A significant quantity of cereal grain has been shipped around the southern coast, from Western Australia which had a relatively good season and negligible domestic market, to New South Wales which had a very poor season, but quite high domestic market for livestock production and human consumption.

Due to the lack of suitable high protein milling wheat in Australia at present, this grade of wheat is being imported into New South Wales from Canada, for domestic and industrial purposes.

Some winter crops have been sown but many areas are awaiting sufficient rain before contemplating sowing cereals and canola. However, the lack of any significant subsoil moisture in conjunction with

the BOM's winter rainfall outlook, will make average winter crop yields difficult to obtain in eastern Australia.

Both old and new crop prices retreated significantly in recent weeks in line with international grain prices, but have since recovered with an increased domestic premium above export parity.

e) Horticulture

a. Soft Fruit

Most soft fruit production is within the average range.

b. Vegetables

Temperate and cool temperate vegetable production and prices have been around average with no disease or environmental risks being realised.

f) Environmental

Some mis information has appeared in the media regarding vegetation clearing to support extensive grazing, livestock production and water use efficiency of such enterprises.

Introduced pest animals continue to negatively impact on production agriculture along with native wildlife in some parts of the country. Management of these animals is highly divisive in some sections of the community which can have negative impacts on production agriculture.

g) Current Research Issues

Australian agriculture requires research, to investigate more resilient production systems to better match the variable climate in which farmers operate without government production subsidies. Due to Australia's relatively low population and consequent heavy dependency on export markets for its agricultural output, Australian farmers require low input and hence low financial risk production systems, to be able to compete on world markets.

l) Any other comments

Rural suicide remains an important issue for the agriculture sector and their associated regional communities. Many factors drive individuals to die by suicide, with the ongoing environmental conditions being a major influence, through lack of money, relationship breakdown, euthanising livestock and general stress.

Australia's relatively high post-farmgate supply chain costs by world standards, continue to limit the price farmers receive for their produce in markets where they are effectively price takers.

Brazil

a) Weather

Climates that occur in Brazil

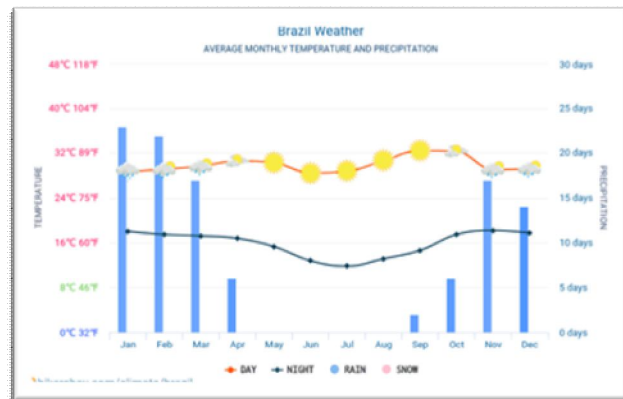


Climates controlled by Equatorial and Tropical Air Masses

- Humid Equatorial (Convergence of the Trade winds)
- Tropical (dry Winter and humid Summer)
- Semi-arid Tropical (Tending to dry due to the irregularity of the action of the masses of air)
- Humid Coastal (Influenced by the Marine Tropical Mass)

Climates controlled by Tropical and Polar Masses of Air

- Humid Subtropical (oriental and subtropical coasts, with prevalence of the Marine Tropical Mass)



b) Agriculture Economic Climate

1. There are concerns about the rising average temperature and its impacts on coffee, orange and beans production, reducing the suitable areas for these crops.
2. Asian markets, particularly China, are becoming hot spots for Brazilian meat. New meatpackers are being accredited and will soon be able to export beef, swine and chicken.
3. Brazil has been declared free of Foot-and-Mouth disease with vaccination in 2018 by OIE and, in 2019, has reduced the dosage from 5 ml to 2 ml, as part of its National Program for Eradication and Prevention of FMD.
4. A merger between Brazil's BRF (chicken exports leader) and Marfrig (2nd largest beef exporter) are under discussion. If it succeeds, the new company would become one of the world's largest meat producers and reach an estimated market cap of \$7 billion.

c) Livestock

Brazil is a major player in the world's meat market. The country is the 2nd main producer of beef and chicken, and the 4th biggest producer of pork. These three sectors respond for 25% of the gross value of the national agricultural production. The Brazilian participation in the international trade is also

significant: it responds for 35%, 19% and 9% of the chicken, beef, and pork global markets, respectively.

1. Dairy sector

a. Milk production reached 35 billion litres in 2018, but has not yet fulfilled the domestic demand, of 36.3 billion litres. Artisanal cheese is consolidating as a trend, particularly after the launch of new market regulations that stimulate its production.

b. The annual milk production growth rate is estimated between 2 and 2.5% due to improvements in the herd management and productivity. Price: + USD 0.405/litre

c. Medium to large scale farmers are using more technologies and, consequently, increasing the production scale. Many dairy farmers, particularly small-scale, have not been able to cope with the rapid changes and are leaving the activity.

2. Beef

a. Export of live animals is an incipient but growing new market for Brazilian beef farmers. However, it faces resistance from animal protection groups, who are taking the cases to court to stop the commerce.

b. Intensification of beef systems through the incorporation of technologies and management systems resulted in 58% growth of beef production, while the herd increased only 38%, between 2007 and 2017. But it is still beyond potential performance.

c. Domestic consumption has been negatively impacted by the economic crisis since 2014 and, despite some improvements in demand, is still limited by the population low average income and current unemployment levels (above 12%).

d. Rising prices for fed cattle in June (USD 39.64/arroba*) given the start of the dry season, when pasture availability reduces and so does the number of finished cattle.

3. Pigs

a. Herd: 40 million head; Production: 3.7 million tonnes; 142% growth in 20 years; domestic consumption: 9 million tonnes (lower than historic levels due to economic crisis).

b. Exports: drop of 7% in volume (to 645,500 tonnes) and 25.6% in value (to US\$ 1.21 billion) due to the Russian embargo against Brazilian pork meat and the so called "Weak Meat" Operation launched by the Federal Police; on the other hand, pork exports to China grew by 216% and achieved 154,500 tonnes, thus becoming the 2nd largest destination in 2018.

4. Poultry

a. Production: 12 million tonnes of chicken meat; Per capita consumption: 41,1 kg/person/year; Exports reached 4,100 million tonnes in 2018 (5.1% lower than 2017).

b. The cost of production of chicken meat increased by nearly 15 percent, in 2018. Rising prices for corn and soybean meal in 2018/19 season, due to a major dry spell during the growing season, are a factor of concern to chicken producers.

c. Eggs production reached 39 billion units in 2016; per capita consumption of 190 units per person; USD 21.55 for the box with 30 eggs (Red type).

d) Arable

1. Production of 232.6 million tonnes (15 main crops) in the 2017/18 year, on 61.5 million hectares; 2027/2028 projection shows a 30% increase in production and 15% in area. Farming integrated systems, including crop-livestock rotation and succession, are revolutionary, increasing productivity and reducing costs.

Corn price: +9.69 (per 60 kg bag)

Soybean price: +19.58 (per 60 kg bag, delivered at the port)

2. Total-factor productivity (TFP) to grow 3% per year for the five main crops (wheat, soybean, corn, rice and beans).

3. Sugarcane: 38 million tonnes of sugar were produced in 2017/2018 (expected to grow 3.3% annually). There is still uncertainty about the prospects of increasing sugarcane-based ethanol given the economic crisis affected the companies, which have no capacity to make significant investments in the short-term.

4. New agriculture frontier is moving crops towards Maranhão, Tocantins, Piauí and Bahia states (known as “Matopiba region”) alongside Pará and Rondônia states where land prices are relatively low, despite lack of infra-structure.

5. Pulp and paper production from planted forests are expected to grow 20 and 31%, respectively, in the next decade, contributing significantly to the Brazilian Agricultural GDP and Exports. The total area with planted forests is 10 million ha, of which almost 2 million ha are under integrated systems with trees.

e) Horticulture

Brazil is one of the major horticulture producers, but the domestic consumption, around 57 kg per person, is far below recommendations from the World Health Organization (WHO). Positive prospects for horticulture are then justified.

Soft Fruit

1. The soft fruit market is expanding in Brazil (3rd largest producer), as a result of growing awareness about health and nutrition, but consumption levels are still below WTO recommendation. Participation in international markets is still small.

2. The production of tropical (eg. banana, pawpaw, watermelon and orange) and temperate fruits (like grapes, avocado and apples) reached 44 million tonnes; the sector employs 5 million people.

Vegetables

1. The five main vegetables grown in Brazil are: potato, tomato, lettuce, onion and carrot.
2. Several vegetables facing climate problems, resulting in lower supply and,, thus higher prices for consumers.

f) Environmental

1. Official numbers show deforestation in the Legal Amazon was 7,9 km², in 2018, which represented an increase of 13,7% compared to 2017, but 72% less than 2004 levels, when the monitoring system was implemented.
2. 66% of Brazil's land is conserved as native forests, conservation units, indigenous areas and private reserve areas; the latter, compulsory for farmers, corresponds alone to 20% of the total land use. Pastures are established in some 21% and other agricultural production in 7.8% of the total land.
3. Brazil withdrawal as a sponsor of *the 2019 United Nations Climate Conference (COP25)* and the possibility of pulling the country out of the Paris Climate Agreement raise concerns over the somewhat sceptical views of the recently elected government on the climate change agenda.

g) Current Research Issues

1. Interest in plant-based protein, particularly pulses protein, is a trend and research aiming at healthy, nutritious (and vegetarian) food is increasing.
2. Biological insect control and reduction of pesticide use.
3. Automation, precision agriculture and livestock are current research lines that tend to get more attention and funding.
4. Sustainable livestock intensification and production systems efficiency (use of inputs, water, carbon balance etc.) are major research themes. Approaches are becoming more comprehensive to account for variables other than productivity and profitability.

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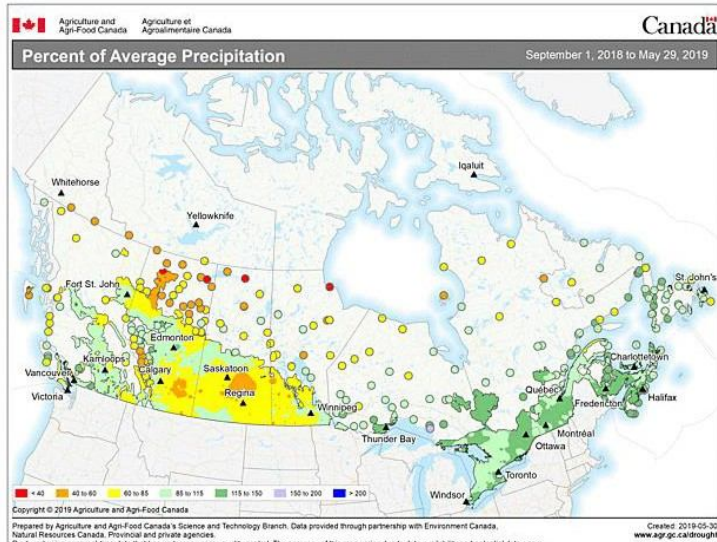
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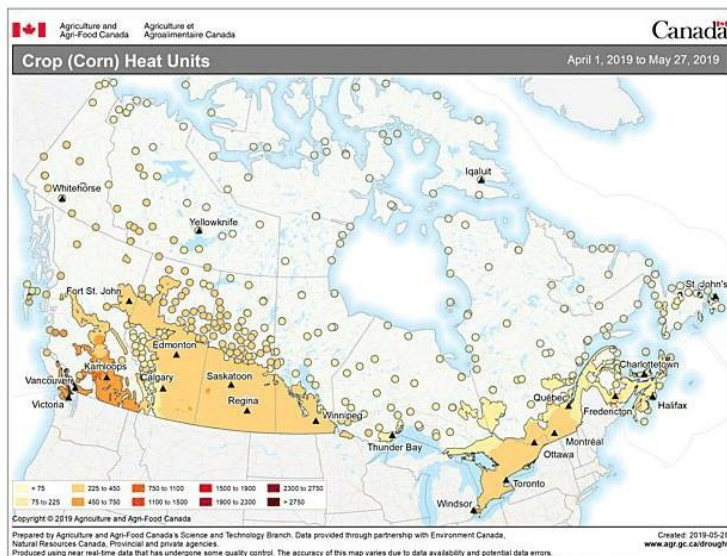
Canada

a) Weather

Precipitation



Temperature





b) Agriculture Economic Climate

1. Statistics Canada reported that net farm income of Canadian farmers declined by just over 45% in 2018, compared to a nearly 3% decline in 2017. Total net farm income in 2018 was \$3.9 billion.
2. There are concerns over current trade disputes with China over Canola, which has affected Canola price and planting decisions.
3. Recent reports on the amount of Canadian beef being exported into the EU post-CETA have not been encouraging. Reports show that Canada has filled none of their frozen beef allowance and less than 5% of their chilled beef allowance.
<https://business.financialpost.com/news/economy/beef-and-pork-for-cheese-deal-sours-as-strict-eu-health-rules-hinder-canadian-exports-under-ceta>
4. The issue of a carbon tax and how it will affect agriculture and agricultural competitiveness is being hotly debated now. A federal price on carbon went into effect across Canada on April 1, 2019 for provinces that did not have their own plan in place at that time.

c) Livestock

1. Dairy
 - a. There has been a change in how milk price for farmers is calculated. Now about 30% of the price Canadian dairy producers will receive will be tied to the world price.
 - b. Data from the Canadian Dairy Commission indicates that dairy farms with milk shipments have declined by 3% in 2018, with 358 farms exiting the industry.
 - c. The number of dairy cows has increased from 972,000 in 2018 to 977,000 in 2019, according to Statistics Canada.
2. Beef
 - a. Feeder steer prices have been relatively stable from 2017 to early 2019. Average 700-800 lb feeder prices in Saskatchewan were \$1.953/cwt (standard deviation of \$0.125) and \$1.897/cwt in Ontario (standard deviation of \$0.1098).
 - b. Cow numbers are down by approximately 38,000 from January 2018. Total numbers of cattle are down by 156,000 over this same period.
3. Pigs
 - a. Hog numbers have been relatively stable over the past two to three years, hovering around the 14 million mark. Data from Statistics Canada show that hog numbers at the end of 2018 were down 130,000 from the end of 2017.
 - b. Hog prices have been on a bit of a roller coaster in the past year with prices ranging from a low of \$102 in August 2018 to a high of \$200 in May 2019 (Prices are in CAD \$/ckg).
 - c. Producers and processors are working hard to keep African swine fever out of Canada.



4. Sheep
 - a. The Canadian sheep herd increased to just over 842,000 in 2019. This represents a 2% increase over 2018.
 - b. In a proof of concept study, the Canadian Sheep Federation showed that blockchain technology can be used to trace sheep from farm to fork.
5. Poultry
 - a. The number of chicken producers has been steady at approximately 2,800 since 2016.
 - b. Statistics Canada reports that demand for poultry and egg products is increasing. Demand for eggs has increased by over 3% in the last five years.

d) Arable

1. Wheat acres are expected to be up 3.8% and Canola acres are projected to be down by 6.6% based on projected seeding data collected by Statistics Canada.
2. Over 90% of the crop has been seeded in Saskatchewan and Manitoba. In Alberta seeding progress is at 70% for all crops. Corn, soybeans, and canola are beginning to emerge in Manitoba.
3. Corn planting in Ontario was well behind schedule, much like our neighbours in the United States. Progress in Ontario was estimated to be less than 50% for corn and less than 5% for soybeans.

e) Horticulture

1. Soft Fruit
 - a. Cherry acres in the Okanagan region of British Columbia went from over 2,000 acres in 2016 to an estimated 5,000 acres in 2019.
 - b. British Columbia apricot growers are expecting a near total crop failure due to extreme low temperatures.
2. Vegetables
 - a. Similar to corn and soybean growers, vegetable plantings in Ontario are behind schedule due to excessive moisture.
 - b. Retail vegetable prices are expected to rise by 6% in 2019.

f) Environmental

1. The province of Saskatchewan is investing \$5 million to develop more conservation and development areas that will help deal with water management and farmland drainage.
2. In 2018, British Columbia had their worst fire season on record with 2,115 fires and 1.35 million hectares burned, which surpassed 2017's fire season—previously the largest burned area—in which over 1.22 million ha were burned.



g) **Current Research Issues**

1. With legalization of cannabis occurring in 2018, there has been a significant push to increase cannabis research.
2. Research is ongoing in the enhancement of environmental performance and sustainability, in both crop and livestock sectors.
3. The University of Saskatchewan recently unveiled a new Livestock and Forage Centre for Excellence.

l) **Any other comments**

1. The Trudeau government has unveiled plans for an increased advance payment program to help alleviate cash flow issues caused by trade disputes.
2. The recent federal budget included a commitment of several billion dollars in order to provide high-speed internet to 100% of Canada by 2030.

Denmark

a) Weather

The year 2018 was as for many other European countries, very, very dry. We had close to the driest summer everlasting from May to August with no rain in some places. This meant that yields were reduced by 23% compared to an average year, which was one of highest reductions in yield in Europe. The reduction in the average yield in cereals (barley, wheat and rye) was from 69 in 2017 to 51 hkg/ha in 2018.

The overall economic loss for the primary agriculture in 2018 due to the weather was 4.1 billion DKK (€500 million), and this was lower than the midsummer estimate of €850 million. The main reason was higher prices and yields than assumed in the preliminary report. This is equivalent to €200 per ha.

b) Agricultural Economic Climate

The prices pick up somewhat and so the prices on barley increased by 20% in 2018 compared to 2017. This was good news for arable farmers, but not for pig producers as the feed prices increased. With limited increase in pork prices in 2018 the economic outlook for many pig farmers was bleak at the end of 2018. The loss of income on pig farms was almost as large as the loss of income on arable farms due to weather conditions.

The pork prices were low in 2018 at around 1,10-1,20 €/kg (8,30 - 8,90 DKK). The prices have since January 2019 increased significantly and so in the summer 2019 the price is around 1,55 €/kg (11,60 DKK) (+40%). This sudden increase is due to limited supply of pork on the world market and the Chinese market having problems with African swine fever. The 2019 outlook for Danish pig farmers is therefore a lot better than the 2018 results.

The price of milk at the end of 2018 was down towards 0.33 €/kg and has since been stable around this level. The dairy farmers were affected by the lower grass and maize yields in 2018 as they needed to buy more feedstuffs. The milk production has been declining in EU at the beginning of 2019 and so this helps to give a more stable price. The organic milk is sold at 0.44 €/kg when the strictest requirements are met. The organic milk is now 12% of the total production, but over 30% of the milk bought in supermarkets is organic.

c) Environmental regulation

A key discussion in Denmark was the use of the additional nitrogen quota given out to farms in 2016. The finding now shows that farmers have used the increased quota (contrary to preliminary report). On the other hand the yields and the protein content have not increased as anticipated as the years

have provided either higher yield or higher protein levels but not both. The increase in income has therefore been lower than expected. The change in crops with a higher increase of spring barley have lowered the total nitrogen use and perhaps the environmental impact of the increased nitrogen quota.

d) Current Research Issues

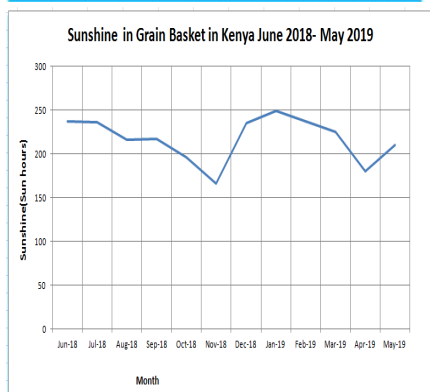
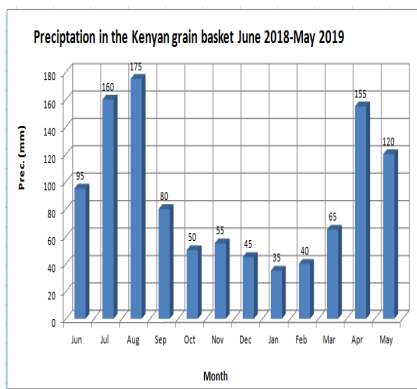
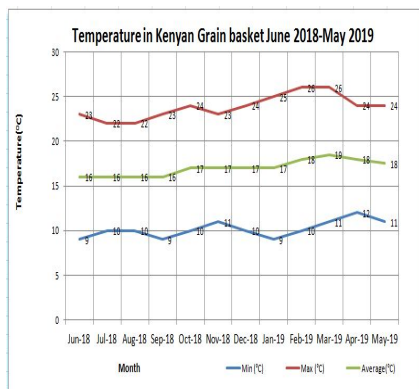
A lot of focus in the 2019 Parliament Election and the European Elections was related to climate change and measures required to make a change. For the Agricultural sector the key measures suggested are taken low laying anthropogenic land (peat) out of production and find measures to reduce methane emissions from livestock e.g. change in feeding. Also increased use of technologies such as acidification has been suggested in order to reduce emissions.

e) Other issues

A key issue in Danish Agricultural policies for some time now has been Brexit. The UK is the fifth largest receiver of Danish products. As an example 13% of the export of pork goes to the UK. The exports to the UK have already been reduced somewhat due to the expected Brexit and analyses in 2018 have involved both the economic impacts for DK and the required changes in infrastructure and workforce in case of a hard Brexit. The expected level of tariffs reported by the UK is now likely to be 5-10% on pork, which is lower than feared. The tariffs will make products more expensive in the UK and so Danish products might have to find other markets as a lower pound will also reduce income. It is also feared that the UK will not live up to the same standards as before and in that way they will get an advantage and import lower quality products from other countries. A key issue is to get an agreement in order to reduce loss of income in Denmark and the UK.

Kenya

a) Weather



There were delays in the onset of rains countywide this long rains season raising fears among the farming community and the country as a whole on the prospects of fulfilling one of the Big 4 agendas on food security. The erratic nature of the rainfall pattern is attributed to climate change which has made it difficult for weather forecasters to make an accurate prediction. The average temperature reported in the Eldoret (grain basket) ranged between 16^o C and 18^o C with the lowest and highest recorded being 9^o C and 26^o C respectively. With a bit of fluctuation the country experienced relatively good distribution of sunshine throughout the year.

b) Agriculture Economic Climate

The farming community over the last one year experienced escalating cost of production resulting from inflationary pressure triggered by our last contested general election. The price of petroleum products which affect the cost of living in one way or the other has also been on an upward trend despite the appreciation of the Kenyan shilling against the US dollar. Opening up of regional blocks like COMESA and East African Community resulting in zero rating of a number of commodities has exposed Kenyan farmers to unfair competition thus limiting the profitability of most agribusiness ventures. Exportable commodities like coffee, tea, vegetables and flowers have continued to do well in global markets and



contributing substantially to the value of the economy. The country is faced by a debt burden of Kshs. 5.2 trillion and out of the Kshs. 1.87 trillion tax revenue collected over 60 % is used to pay external debt. This leaves about Kshs. 700 billion which is not enough to cover recurrent and capital expenditure further raising appetite for expanding external debt to support the budget.

c) Livestock

Pastoral communities who are the major producers of indigenous livestock experienced devastating drought which resulted in not only loss of human life because of hunger, but also their livestock such as cattle, goats, and sheep. Through efforts of government and local and international NGOs such communities had to be supported to deal with hunger and also restock the livestock they had lost in the previous episode of drought.

In non-pastoral communities dairy production was carried out by majority farmers who are smallholders. However, private dairies dominated the milk processing industry led by Brookside dairy. Even though the price received by farmers relatively improved, there is still a huge gap between farm gate and retail price. The other livestock produced by ordinary farmers include indigenous zebu cattle, pigs, goats and poultry. The cost of production has again been noted to be relatively higher than our neighbouring countries especially for exotic animals because the ingredients we use to produce livestock feed are relatively expensive. The overreliance on rainfall as a major determinant of livestock production has exposed many families and businesses to massive risks when rains do not come.

Demand for meat, eggs and dairy products continues to increase with increasing population. Commercial layers and broiler production has continued to grow over the years in different parts of the country, but still falls short of demand.

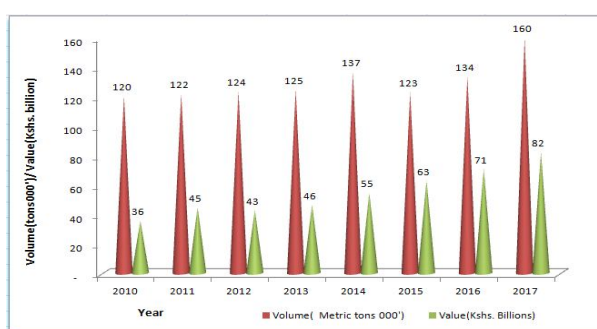
d) Arable

Over 60 % of arable agricultural production is undertaken by small-scale farmers. Maize is the main staple crop grown in Kenya. Other crops cultivated in Kenya are wheat, rice, potatoes and various legumes. Trans Nzoia and Uasin Gishu Counties fall in what is considered the Kenyan grain basket since they are the main producers of cereals that sustain the country food security wise. The rest of the cereals are produced on a small scale scattered across the whole country. The price for cereals have perennially disappointed farmers due to involvement of cartels in the industry who create artificial shortages to trigger imports at very high prices only for farm harvests to be sold at very low prices. With delayed onset of long rains this season many farmers who had planted their maize had to replant. The rains have finally come and the outlook looks promising.

e) Horticulture

a. Cut flowers

The cut flower industry remains one of the major export earners for Kenya. About 38% of all cut flower imports into the EU come from Kenya. The main European Union markets are Holland, United Kingdom, Germany, France, and Switzerland. However, the major producers of cut flowers are multinational companies based in Kenya with extensive global networks taking advantage of cheap local labour and conducive environment to stay ahead of competition.



The value of Kenyan cut flower exports to European Union rose from Kshs. 36 billion in 2010 to more than 160 billion in 2018. The future prospects look bright for the industry

b. Vegetables

Vegetable earnings rose by 9.6% to US\$165 million, from 50,000 tonnes sold in the period, compared to US\$84.9 million from 57,000 tonnes sold last year. The main vegetable exported is French beans. Other vegetables both exotic and indigenous are produced and consumed locally with characteristic low prices in surplus periods and high prices in deficit periods.

f) Environmental

The country has an environmental authority, National Environmental Management Authority (NEMA) which was established through an Act of parliament and mandated to regulate all environment related issues in the country. The country is in the second year of implementation of the banning of use of plastic bags. In its recent State of Environment Report of Kenya NEMA highlights deforestation, waste disposal problems, biodiversity loss and pollution issues as the majors issues of environmental concern. Due to inadequate capacity and limited financial resources, solid waste – including radioactive waste – poses an environmental and health risk to Kenya. Poor sanitation and drainage not only affect the ground water due to lecheates from garbage dumps in urban areas, but also favours the breeding of mosquitoes increasing malaria prevalence. Pollution contributes to the degradation of marine resources, the erosion of coastlines and the introduction of unknown fungal diseases affecting



corals. Poverty has also affected the environment through unsustainable livelihood practices and the continued unsustainable use of natural resources. Biodiversity loss is also of concern, as traditional agriculture systems are being replaced by high input agriculture. It is estimated that 50 % of soils in Kenya have been affected by salination. A major initiative during the year by the president to conserve the environment was to rid all riparian land of all illegal structures. This resulted in demolition of thousands of multibillion structures in Nairobi and other cities.

g) Current Research Issues

- Breeding sorghum and maize varieties that are high yielding and tolerant to weeds, moisture stress and P-efficient.
- Low cost poultry feed for small holder farmers

II) Any other comments

During the year the African Chapter of IFMA held a successful AFMA11 congress in Abuja Nigeria 4-9 November 2018. It is scheduled to hold the AFMA12 Congress in Nairobi Kenya in November 2020.



New Zealand

a) Weather

A kind 2018 winter and spring, with an unusually wet November and December was followed by a concerted period of heat and dry from Christmas till early winter. The wet early summer had a negative impact on fruit and arable crop yields, with grape tonnage also well down, but with the hot summer contributing to high wine quality. It is ironic that great rains during grain fill went too far, caused late season disease, and reduced yield at the same time Australia were experiencing a drought induced poor harvest.

It certainly feels like global grain stocks are vulnerable to climatic variation, particularly on the continents, where the impact of global warming is likely to be more severe than the island climates. The wet spring delayed the annual flow of beef and lamb, but exports have caught up over autumn months.

b) Agricultural Economic Climate

Trade demand from the UK and Europe for lamb is good despite Brexit uncertainty, but the position after May is anyone's guess, with the commercial sector trying to second guess politicians!

China imports of NZ food and fibre remain are increasing, despite trade and foreign affairs being wary of NZ being drawn into security debates, particularly with the "5 eyes group". NZ's neutral international position is important to maintain, given 95% of our food is exported. International politics is elevating us into a higher risk position that needs careful management. Chinese demand for protein, particularly milk, beef, and lamb, continues to grow, but their economic growth in 2019 is expected to slow to circa 6 to 7%. Demand increase, which has come from a rising middle class in tier 1 and 2 cities, has now also moved to tier 3, 4, 5 cities. A short term factor is the impact of African Swine Fever in China, but also wider Asia. A shortage of pork is impacting on demand and prices for chicken, beef and lamb.

Of great concern to NZ is the apparent international trend towards greater protectionism, which is an ironic conflict between the desire to "look after ourselves first" and the need to encourage the economic development of third world countries, and share wealth (wealth for all).

c) Livestock

New Zealand milk production for the 2018-19 season was slightly up on 2017-18 and projections are similar for 2019-20. As always in NZ, the share and volume of milk production is subject to climate patterns. Price projections for 19-20 are 0 -10%

higher than 18-19.

Production of beef and lamb is being challenged by conversion of land to forestry to meet greenhouse gas targets. Lamb prices are stable at strong levels and beef is likely to strengthen if Chinese ASF impacts continue as expected.

Venison prices have reduced slightly but remain strong on slightly higher volumes as a herd rebuild commences in moderation.

Crossbred wool prices remain poor but "in fashion" merino prices are very strong.

d) Arable

Despite grain prices recovering, arable confidence is not high, coming off a second consecutive poor harvest. Ironically, the 2018 harvest was impacted by excessive heat and dry pre-Christmas and the 2019 harvest was impacted by excessive wet and cold conditions.

Of note, DLF, the Danish seed co-op have purchased 200% of PGG Wrightson Seeds, who have the greatest development and breeding programme and market share, for herbage seeds in NZ. Given the DLF DNA is in turf seeds, the association is deemed to be complimentary.

e) Horticulture

Horticulture plantings are increasing, with greater areas of cherries, gold kiwifruit, apples, grapes and avocados in particular.

Confidence is high, with good prices reinforced by high quality coming from NZ's high sunshine intensity. Horticulture plantings in the North Island are predominantly at the expense of milk production.

f) Environmental

NZ is signed up to international agreements around global warming that commit us to significantly lower our greenhouse gas footprint. In practical terms, we are setting policy to do our part in maintaining global temperature lift to 1.5 degrees. Along with that commitment, and a strong desire to lower the environmental footprint from agriculture, **NZ** is effectively facing a cap on output from ruminant animals. We expect similar trends globally. Our policy position is complicated by the fact that a little under half our emissions are from the agriculture sector, and the greatest proportion of that is from ruminant methane for which there is no magic bullet "fix".

On the positive side, NZ does have, not only a cost-efficient production system, but one of the globe's lowest environmental footprints, being pasture based.

As a result, a change of sentiment is taking place in the export community, as we



migrate from "volume ", to value". While much harder to execute in practice than theory, we will have to increasingly differentiate product from **NZ**.

Our largest exporter, Fonterra, is undergoing a strategy review that has already dropped the "volume" component. Zespri, the kiwi fruit exporter, is driving a value strategy, and the venison sector has already repositioned itself to drive value, in the absence of significant increases in volume.

Outside agriculture, our other key component of greenhouse gas emissions is the transport sector. Our energy sector is already 85% renewable. The government has already banned any more exploration for oil and gas, so we are on a countdown to 100% renewable energy, along with electrification of the transport fleet and processing sector. That represents a major capital cost to NZ, which must ultimately be recovered in the price of our goods sold.

g) Current Research Issues

It appears that the Billion-dollar investment to eradicate Mycoplasma Bovis is working, thankfully. Farmer sentiment on being levied for part of the cost of eradication is varied, but there is effectively, no choice. With massive increases in tourist numbers, and large import export volumes, vigilance, and the cost of that, is crucial to maintaining our position as a trading nation free of many pests and diseases that occur globally.

h) Any other Comments

Despite good international prices for most goods, farmer confidence is relatively low, in the face of uncertainty around the impact of tough environmental and climate change policy. Further contributing to dairy farmer sentiment is 2 years of poor corporate earnings performance by Fonterra (who export 80% of our milk). Note that milk prices have been stable for 3 years, but Fonterra has struggled to create value beyond milk price, partly due to heavy offshore investment, and partly to high commodity prices.

The lower confidence is reflecting in slow land sales, and soft values outside the horticultural sector. The positive is that return on capital is rising!

Intuitively, the current challenges will be embraced more by the younger farmers and governors, but many producers close to retirement may elect to retire, rather than upgrade their skill set late in life.... the law of Darwin applies...Adapt or die!!!!

NIGERIA

a) Weather:

Tropical Climate. Temperature currently is between 26 degrees centigrade in the coastal states in the south and 38 degrees centigrade in the drier north.

b) Agriculture Economic Climate:

Agriculture contribute a quarter of the country's gross domestic product and provides means of livelihood for over 50 per cent of the total Nigerian population. Peasant agriculture predominates and account for 90 percent of both output and employment in the agricultural sector.

c) Livestock:

Nigeria is endowed with various livestock which include; cattle, sheep, goats, pigs, poultry, rabbit, donkeys, camel, horses, etc. Nigeria also has many fishery resources, which include various species of fishes like catfish, tilapia, croaker, shark, etc, as well as shrimps, crabs, etc.

d) Arable:

Nigeria has five ecological zones, which supports a variety of arable crops such as cereals, grains, legumes, vegetables, seeds, fruits and nuts.

e) Horticulture

- a. Soft Fruit: Bananas, Mangoes, Oranges, Pineapples, guavas, lemon, lime, grapefruit, watermelon, cucumbers, etc.
- b. *Vegetables: okro, leafy vegetables (spinach, waterleaves, pumpkin leaves,etc), tomatoes, peppers, onions, etc.*

f) Environmental:

Desertification and erosion problems.

g) Current Research Issues:

Focus of research is on development of improved varieties of crops and livestock as well as improved agricultural practices.

h) Any other comments:

Nigeria is open to foreign investors who are willing to help modernize the agricultural sector to enhance the value chain.

POLAND

a) Weather

The climate in Poland is continental, with cold winters, often below 0 °C (32 °F), and warm summers. The climate is milder along the northern coast, overlooking the Baltic Sea, while it becomes progressively more continental going to the south, near Tatra Mountains.

Winter, from December to February, is cold throughout the country. The average temperatures in January is -1 °C (30 °F) in the north-western area to -4 °C (25 °F) in the easternmost area. Summer, from June to August, is pleasantly warm: the average daily temperatures are around 17/18 °C (63/64 °F). The Baltic sea coast, is the coolest in summer, around 20/21 °C (68/70 °F), while the temperature gradually increases towards the south, reaching 23/24 °C (73/75 °F) in the center and south of the country. Precipitation in Poland amounts to about 600 mm per year; the driest seasons are winter and spring, while the rainiest is summer.

The weather in 2018 was extremely warm. We had the warmest April and May at least compared to the last 240 years. After an exceptionally warm spring, we experienced the warmest summer of Polish meteorology. On August 8, 36.8 degrees were recorded in Świnoujście, the highest temperature in Poland in 2018. Significantly higher than normal air temperature and significant deficiencies of precipitation caused drought in many regions of the country.

b) Agriculture Economic Climate

General importance of agricultural sector in Poland. Rural areas in Poland cover 93% of the country's territory. The total area of agricultural land is about 14.5 mln hectares, which places Poland in the 5th place in the European Union. Polish agriculture absorbs around 13% of the work force of the country (EU average 5,5%, EUROSTAT). The share of the agricultural sector in GDP in 2016 amounted to 2.6% (Statistical yearbooks, Polish Statistical Office).

The main agricultural products in Poland in 2017 are cereals (16.2% of Gross Agricultural Output, GAO), animals for slaughter 28,4% of GAO (mainly pork 11.5% and poultry 10.6%), cow's milk (16%), vegetables (9,5%) and fruits (8.7%) and Industrial crops (6.2%). Poland is the net-exporter of agricultural produce and the first-largest in the EU producer of poultry, apples, black currants, raspberries, white cabbage, carrots and triticale. It is also on the 2nd or 3rd place with strawberries, onion, cauliflower, oats, rye, wheat, sugar beets and rapeseed (Statistical yearbooks, Polish Statistical Office, 2019).

Polish agriculture is characterized by a large number of farms and strong fragmentation of the farming sector. Despite the fact that the number of farms has noticeably decreased, still only about 25% of all farms have over 10 ha of land. On the other hand this group utilizes 72% of agricultural land in Poland.

New EU Agricultural Policy. The implementation of the Common Agricultural Policy (CAP) after accession to the EU in 2004 has been a milestone for most of CEE countries (Poland, Czech Republic, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Hungary). Easier access to EU markets, the introduction of direct payments, continuing positive price/cost relationship trends and subsidies from the Rural Development Program (RDP) had a significant impact on the economic situation of the farming sector.

In June 2018 **EU published new proposals for regulations modernizing and simplifying the Common Agricultural Policy (CAP)**. Member States will be able to tailor the tools to their own specific needs in a comprehensive CAP Strategic Plan. These CAP Strategic Plans will set out how each country proposes to meet the overall CAP objectives, mindful of its own specific needs. Three out of the nine specific objectives in the future CAP will concern the environment and climate – covering the issues of climate change, natural resources, biodiversity, habitats and landscapes. A new system of "conditionality" will link all farmers' income support (and other area- and animal-based payments) to the application of environment- and climate-friendly farming practices.

Economic results in CEE countries are still much lower than the in Western European counties. Most of CEE countries hardly ever obtain 10 thousand euro of yearly family farm income per annual farm working unit, in Poland an average farm income was around 5,5 thousand euro per person, per year.

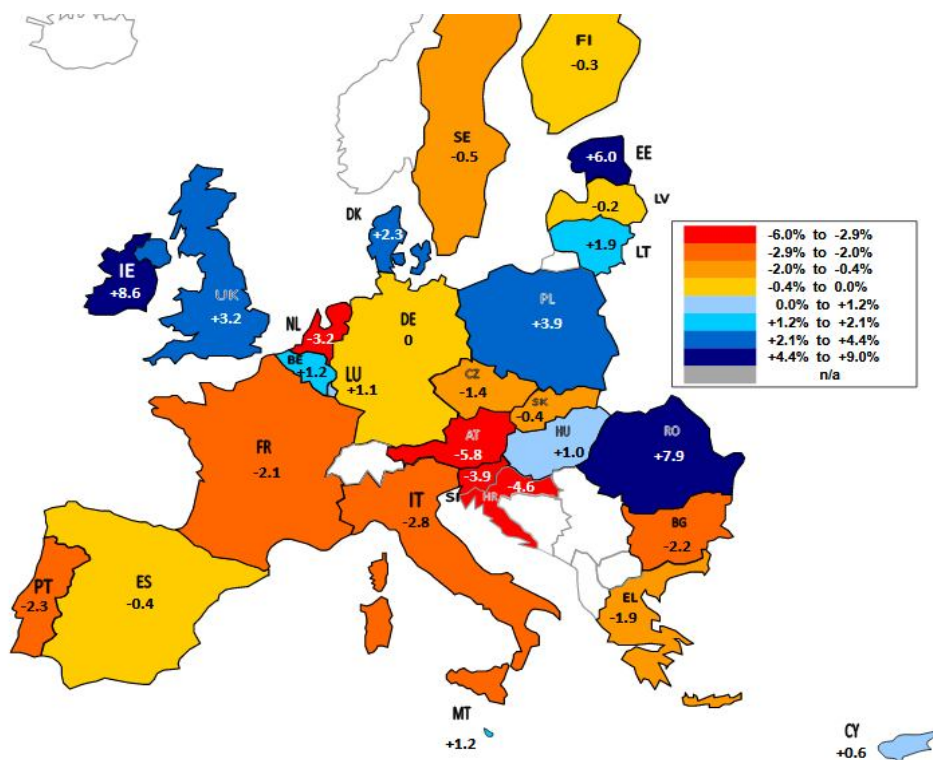
c) Livestock

Dairy sector. Poland is 6th largest milk producer in Europe (after Germany, France, United Kingdom, Netherlands and Italy). Together with the CAP liberalization process, especially abolishment of the EU milk quota system in 2015 and reducing export subsidies, dairy market is more exposed to the world market dynamics. Taking an advantage of the cost competitiveness of dairy production in Poland, large investments done in the past years at the farm level, high demand for milk expressed by processing industry, resulting from investments in processing powers, and growing demand for

dairy products, dairy farmers continued development towards increased specialization and production scale.

In 2018 drought in the spring and summer resulted in the smaller supply and lower quality of feedstuffs. Despite worse production conditions, in June 2018, the population of cows increased by 2.3% to 2,429 thousand head, including dairy cows by 3.7% to 2,233 thousand head. Progressive concentration and modernisation of the milk production in medium-sized and large farms resulted in the increased average milk yield of dairy cows to about 6,350 litres/head. In 2018 the production of cow's increased by 3.5% to 13.8 billion litres (14.2 million tonnes). The growth rate of the production was slightly lower than the year before (3.6%).

Figure 1. EU Milk deliveries compared to last period (January – march 2019 to January march 2018)



Source : MS' Communications to Eurostat, FEGA, AGEA, Reg.479/2010.1(a)1

Pig sector: In June 2018, pig livestock amounted to 11.8 million heads and was higher than last year by 475 thousand heads, i.e. by 4.2%.

The average price of class E livestock amounted to EUR 142.42 per 100 kg of slaughter weight in EU-28, while in Poland to EUR 140.88 per 100 kg. Compared to the prices recorded in the first half of 2017, the EU-28 prices fell by 12.9% and in Poland by 13.4%.

The pig sector in CEE countries was in 2018, and is still seriously affected by African Swine Fever (ASF) which since 2014/15 continues to spread across areas of Europe. Within the EU, ASF is present throughout the territory of Poland (eastern part), Estonia, Latvia, and there has been limited ASF circulation in Lithuania, Czech Republic, Romania. ASFV spread continued in a number of third countries, including Moldova, Georgia (South Ossetia), Russia, Belarus and Ukraine. In Poland within protection zones and surveillance zones, producers are prohibited from moving pigs from the holding. Pig producers suffer from low prices and limited possibilities of sale.

d) Arable and horticulture

The drought, which has been underway since April 2018, has had a negative impact on yields and thus on the harvests of basic **agricultural crops**. In September, the Ministry of Agriculture and Rural Development estimated damage caused by drought to over PLN 3.6 billion. According to the Central Statistical Office (GUS) estimates, the total cereal crops in Poland (26.8 million tonnes in 2018) decreased by about 16% this year compared to 2017, and rapeseed by about 20%. Harvesting of potatoes is estimated at a level lower by 19%, while sugar beet is slightly lower than last year.

Fruit production in Poland was greater than the low production in 2017 by approx. 60% and reached a record-breaking level of about 5 million tonnes. The greatest increase was in the harvest of sour cherries (by 179%, to 0.2 million tonnes) and sweet cherries (by 205%, to 60 thousand tonnes. The apple production increased by 60% to 3.9 million tonnes, which is the highest level so far. The soft fruits (mainly strawberries, raspberries and currants) production increased by 20% to 0.586 million tonnes. The strong increase in the harvest resulted from the intensified physiological activity of fruit plants after weak fructification in 2017 and favourable (warm) weather conditions in the spring period. The soil water deficit, observed since spring, has not had a great impact on the production volume. On the other hand, the shortage of rainfall in spring and summer resulted in a reduction in the harvest of **vegetables** by about 7% to 5,3 million tonnes.

e) Environmental

Changes that have taken place in Polish agriculture have had mainly positive effects in terms of the relationships between agriculture and the natural environment. Undoubtedly, the introduction of EU legal regulations after accession in 2004 to the EU, imposing farming practices which reduce externalities (e.g. Nitrate Directive, greening of the CAP), as well as different support measures, have



played an important role in promoting activities that provide environmental public goods and other environmental benefits.

The modernisation of agricultural production and technological advancements might also be beneficial for the environment due to the use of safer, better quality means of production applied with a greater precision.

There are concerns that concentration in the agricultural sector and intensification of production, which have taken place in Poland, may have created threats to the natural environment. This might possibly be true on a **relatively small number of farms with a very high concentration of livestock**, because of increased emissions of greenhouse gases and problems with manure management. The level of inputs in agricultural production in Poland, even on more intensive farms, is still far below the levels typical for the most intensive farming systems in Europe. Increasing intensity of production and on-going concentration processes have had no harmful effects on the natural environment. It is estimated that agricultural land areas in Poland are characterized by high biodiversity in comparison with other countries (Parris, 2007). In Poland, biodiversity is shaped by a relatively large area of forests (ca 9 million hectares), of wetlands (1.8 million hectares), including 455 thousand hectares of inland waters.

Agriculture contributes to the biodiversity of the country due to its diverse production structure and fragmented farm structure. On the other hand, some of the indicators worsened after accession to the EU in 2004, resulting from a shock-type decline in the intensity of agricultural production in the preceding years. For example the average nitrogen balance of in Poland increased from 39.2 kg of nitrogen per ha of agricultural land in 2004 to 54.9 kg/ha in 2014. This is a much lower value, however, in comparison to the average Nitrogen balance in other EU countries.

Slovenia (Europe)

- Population of Slovenia is 2,080,908 inhabitants
- Average monthly gross earnings is 1,752.34 EUR (+1.7% regarding previous year)
- Volume growth of GDP: + 4.1 %
- Farms and Agriculture:
 - The gross value added of agriculture in GDP is 1,0%;
 - 69,902 agricultural holdings with an average of 6.9 ha of utilised agricultural area, 6.0 large livestock units;
 - 1.1 annual working unit per agricultural holding, with 57 years of an average age of the manager of the agricultural holding;
 - Factor income per employee in agriculture is 5,468 EUR;
 - Average economic size per agricultural holding (standard output) is 16,600 EUR;
 - 5.2% of agricultural holdings with organic farming or in conversion to organic farming;

a) Weather

In 2018 changing weather conditions continued as well as the occurrence of extreme weather events, which strongly influenced the extent of crop production in Slovenia. In 2018 there were less extreme weather events than in two previous years. Beginning of the year was extremely warm. Vegetation started later as usual, however relatively high temperatures in April and May enabled compensation phenological development. Also in the summer, the temperature was above the average, with many hot days. The water balance was mostly good at the beginning of the growing season. Precipitation was very unequally distributed across the territory of Slovenia and mostly in the form of storms and rainfalls. The weather conditions in various parts of the County within growing season influenced very differently the Ag production.

b) Agriculture Economic Climate

The first estimates of the indicators of economic accounts for agriculture, prepared by Agricultural institute of Slovenia, show that agricultural incomes in 2018 will be significantly higher than in the year before, which was extremely unfavorable for agriculture. The improvement of economic results is most likely due to a significant increase in the physical volume of agricultural production (by a fifth, mainly due to the extremely good harvest in fruit and wine growing) at slightly lower prices.

In comparison with the year 2017, the volume of production will increase (plant production +38%, livestock production +2%), while the prices of crop products will fall significantly at the aggregate level, while the prices within livestock production will remain close to the level of the previous year. Value of intermediate consumption estimated at farm level will be higher (than in the year 2017), mainly due to higher availability of home grown fodder and more expensive energy and fuel. According to the first estimates, the factor income of agriculture will increase considerably in

comparison with the previous year (by around one fifth) and is likely to approach 2015, the most economically advantageous year for Slovenian farmers.

In contrast to the aggregate decline in agricultural product prices in 2018, the average annual level of prices of all inputs for agriculture will increase (+3.7%). According to statistics, the prices of goods and services for current consumption in agriculture will increase (nominally by 3.7%), as well as prices of inputs for investments (nominally by 3.6%). The increase in agricultural input prices for agriculture in 2018 will mainly be the result of a significant increase in energy prices (+ 8.7%) and fertilizers (+ 5.1%). Prices of all other inputs, other than seeds and seedlings, which will be lower by 3.5%, will also slightly increase.

c) Livestock

For the livestock production, based on the estimates on the available data show that the total production volume risen again after 2017. However, the growth intensity is less pronounced than in the last few years. An increase in the production volume is expected in the production of pigs, poultry and small ruminants, while the cows milk production was again slightly reduced. The growth of cattle remains at the level of 2017. The production of eggs continued to increase. Compared with the extremely poor harvest 2017, in 2018, honey production increased and is approximately 1,750 tonnes above the average over the last decade.

The prices of animals and animal products were in 2018 lower by 0.2% compared to the previous year, mainly due to lower prices of pigs (-3.6%) and cow's milk (-1.1%). Milk price was in the year 2017 significant increased. At purchase prices of cattle, poultry and eggs, we can expect an increase compared to the previous year, which will be the most intensive in cattle (+ 2.1%).

d) Arable

As a result of abundant precipitation in the spring and as well as at the time of harvest, the yield of cereal grains was significantly lower than in 2017 and below the average of the last five years (2013-2017). However differently, for grain maize it was a very good year, yield was on average for a more than a quarter higher than in 2017 and a tenth above the long average. Good yields in 2018 were also in the production of potatoes, hops and maize for silage.

According to the predominantly sufficient amount of rainfall and warm weather, the yield of grass feed is in volume higher than last year's yield and also above average, while the quality of produced fodder due to frequent rainfall in May, June and July is worse than usual.

According to the first estimates of the statistics, the prices of crop products in the year 2018 will be 1.6% lower than the previous year, which is mainly due to lower purchase prices of fruit (-14.8%) and oilseeds (-5.5%).

e) Horticulture

a. *Soft Fruit*

In 2018, fruit production was very good (significantly above long-term average) especially after two extremely modest years for fruit production. In 2018 yields of intensive crops and extensive orchards is approximately four times as much as fruits in catastrophic year 2017 and 2016. The harvest was also about a quarter above the average of the period 2011-2015 (the period without catastrophic years 2016 and 2017 in fruit production).

According to the estimates of the statistics, the yield of grapes in 2018 is also high, with a 58% increase in the production of red varieties and 38% for white varieties. The quality of the grapes harvested was also very good. The harvest of grapes is estimated at over 128 thousand tons, which is 44% more than in the under-average year 2017 and 29% more compared to the average of the last five years (2013-2017).

In both outlined sectors, the increase in physical volume was extremely high compared to the previous year (2017), while prices will be on average significantly lower. In fruit production, the price decline will be significant mainly due to excess supply at apple market.

b. *Vegetables*

Vegetable production was up in 2018 due to moist and warm growing periods with frequent precipitation in the form of strong rain and storms difficult and it is lower than slightly above-average cultivation in 2017.

f) Environmental

In 2018 20% less water was used for irrigation than in 2017. In total 3,220 ha were irrigated; Water was supplied from:

- Accumulations 63%,
- ground water 17%,
- running waters 12% and
- 8% from the public water supply system and from other sources.

g) Current Research Issues

- CAP reform and impact assessment (IA) with farm level modelling
- Bioeconomy: from Forestry and Agriculture Biomass to Innovative Technological solutions
- Sustainable farming
- Mitigation of greenhouse gas emissions and ammonia on agricultural holdings



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- Procedures for ensuring safety and social acceptability of new techniques and applications of synthetic biology and modern biotechnology
 - Technological solutions for high – quality hay production

i) Any other comments

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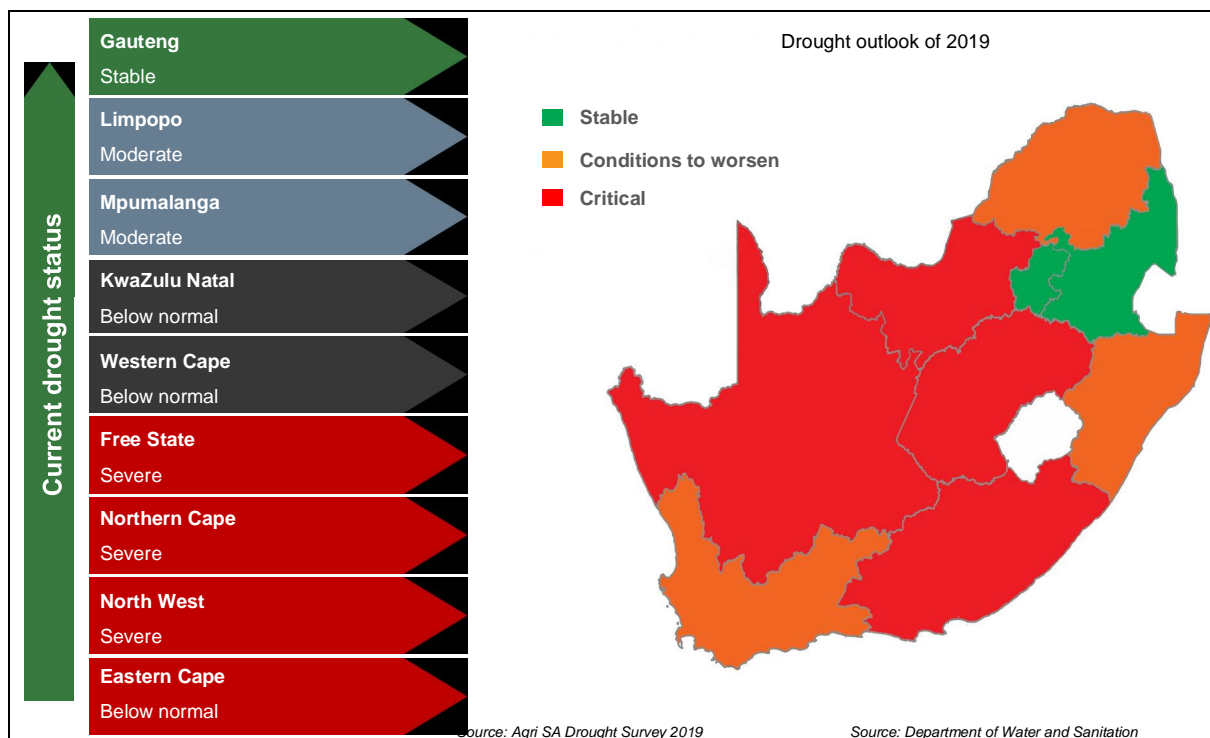
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South Africa

a) Weather

- South Africa is struggling with severe drought conditions affecting most provinces in the country. This is a lingering drought where some areas received as little as 25mm rain over the past 4 years.

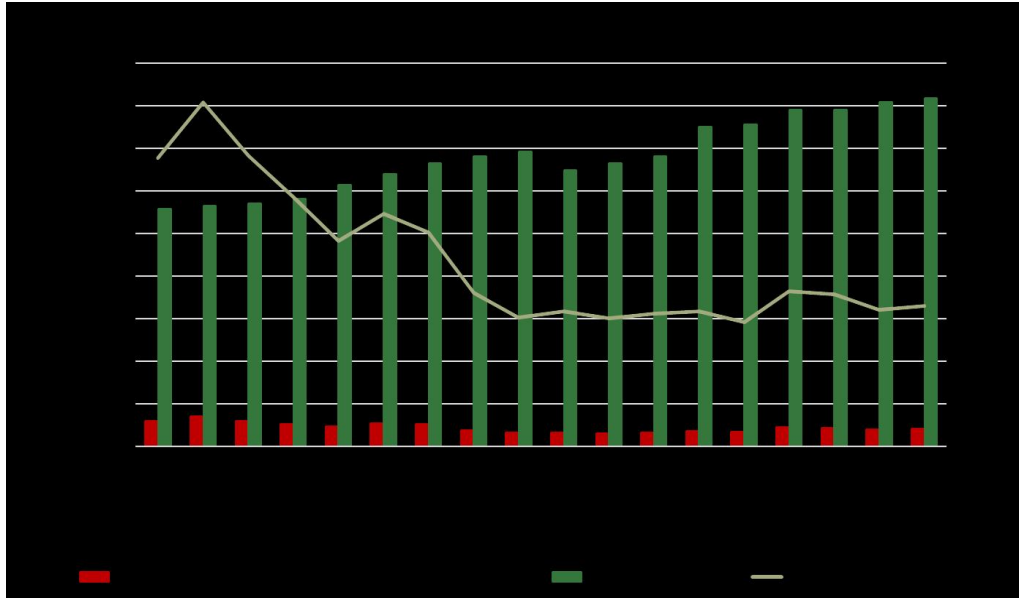


Source: Agri SA (2019)

b) Agriculture Economic Climate

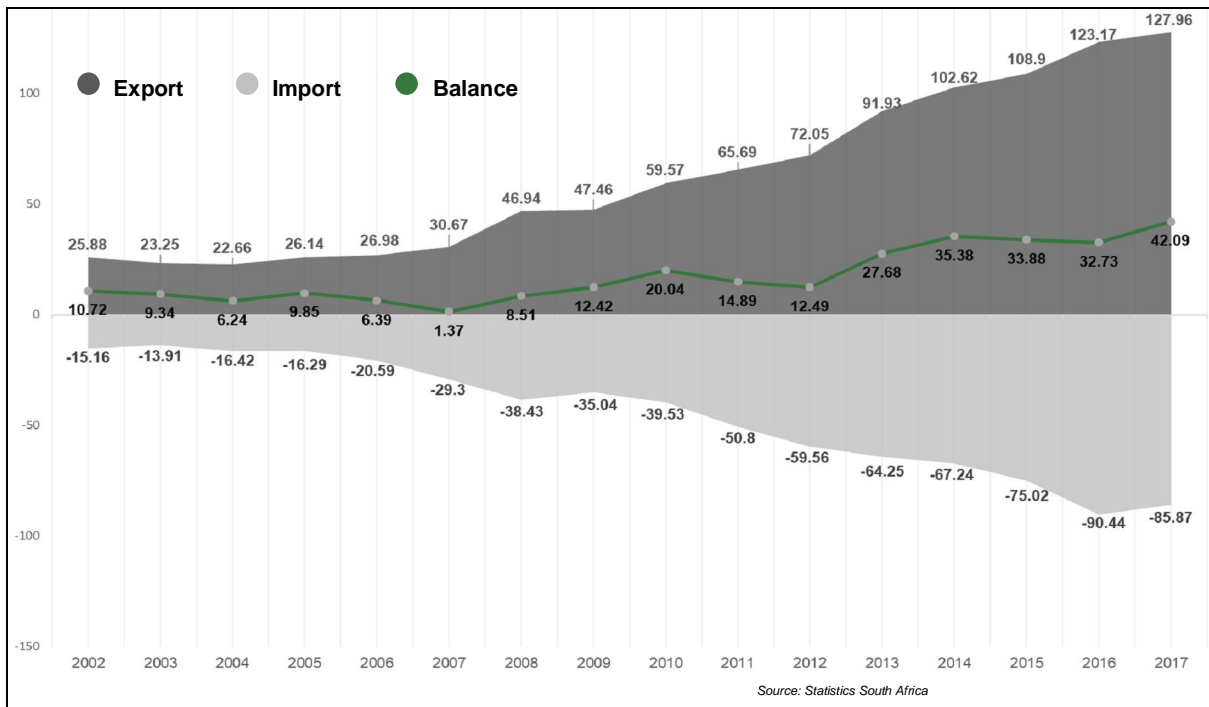
- The economic condition in agriculture is not at a good place due to factors like the lingering drought.
- Debt levels in agriculture are on its highest ever and are still increasing.
- Policy uncertainty about the final outcomes of land expropriation without compensation limits investment in agriculture.
- Almost yearly increases in the minimum wage place a strain on employment in agriculture.
- The agricultural trade balance is however increasing with exports growing faster than imports.

Labour in South Africa in relation to total employment in all sectors



Source: Labour Force Survey, 2018

Source: Agri SA (2019)



Source: Statistics South Africa

Source: Agri SA (2019)

c) Livestock

- Red Meat
 - Both lamb and beef prices showed tremendous price increases from 2016 to 2017, causing the 2017 to 2018 price increase to be almost neglectable small.
 - In 2019 factors like high supply due to drought, increasing feed cost and the temporarily closure of exports due to a FMD outbreak caused sharp declines in the red meat prices.
 - The 2019 outlook, in terms of price, do not look very rosy at this stage.
- Poultry
 - Poultry farmers are suffering due to low priced imports and high current feed cost.
 - The very cheap imported meat and eggs place a ceiling price on the local market causing the margin of the producers to decline.
- Pork
 - The listeria outbreak in 2018, with a sharp drop in the price of pork, forced some smaller producer out of the market.
 - Although the price improved again to the end of 2018, it however declined sharply during the first 4-5 months of 2019.

d) Arable

- Summer crops
 - Initially the season started poorly due to dry conditions that delayed plantings
 - Producers were able to plant late December / early January
 - No reports of frost to date
 - The following data was obtained from the latest crop estimates:

Crop	Final crop (Tons)		change
	2018	2019	
White maize	6 540 000	5 488 040	-16%
Yellow maize	5 970 000	5 412 220	-9.3%
Sunflower	862 000	611 140	-29%
Groundnuts	57 000	22 705	-60%

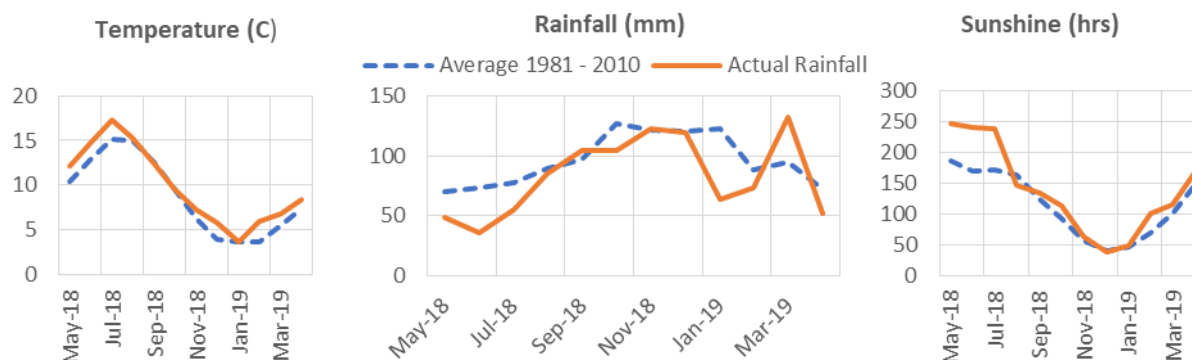
- **White maize:** According to the latest 2019 crop estimates the white maize season harvest will be 16 % less compared to the previous year
- **Yellow maize:** The 2019 yellow maize harvest will be 9.3 % lower compared to the 2018 season.
- **Sunflower:** The 2019 sunflower harvest will be 29 % lower compared to the 2018 season



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- **Groundnuts:** The 2019 groundnut harvest will be 60 % lower compared to the 2018 season
 - **Winter crops**
 - Wheat: In the 2019 production season producers intend to plant 513 450 ha of wheat, which is a 2.01% increase compared to the 2018 season
 - Western cape is expected to plant 324 000 ha of wheat in the 2019 season, which is 1.9% more compared to the 2018 season

United Kingdom

a) Weather



b) Agriculture Economic Climate

- Concerns over farming profitability going forward because of the uncertainty over the arrangements when the UK leaves the EU and the risk of a hard border
- Brexit Scenarios: Farm Business Incomes will fall under UK-EU FTA -30% General Cropping, -18% Dairying, -42% pigs and -19% Cereals Dairying. Increased costs are predicted through the restriction of permanent non-UK labour (50%) and trade facilitation costs as a result of non-tariff barriers.
- Merger between supermarkets Sainsburys and Asda has been blocked by the Competition and Markets Authority. Tesco hold 27% of the market and the merged company would have held 29%. The move has been welcomed by the farming sector
- Farm profits for 2018 declined by 18% in real terms over the previous year this last year. With income slightly higher the reduced profitability is largely due to increased costs (Feed, Fuel, Fertiliser, Depreciation and Labour)

c) Livestock

- Dairy sector
 - AHDB forecast milk output for 2018/19 to be the highest in the last 29 years
 - Brexit: Milk price +2.6% (UK-EU FTA) +3.8% (WTO)
 - Milk price is holding but likely to fall due to over-supply and increased processing costs.
 - Throughout April milk deliveries were running about 4% higher than last year
 - View that businesses are switching from all year round calving to spring block
 - Demand for milk for cheese exports is high particularly organic milk
 - Herd sizes continue to grow with reduction in number of farms in dairy
 - Cost of feed has been high during the winter because of last year's poor silage crop due to last year's low rain fall and heat wave in the summer

2. Beef
 - a. Prices are firming and have returned to the 5-year average level
 - b. Brexit: Meat Price +4.3% (UK-EU FTA), - 4.6% (WTO)
3. Pigs
 - a. Price 6.6p per kg below last year but demand from China has increased European prices which will firm UK prices.
4. Sheep
 - a. AHDB to fund marketing campaign (£1.4m) to promote Lamb consumption
 - b. Brexit: Meat Price -5% (UK-EU FTA), -25% (WTO)
 - c. Good weather this spring has got the new crop of lambs off to a good start with the lamb crop looking well and coming to market earlier this year compared to last. Prices are around the 5-year average level.
 - d. Increased demand for sheep meat from China
5. Poultry
 - a. Layers
 - i. *Currently good demand for eggs and whilst feed prices are high due to poor wheat harvest last year the market is paying more*
 - ii. *Going forward concern at the planned legislation to ban enriched cages*
 - b. Meat
 - i. *Market good for quality table birds but catering market poor due to cheap imports*
 - ii. Brexit: Meat Price +1.5% (UK-EU FTA), +2.3% (WTO)

d) Arable

1. Big cereal crop in the ground that looks well. Main concern is moisture after a relatively dry winter and spring. Recent rain has been welcome but soil moisture are still in deficit and more will be required to fulfil crop potential.
2. Winter planted crops looking good with an increase of approximately 5% of wheat planted
3. Brexit:
 - a. Wheat price +2.3% (UK-EU FTA), + 3.6% (WTO)
 - b. Barley price -2.0% (UK-EU FTA), -12.1% (WTO)
 - c. Oilseed Rape price -2.0% (UK-EU FTA), -4.0% (WTO)
 - d. Fertiliser Price +0.9% (UK-EU FTA), +4.9% (WTO)
4. A large area of the Oilseed Rape crop has failed due to flea beetle damage (estimated 5-10% failure). This is a direct result of the traditional chemicals now being revoked. Areas where the crop is less intensively grown appear to have survived better.

5. Spring crops have established well after planting in ideal conditions

e) Horticulture

1. Soft Fruit
 - a. Local production continues to increase
 - b. Concern at availability of migrant labour when NT leaves the EU
2. Vegetables
 - a. Whilst good spring crops have established well, there are concerns due to lower than average rainfall in the winter and potential restrictions on irrigation
 - b. Concern for future availability of migrant labour is spurring increased interest in robotics.
 - c. Potato price +1.8% (UK-EU FTA), + 3.6% (WTO)
 - d. Carrot price +1.2% (UK-EU FTA), + 2.4% (WTO)

f) Environmental

1. Currently a new agricultural bill is going through parliament that will see a change in the support system for farmers which will change from payment for production to one for care of the countryside. This is likely to include new Environmental Land Management Schemes: pilot schemes are expected to be up and running this year
2. DEFRA estimate Greenhouse Gas emissions to have fallen by 6% between 2015 and 2016
3. Increase in the number of non-meat-eating people due to concerns at environmental issues which have been raised by lobbying groups

l) Current Research Issues

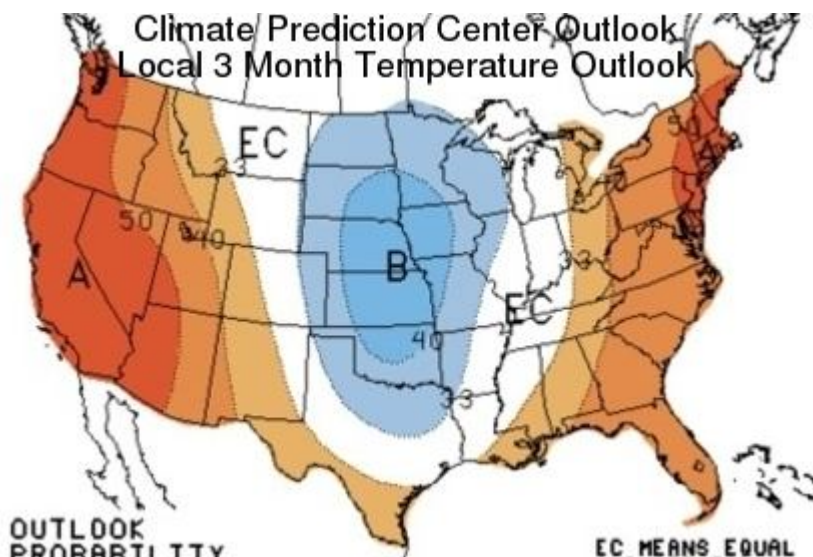
1. GM
 - a. Defra have approved a 5-year trial of genetically modified camelina. This is looking at a commercial crop that can produce a replacement for fish derived omega-3 oils

i) Other

1. The charity LEAF is to run a two-week campaign to help educate schoolchildren about agriculture. The farming fortnight' will run from 3rd to 14th June and aims not only to teach the next generation about where their food comes from, but also to highlight the career opportunities available in the sector. It builds on the work previously undertaken by Farming and Countryside Education (FACE) which merged with LEAF in 2017.

United States of America (USA)

a) Weather: Temperature prediction June, July and August 2019



EC means equal chances of above, normal or below **A** means above normal
N means normal **B** means below normal

Source: National Oceanic and Atmospheric Administration's National Weather Service

b) Agriculture Economic Climate

- 1) The continuing trade issues, especially with China have maintained uncertainty in US markets.
- 2) Recently, the US Congress passed a \$16 Billion package to assist producers dealing with trade war impacts on markets, questions linger if this assistance is the "last" one. Corn producers are not pleased with the \$0.04/bushel in comparison to nearly \$2/bushel for soybeans.
- 3) Delayed planting in many US states may result in "prevented planted acres" and influence a shift to more soybeans as corn (maize) planting becomes too late.
- 4) Labour issues, especially in the soft fruits, vegetable, tobacco and tree fruits are of concern to producers to be able to acquire the needed labour to plant, cultivate and harvest crops which require hand picking. The USA's H2A guest worker visa is part of the entire immigration "hot potato" consuming much political capital.

c) Livestock

- 1) Dairy
 - a. Tough times are facing producers as milk price and feed costs converge, many small to mid-sized dairy farms are selling out. This continues the shift to larger dairy operations.



- b. Production increased in 2018 to 23,173 lbs of milk per head at an average price of \$16.18 per hundred weight (liquid). 2019 prices are expected to range between \$16.90 - \$17.60 per hundred weight. Income over feed costs were \$9 per cwt, not as low as 2013 when it was \$7 per cwt.
 - c. Cow numbers declined by 0.1 percent in 2018 and the decline is expected to continue in 2019 by 0.2 percent.
 - d. The tariffs placed on milk and milk products has stifled exports
 - e. For more detail see: <https://www.usda.gov/oce/forum/2019/outlooks/Dairy.pdf>
- 2) Beef
- a. Beef production in the USA is forecast to be 1 percent higher in 2019/2020. Market animal slaughter is expected to be higher, offset by a decline in cull cow slaughter.
 - b. Heavier average carcass weights are expected which will offset the decline in cow slaughter.
 - c. Fed cattle prices are forecast moving into the 2020 year to average \$121 per hundred weight (\$2.66/kg)
 - d. Asian and Oceania trade partners may set beef export records in late 2019/2020 assuming tariffs do not impact those markets.
- 3) Swine
- a. As with most animal proteins, pork production is expected to increase 2019/20 by ~3.5%
 - b. Prices are expected to be ~10% higher for live lean hogs; averaging \$60/hundredweight (\$2.32/kg)
 - c. US pork exports are forecast to be 6.7 billion pounds (3.07 billion kgs)
- 4) Poultry
- a. Slaughter is expected to increase by about 3% over last year, however, average live weights expected to be down by -0.6%.
 - b. Expectation for 2019 production is to increase by 1% overall to 43 billion pounds (19.54 billion kgs)
 - c. Overall the export market for US poultry is somewhat uncertain as some markets are down; e.g. Philippines is off ~48%.
 - d. Globally, African Swine Fever will impact markets in a significant way for meat.
 - e. Egg production remains strong, average price per dozen in April was \$0.7614.
 - f. For more details see: <https://www.ers.usda.gov/webdocs/publications/93121/ldp-m-299.pdf?v=4153.7>

d) Arable

- 1) Corn (maize)
- a. The first forecast for the 2019/20 crop was that 15,030 million bushels (383 million long tonnes) from 92.8 million acres planted (37.56 million ha)
 - b. With delayed planting due to continuing rains (as of May 25, 2019) in the Corn Belt may shift to soybeans



- 2) Soybeans
 - a. Early forecasts of the 2019/20 soybean crop is projecting a 4.15 billion bushel below last year's 4.55 billion bushel record.
 - b. Price models indicate an average of \$8.10 per bushel, down \$0.45 per bushel from last year
 - c. Ending stocks are projected to decrease slightly with domestic crush increasing.
- 3) Wheat
 - a. All wheat plantings for the 2019/20 crop are down 4 percent to 45.8 million acres (18.5 million ha) this is the lowest level since record keeping began in 1919.
 - b. Continued wet weather slows the spring wheat plantings and puts at risk the winter wheat with disease pressure.
 - c. Trade issues are of continuing concern.
- 4) Cotton
 - a. 2018/19 production is estimated to be 18.4 million bales which is 12 percent below the previous USA cotton crop.
 - b. 3 of the 4 major Cotton Belt regions had decreases in upland cotton production, the Delta region increased by 7 percent with a total planted acreage of 2 million acres or 809 thousand hectares.
 - c. Mill use and Consumer demand for cotton was down slightly, however, it is expected that mill use will stabilize as polyester fiber prices are and remain competitive.
 - d. For more information see:
<https://www.usda.gov/oce/forum/2019/outlooks/Cotton.pdf>

e) Horticulture

a. Fruit

- 1) Citrus market in the USA is expecting a 31% increase in production barring any losses from hurricanes. Last year, Hurricane Irma, caused losses in Florida. Both the orange and grapefruit crops are expected to have 42 and 24 percent increases respectively for 2019/20.
- 2) Apple production for 2018/19 season was slightly lower keeping prices strong. Industry sources indicate that cold storage inventory is down 10% from a year ago.
- 3) Strawberries prices are stronger in early 2019 due to the colder and wetter weather in Southern California and Florida, two major growing areas for this crop.
- 4) A large grape crop from California has pressured retail prices for domestic produce. As a result, the usual importation of grapes mostly from Chile has lagged historic volume in early January through March.

b. Vegetables

- 1) Based on a May 6, 2019 USDA ERS report, fresh-market vegetable production is at a record low – down 9 percent from a year ago to 35.9 billion pounds (16.31 billion kgs).



- 2) The four major fresh-market crops: onions, head lettuce, romaine lettuce and tomatoes (combined are 46 percent of production) led the decline in this sector.
- 3) As a result of the decline, farmers adjusting plantings for the 2019/20 year.
- 4) Changing weather patterns may influence the decline in regions of the USA.
- 5) For more information see:

<https://www.ers.usda.gov/webdocs/publications/93033/vgs-362.pdf?v=1958.8>

f) Environmental

- 1) Researchers and Scientists find themselves at odds with national policy makers as can be seen in the popular press reports and position statements of various agencies.
- 2) Water issues and the usage of water will be an issue (in the upper Midwest it's TOO MUCH WATER), in the Southeast...it's a bit dry.
- 3) Population growth east of the Mississippi River will challenge water availability over the next several decades as climate and rain patterns change.

g) Current Research Issues

- 1) Precision agricultural production techniques are a continuing theme in university and private research efforts.
- 2) Genetics and the understanding of all the linkages to find traits to solve broad regional needs to grow food, fibre and fuel.
- 3) Environmental and natural resource research continues to increase and linkages to traditional production agriculture are investigated.
- 4) The 2018 Farm Bill broadened the industrial hemp research possibilities. Until new rules are written which are expected to be released in late 2019, the rules for pilot research programs allowed under the 2014 Farm Bill are to be followed. Licensed hemp farmers have increased exponentially for the 2019 growing season. Research into agronomics, market and product development continue to grow to match acreage increases. Industrial hemp was removed from the list of controlled substances under USA federal law. Upon passage of forthcoming rules, industrial hemp will be treated as an agricultural commodity, though regulated.

h) Any other comments

- 1) Broadly, labour issues are of growing concern to farm producers to get some crops into the ground and harvested.
- 2) Signs of financial distress are emerging in the Agricultural sector. While interest rates are paused for a time with the US Federal Reserve choosing not to raise rates recently, there are signs of some weakness.
- 3) Land values are broadly resilient as reported in the popular press. There is a slight downward trend with interest rates ticking up. However, farmers who have cash from past better income years and investors are providing support to overall land price and value for the long-term.

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