



Ministry of Agriculture, Nature and  
Food Quality of the Netherlands

# Agricultural market opportunities in Uruguay

An analysis of dairy, greenhouse farming  
and the bovine meat industry





## Executive Summary

**This market analysis of Uruguay serves to help Dutch entrepreneurs to determine whether or not they should pursue doing business in Uruguay. In general this report focusses upon dairy, bovine meat and greenhouse farming. However the investigation into Uruguay revealed many more opportunities in the country in the foreseeable future.**

First and foremost, the country is one of the most developed countries in the continent with a high standard for doing business and facilitating foreign entities to conduct business with and within Uruguay. Corruption figures a very promising compared to other nations in the region and even Europe. One of the reasons why opening up an office in Uruguay is the availability of tax free zones for business hence making it a attractive location to use Uruguay as a hub between different nations in order to minimize taxations.

Uruguay aims to become a circular economy by 2050 and along with their goals regarding water management poses a country where Dutch knowledge and products can be sold to not only further your company but also enhance and protect living standards and the environment in the country. By March 2019 the government expects to publish their first vision on how to further the country into a sustainable manner. One of the key pillars in their assessment will be that they have a goal to create a structure in which the whole agricultural sector is 100% circular by 2040. With the Dutch government aiming to have a fully circular agricultural sector by 2030 this entails that the Netherlands should have a major competitive advantage on a business level with many technological advantages ready to export and deploy in both Uruguay and other countries who aim to be circular.

The repeated droughts in Uruguay over the past 2 decades have made water management and irrigation key pillars in government policy. Hence, in 2019 there are policy measures expected to benefit and further investments in water management on every possible level. As the Dutch society has a long standing experience and good reputation regarding this topic there is an abundance in opportunities to be seized in Uruguay.

Within the bovine industry both on a level of dairy and meat production many gains are there to be made both on the field on how to market Uruguayan products in non-Uruguayan markets and in technology. Opportunities that will be found in this report will strongly indicate that the most probable ventures to pursue are grazing/feed related. On top of this the practice of treating cattle on an individual level still lack a certain level of professionalization as the cattle is now being treated as a herd instead of the individual performance.

As greenhouse farming is an industry that is not truly developed and the sales of fresh produce are signified by high fluctuations in price due to required imports in the winter season.

The assessment is that entrepreneurs stand to make significant gains when they figure out how to supply the domestic market in a system where crops rotate in order to harvest produce when prices are at the highest level.

Overall Uruguay, however small, still poses many opportunities to be seized by entrepreneurs willing to work within its countries borders.

The intended results where to create a market opportunity report detailing economic conditions within Uruguay, an overview of the respective agricultural sectors, Dairy, bovine meat and greenhouse farming in Uruguay and a list of business opportunities and potential projects for Dutch entrepreneurs. The report focusses around the following question:

*What market opportunities are attainable to Dutch agribusinesses in Uruguay?*

Regarding the dairy and bovine meat industry the most important findings where that those sectors over the past 20 years in majority have not incorporated modern techniques. Although through developments in the world market regarding prices and recent climate challenges the producers are now in a phase where they are more than willing to innovate and scale up their operations. For the Dutch entrepreneurs this translates to many opportunities to cooperate with those farmers in the fields of animal welfare, pasture management, race improvements and possible marketing opportunities to sell the Uruguayan produce as organic free range produce.

In Greenhouse farming the same conclusions are to be made, there were no major changes in production over the past 20 years yet the country is faced with a 3 month period every year where for many products there is no domestic supply causing the market to import fresh produce from other countries causing high fluctuations in the price for end consumers.

The report contains over 50 sector specific market opportunities for Dutch entrepreneurs to be seized. Next to this an outcome was that the national agricultural research institute of Uruguay is very keen to collaborate with Dutch universities and this could broaden the Dutch ties with Uruguay and lead to a broader sales network in Uruguay. Furthermore the Uruguayan government has set goals for a circular agricultural industry in Uruguay by 2050 combined with breaking ground on water management projects the overall outlook is that there are many opportunities in Uruguay to be seized with Dutch experience and ingenuity.



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## Introduction

**Feeding the world with a globally growing population and demand poses many threats but provides an abundance in opportunities for agricultural entrepreneurs. With Uruguay generating food for 30 million people on a yearly basis and the ambition to grow to 50 million their importance in the global food market is one to be reckoned with. Considering a trade balance of \$630.000.000 in favor of Uruguay (OEC, 2018). The conclusion is that there is an abundance of opportunities for Dutch agricultural entrepreneurs to get involved in Uruguay on either the field of knowledge exchange or the export of agriculturally related products.**

Commissioned by the Royal Dutch Embassy in Argentina, concurrent to Uruguay. The goal of the report is to show which agricultural sectors are ripe for investments or partnerships for Dutch entrepreneurs.

The report is structured in 4 separate parts. Firstly an overview of Uruguay itself will be explained. The other 3 parts of the report focus on sector specific data resulting in a clear over view of how the sector has developed over 10 years which helped to asses where the biggest opportunities per sector.

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*Commissioned by the Royal Dutch Embassy in Argentina,  
concurrent to Uruguay  
By Paul Graus*

## Chapter 1: Agriculture in Uruguay

In 2018 the Uruguayan agricultural sector was immersed in an international scenario with more unfavorable financial conditions and a more protectionist trade environment. With the exception of some categories, international food prices remained stable or declined throughout the year. In the local context, the incidence of the water deficit of the 2017-2018 summer is highlighted, with a significant decrease in the production of soybean among its main impacts. Under these conditions, the agricultural general domestic product (GDP) is expected to register an expansion of 0.9% in 2018. By 2019, a contraction in the value added of the sector of 0.4% is expected, based on a drop in livestock.

The outlook for economic growth in Latin America and the Caribbean to slow down in the next two years, mainly due to the worsening performance expected for the economies of Argentina and Brazil.

### 1.1 International prices of food and raw materials

International food prices accumulated a 3% drop in January-October compared to the end of 2017, according to the FAO Food Price Index. This decrease is explained by the lower prices of all the food groups surveyed (sugar, oils and fats, meats and dairy products) with the exception of cereals, which recorded an accumulated increase of 9% in the period analyzed.

The downward trend in food prices globally was accentuated in the second half of the year as supply expectations for several products were revised upwards and, to a lesser extent, by the depreciation of some of the world's leading exporters of food.

Growing commercial tensions since the beginning of the year, due to the imposition of import tariffs by the United States and the reciprocal actions of the countries affected by these measures, also had an impact on international markets for food and raw materials.

In the case of meats, cumulative declines were observed in January-October at the level of all categories (birds, swine, cattle) with the exception of sheep. Meanwhile, in the case of dairy products all categories reflected falls, particularly since mid-year, due to a strong recovery of supply from the main global suppliers. For cereals the market fundamentals were heterogeneous. On the one hand, upward prices of corn and wheat were recorded: in the first case, the good supply based on the incidence of favorable climatic conditions and the main producers did not compensate for the increase in demand; while in the second, the impact of heat waves in Eastern Europe and Asia negatively affected yields. In contrast, rice prices recorded a downward trajectory as a result of a good harvest and a marginal increase in world demand.

In the case of soybeans, the trade war between the United States and China transformed the configuration of trade flows at the global level and, as a result, generated changes in marketing prices in the different markets. In response to the imposition of tariffs by the United States on imports of some raw materials (such as steel and aluminum), China introduced taxes of 25% on imports of soybeans from the United States and other food products in July, from 2018. Historically, China was largely supplied by soybeans from the United States and Brazil, but with the tariff changes, the prices of commercialization of US soybeans fell to a significant extent as Chinese importers sought other suppliers to avoid tariffs. In return, the prices of Brazilian soybean increased, picking up the greater demand of China. At the same time, other countries that habitually traded with Brazil, such as the European Union, increased their purchases from the United States.

### 1.2 Performance of the Uruguayan economy

The Uruguayan economy continued expanding and accumulated a growth of 2.4% in the first semester of 2018 compared to the same period of the previous year. From the perspective of spending, household consumption sustained the growth of wealth during the first half of the year 2018, where the net balance with the exterior (exports minus imports) and the investment in fixed assets registered a contraction. In particular, exports registered a downward impact as a consequence of the drop in soybean exports, due to a lower exportable supply derived from the 2017-2018 summer drought.

If the performance of the most relevant food processing agro-industries is analyzed, there are meager growths or contractions in the average of January-September compared to the same period of 2017. While the refrigeration industry showed an expansion of just under half a percentage point, the production of dairy products remained stable. In as much, the activity of the flour mills and of rice reflected a fall of almost 11% and 16% respectively. On the other hand, pulp industry production remained relatively constant at the January-September average compared to a year ago, as the two plants in the country operated at full capacity. For its part, the adverse regional context strongly impacted the performance of tourism, which in January-September saw the number of visitors reduced by 2.1% compared to the same period in 2017, while tourists' actual spending it reduced 8% in real terms when making the same comparison.

According to the estimates of the Chamber of Commerce and Services of Uruguay, commercial activity registered a slowdown in its rate of expansion compared to what was observed the previous year. The projections disclosed in the last Accountability Accounts show that the Uruguayan economy will grow 2.5% and 3.3% in 2018 and 2019, respectively. The forecasts of the private analysts, meanwhile, are on average somewhat less optimistic: around 2% for 2018 and 2019.



### 1.3 Brazil and Argentina

After a period of uncertainty with a significant devaluation and a sharp increase in the interest rate to curb the deterioration of the Argentinian peso, at the end of September the Argentine government announced a new agreement with the IMF that provides significant financing to public accounts and establishes demanding goals in fiscal matters and the passage to a new monetary-exchange system. The new regime managed to contain the devaluation of the local currency in the last quarter of the year. In addition, the deficit in public accounts was reduced as a result of the fiscal adjustment implemented. In this context, it is estimated that economic activity contracted slightly more than 6% in January-September, with a recessive situation generalized to all sectors (including agriculture, affected by the drought of the 2017-2018 summer) and a reduction in income in real terms due to the acceleration of inflation.

In Brazil, economic activity recovered, but less than expected: in January 2018, the Economic Activity Index of the Central Bank recorded an increase of just over 1%, mainly due to the rebound in industry and commerce. Meanwhile, the October election result had an impact on the stock markets of that country in the last quarter of the year, reflecting expectations about the new government.

International trade and investment flows would moderate their growth in 2018-2019 and would reflect the tensions derived from a more protectionist trade scenario, although they are expected to register growth rates above the average for the last five years.

### 1.4 Labor market

Employment registered a downward trajectory throughout 2018 until it reached something less than 57% of the economically active population, that is, the lowest level since 2014, when it was close to 61%. If the evolution is analyzed by large geographical areas, it can be seen that while in the country's capital employment fell by 3.4 percentage points to September 2018 compared to 2014, in the rural areas the decrease was 4.6 percentage points in the same period.

According to estimates of the Ministry of Economy and Finance, between the second quarter of 2014 and the first quarter of 2018 some 46,800 jobs were lost throughout the economy. According to OPYPA estimates based on the INE's Continuous Household Surveys, the largest downward variation was recorded by industry not linked to agricultural activity, construction and the primary agricultural phase, with cumulative decreases of 15%, 9 % and 7%, respectively.

Meanwhile, the unemployment rate for the country as a whole reflected a growing trend in January and a little over 8.5% of the economically active population.

During the second semester of 2018 several negotiation tables were set up linked to the rural sector within the framework of the Salary Councils. Specifically, since May, stakeholders have been negotiating group 23, which involved the subgroups of horticulture, citrus and blueberries, poultry, among others. Starting in July, group 22 also began to negotiate, bringing together livestock, rainfed agriculture, dairy and rice.

The different stakeholders of group 23 reached an agreement, with a duration of 30 months (until June 2020) and characteristics of adjustments that differ according to the sub-group, but which generally imply wage increases by sector in problems or means, include corrective of inflation to avoid loss of the real salary of the workers, incorporate clauses safeguard and trigger linked to the evolution of effective inflation and, in several cases include complementary items, as additional compensations. Group 22 did not reach an agreement, so the salary adjustments were established for one year by Decree. The adjustments were different according to the sub-sector: in dairy and rice they were somewhat lower because they were classified as sectors in trouble, and in livestock and rainfed agriculture medium-sector adjustments were negotiated, as foreseen by the government guidelines.

### 1.5 Exports

Foreign sales of goods, including Free Zones, totaled US \$ 7,661 million and registered a growth of just 1% in January-October 2018 compared to the same period of the previous year, according to Uruguay XXI. The stability in sales value of the country's goods compared to what was observed a year ago is the result of a decrease in export volumes (mainly due to some agro-industrial items, due to its share in the exports), which was offset by higher prices of sale on average.



In the case of agro-industrial goods, the water deficit for the 2017-2018 summer had a significant impact on agricultural exports and, in particular, on soybeans (which were reduced by half

compared to 2017). The decrease in the value of sales of agricultural products was partially offset by the increase in value of pulp placements (due to a sharp increase in its international price) and an increase in external sales of dairy products and beef compared to registered one year ago.

According to information from the Central Bank of Uruguay, in January-August exports of primary goods registered a decrease in volume of 24% compared to the same period of 2017, while the export prices of these goods exhibited an average increase of 2%. Thus, in January-August exports of primary goods recorded a contraction due to a significant drop in volumes sold due to the water deficit of the 2017-2018 summer.

If only trade in agricultural goods is considered, it can be observed that price competitiveness registered a downward trend since the end of 2017, until reflecting a year-on-year decrease of 9% in June 2018. The deterioration of competitiveness price for the agricultural sector responded to the lower devaluation rate of the Uruguayan peso compared to the average exhibited by the currencies of the main trading partners in the balance of agricultural goods and a greater increase in agricultural wholesale prices at the local level.

Regarding this last aspect, the price increase of some vegetables produced under cover due to a lower supply due to the hail events recorded in winter in the north of the country was highlighted. There were also significant price increases in citrus (whose production was impacted by the drought of summer 2017-2018) and deciduous fruit trees (due to a lower supply compared to the previous harvest due to problems in the production process). Also, during the period, the increase in prices of corn, wheat and soybeans stood out. In the first case, the water deficit of the 2017-2018 summer generated a record current in terms of volume with the objective of animal feed, so in this context of greater demand the price of corn at the domestic level increased. Finally, it is also worth noting the increase in livestock prices, mainly steers and cows.

The forestry chain was again highlighted in 2018 for the generation of foreign currency for the country through its exports. With the two plants producing at full capacity, pulp sales volumes remained stable with respect to 2017, while the export prices of this product registered a significant increase that led to an increase in the export value of 34% in January- September compared to the same period of the previous year. In this context of prices sustained by the strong demand from China, pulp exports would total US \$ 1,740 million at the end of 2018 and would occupy the first place in the ranking of exports of goods in the country. Meanwhile, the solid wood business is also favored by high international prices, due to the economic expansion of the main destination markets. In this way, exports from the forest chain as a whole would reach US \$ 2,250 million in 2018 and remain relatively stable in 2019.

The production of beef registered a fall of almost 4% year-on-year in the fiscal year 2017/2018, due to a lower slaughter (-2.6%), a decrease in stocks (-4.25%) and a notable increase in Exports standing (83%). The impact of the 2017-2018 summer drought on pasture growth could have negative effects on the reproductive efficiency indicators of the breeding herd in the coming years. By the end of 2018, beef exports would grow both in volume and value, although a fall is expected for the following year.

The production of milk to industrial plants grew during the financial year 2017/2018. Unlike other agricultural products, the 2017-2018 summer drought did not significantly affect milk production, although to mitigate the impacts of this phenomenon, producers faced an increase in costs due to the impact of pastures. At the end of 2018, dairy exports would reach an increase of 17% in value compared to the previous year, as a result of higher volumes sold, which will be partially offset by lower sales prices.

For fiscal year 2018/2019, an additional increase in milk sales to industrial plants of the order of 4% is projected. Thus, at the end of 2019, external sales of dairy products would register an interannual growth of 2% measured in value.

The 2017-2018 summer drought generated significant impacts on soybean production, (which reached its lowest level in nine years) and triggered another series of problems along the chain, such as impact on farmers results, difficulties in meeting financial commitments and falling demand for logistics service.





Wheat production was significantly reduced in the financial year 2017/2018 as a result of the 10% drop in cultivated area (which was the lowest value in the last decade) and particularly the decrease in average productivity (-35. %), due to the incidence of unfavorable weather conditions. Meanwhile, local consumption remained steady, driven by the use for animal feed and the production of ethanol due to favorable price relations with respect to substitutes, which led to a significant reduction in the remaining stocks of previous harvests and the export current. of this grain during 2018. On the other hand, sales of wheat flour increased with respect to the previous harvest, both in volume and value.

The fruit supply was seriously affected during 2018. In the case of citrus, the affectation was linked to the summer drought (mainly in the farms that do not have irrigation) and the hailstorm in June in the north of the country. In the deciduous fruit trees, the accumulation of

insufficient hours of cold during 2017 to satisfy the requirements of the crops determined a significant reduction of the yields. The lower availability of fruit temporarily affected the rebound of wholesale and retail prices, after the low levels observed in 2017. The shortage of supply also translated into a generalized drop in volumes exported, which added to a decrease in prices of placement , generated a reduction in the value exported with respect to the previous year. For the 2018/2019 harvest, a return to normal production of the local offer is expected, insofar as normal climatic conditions are recorded during 2018.

In 2018, the Uruguayan economy faced an international scenario with more restrictive financial conditions than what was observed in the previous decade and a more protectionist trend in commercial matters. At the regional level, the exchange rate movement and the contraction of activity in Argentina, as well as the meager recovery of the Brazilian economy, created a more uncertain context, although economic activity at the local level continued to expand.

The incidence of adverse weather conditions, such as the 2017-2018 summer drought and winter hailstorms in the north of the country, generated significant impacts on agricultural production, in the latter case also with the consequent upward pressure on the internal prices. In particular, the affectation of the cultivation of soya because of the drought triggered another series of inconveniences along the chain, like disadvantages to fulfill the services of debt, a smaller demand of related services and a strong descent of the generated currencies for the country through exports. This highlights the importance of the agro-industrial chains in the national production in terms of the labor they demand and generate and the high degree of exposure of productive activities in the face of adverse climatic phenomena, which raises reflections about the need to have a comprehensive risk management strategy of this nature by the Uruguayan government and other stakeholders.

In this context, it is estimated that agricultural GDP will register a year-on-year expansion of 0.9% in 2018, while exports linked to agro-industrial chains will remain relatively stable in value with respect to 2017.

The more favorable climatic conditions during the development of the extensive crops for the new harvest 2018/2019 would enable a recovery of agricultural production, although the added value of the agricultural sector as a whole would fall 0.4% in 2019, due to a contraction of livestock. Meanwhile, the export value of agro-industrial goods are expected to expand.

## 1.6 Zona Franca's (ZF)

The ZF regime provides important benefits for its users, an almost total tax exemption, as well as great facilities in foreign trade and the possibility of contracting public services outside the scope of companies and public rates. According to Uruguay XXI (2016): "The activities of users of Free Zones are exempt from all national taxes, created or to be created, in particular have the following benefits:

- Exemption from Income Tax on Economic Activities (IRAE), Wealth Tax (IP), and any other national tax.
- Tax exemption for dividends paid to shareholders abroad.
- Option by foreign staff (up to 25% of total occupied) of not contribute to social security in Uruguay.
- Sales and purchases abroad of goods and services are not taxed for Value Added Tax (VAT), as neither are sales and provision of services within the Free Trade Zone.
- The merchandise exchanging free trade zones with the rest of the world are exempt from customs duties.

With all these tax benefits it is evident that the ZF in Uruguay have great potential for international trading companies that trade on a global level.

## Chapter 2: The Dairy sector in Uruguay

The production of dairy in Uruguay has shown significant growth in 2018 with regard to past production. This enhanced dairy production is however seen with producers all over the world. More importantly this growth is also seen with producers in South America which makes it more challenging to produce more. As the prices for export are lowering and this is of direct impact to the producers as with a lower price level and higher costs they are face a narrowing margin per liter of milk produced.

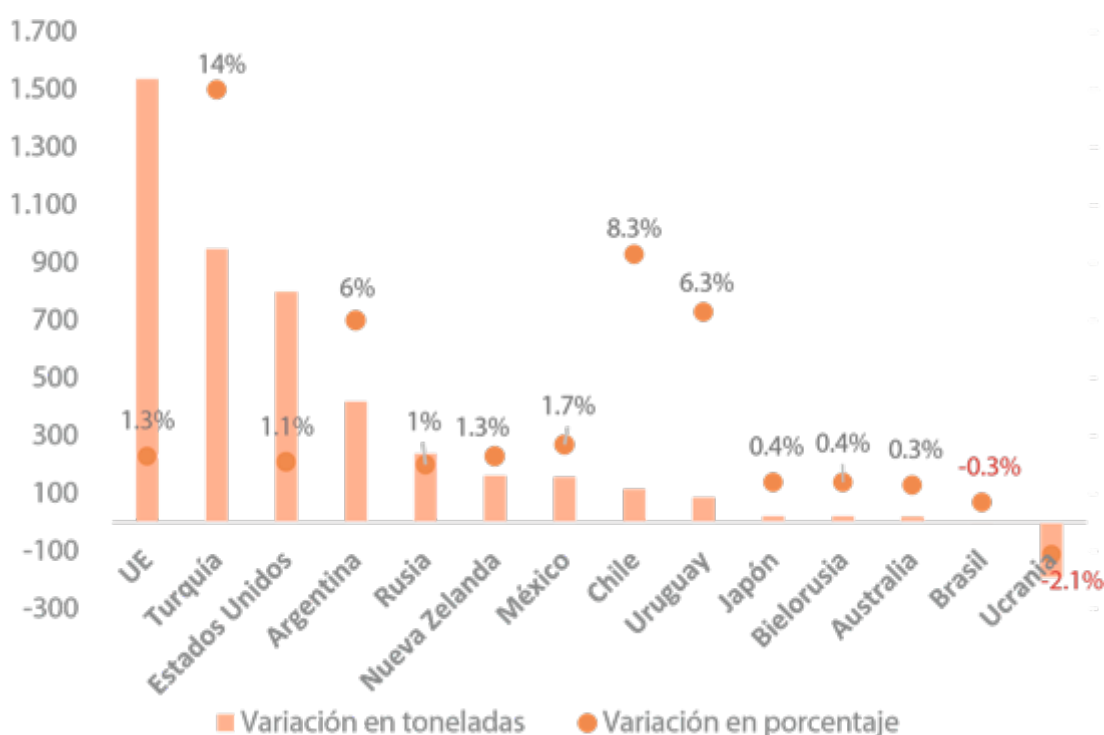
Nonetheless in this chapter several key developments will be discussed culminating in the following opportunities to be seized by entrepreneurs. With changing age demographics of farmers involved in the dairy sector there has been a higher demand for modernizing the current ways of production. This leads to opportunities in the field of grazing, pasture analysis, improvements of feed standards and a more individualistic performance tracking system for the cattle in order to generate higher yields per cow.

Furthermore trends are exposed where there are new companies being founded where the company from a starting point aims to work with the most state of the art systems. This leads to chances to be seized if the vendors of this technology manage to be in a position where they could be involved in the early stages of these new farms.



Furthermore, due to the current ways that milk is produced in a free range, grass-fed setting there are many opportunities to market the Uruguayan produce at a better mark-up to consumers.

**Graph 1:** Changes in milk production compared to the previous year, in thousands of tons and in percentage



## 2.1 The international dairy market

The recovery in international prices observed in 2017 improved the margin of producers, encouraging an increase in milk production in the main world exporters. The recovery is especially important in South America, where the climatic conditions propitiated an excellent production in quantity and quality.

Graph 1 considers a selected group of the main producing countries that constitute 60% of the world production of cow's milk. For the period January to September 2018 there was an increase of 1.46% in the production of this selection of countries. Russia, Mexico, Japan and Brazil are net importers, while the rest of the selected countries are exporters. The growth of milk production in the United States and the European Union slows down compared to previous years, although, in any case, its larger volumes account for a large part of the world increase, due to the size of its milk production. New Zealand, on the other hand, recovers its production after a start of the year with unfavorable climatic conditions, in any case, the increase in 2018 is lower than that observed in previous years.

The demand for dairy products shows a stable growth. The current trade conflict between the United States(US) and China has shown a negative impact on trade on all commodities. Dairy products are not exempted from this current situation. In 2017 the US was the second supplier of dairy products to China with mainly high quantities of infant formulas and milk powder. Worldwide China is the biggest importer of dairy products and it is steadily increasing the import of milk powder over the years. The fluctuations in

production and consumption within China explain much of the swings in dairy trade.

As a result of the higher supply facing a demand that also grows but moderately, prices have fallen slightly during 2018. In the period from January to November 2018, the reference prices measured by the Global Dairy Trade Price Index (average of the prices of the different products traded on the platform, weighted by the quantities traded) were 1% less than in the same period of the previous year, measured in current dollars. The average international price (see chart 2) is US \$ 2,851 per ton in November 2018, 15% less than the average of the last 10 years.

In relation to the main exported products, they all reduced their value in 2018, with the highest fall being that of the price of skimmed milk powder (8%) whose value is US \$ 1,977 / ton through October 2018. This product continues its tendency a greater fall with respect to the rest of the dairy products, which is explained by the accumulation of stocks by the European Union.

The prices of cheese and butter had similar reductions (5% and 6% less), reaching values of US \$ 3,250 and US \$ 4,045 per ton respectively. In the case of lard, it continues its downward path after the "bubble" that took place in 2017 and that brought the price to an environment of US \$ 6,000 / ton.

In any case, it continues to be the best valued product of the main dairy products sold in the international market. On the other hand, the international price of whole milk powder was reduced by 2%, selling at US \$ 2,655 / ton in November 2018.

**Graph 2:** overall development of the Dairy prices in US Dollars /per ton



Source: Global dairy trade



## 2.2 International dairy trade

Exports of dairy products from Uruguay increased 17% in value in the period January-October 2018 compared to the same period of the previous year, as a result of higher volumes (22% more) that were partially offset by lower prices (4% less in average).

The products that contributed to the mentioned increase (see graph 3) were lard and whole milk powder. In the case of skim milk, however, the largest volume (26%) was offset by an average price 27% lower, which determined a fall of 8% in value. The export volumes of cheese decreased, which led to a fall in exports of this product measured in value, despite the higher prices obtained.

In terms of destinations (see table 1), another year of lower exports to Brazil, the main historical buyer of Uruguayan dairy products, is recorded. Higher domestic production and the strong depreciation of the real were the factors that triggered the fall of dairy imports by that country.

The lower imports from Brazil significantly affected its two largest suppliers, Argentina and Uruguay. In this context, the market of Algeria with a great potential arises, since it is the second world importer of whole milk powder (data corresponding to the first half of 2018) and is positioned as the most important Uruguayan milk buyer.

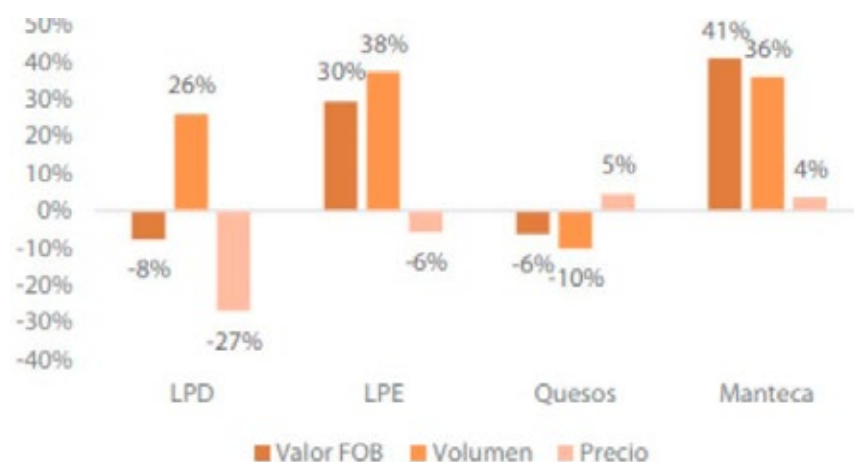
Another aspect to be highlighted is the growth of volumes sold to China, a market with great potential for the sale of dairy products. The protectionist conflict that is taking place between China and the United States modifies trade relations and can have an impact on the flow of trade to this market.

**Table 1.** Destinations of Uruguayan exports of milk and milk products, according to FOB value (in percentage)

Country	2017	2018*
Algeria	20%	29%
Brazil	39%	23%
Rusia	11%	10%
México	5%	7%
China	2%	6%
Cuba	5%	6%
Argentina	3%	3%
The Philippines	2%	2%
Chile	1%	1%
Singapur	1%	1%
Other	11%	12%

\* 2018 corresponds to the period January-October 2018.  
Source: OPYPA with URUNET data.

**Graph 3:** Interannual variation of exports (January to October 2018) by product, in volume, amount and price



Translation: Value FOB      Volume      Price

Note: LPD refers to skimmed milk powder and LPE to whole milk powder. Quesos means cheese and Manteca signifies butter.  
Source: OPYPA with data from URUNET

The following table (table 2) shows, for each product, the main destinations and the value of the Herfindahl-Hirschman index (HHI), as an indicator of the concentration of exports by destination. This indicator is calculated as the sum of the participation of each market in the total exported and varies between 0 (minimum concentration) and 10,000 (maximum concentration).

**Table 2.** Exports by product and by destination: amounts in thousands of dollars and concentration of markets (IHH)

2017				2018			
product	Destination	Export value *1000 US\$	%	Destination	Export value *1000 US\$	%	
Skimmed milk powder	Brazil	29.153	84%	Brazil	17.383	62%	
	Russia	1.907	5%	México	3.214	11%	
	Bolivia	1.558	4%	Sinaproc	5.943	6%	
	others	2.232	2%	others		21%	
	Total	34.849	100%	Total	28.183	100%	
IHH		7.060			4.033		
Whole milk powder	Brazil	137.345	40%	Algeria	158.306	46%	
	Algeria	118.449	34%	Brazil	73.163	21%	
	Cuba	28.903	8%	Cuba	29.470	9%	
	others	59.750	17%	Others	84.844	25%	
	Total	344.447	100%	Total	345.783	100%	
IHH		2.920			2.718		
Butter	Russia	16.856	34%	Russia	23.570	46%	
	Brazil	10.972	22%	Brasil	7.633	15%	
	Marokko	3.998	8%	Irán	5.319	10%	
	others	17.994	36%	others	14.676	29%	
	Total	49.819	100%	Total	51.198	100%	
IHH		1.850			2.539		
Cheeses	Brasil	42.739	33%	Brasil	23.930	24%	
	México	30.211	24%	México	21.653	21%	
	Russia	17.469	14%	Russia	16.050	16%	
	others	37.467	29%	others	39.700	39%	
	Total	127.886	100%	Total	101.332	100%	
IHH		2.019			1.477		

\* The information for 2018 corresponds to the period January-October 2018.  
Source: OPYPA with URUNET data.

Uruguay's main export milk product, was sold mainly to Brazil. However, given the difficulty of exporting to that is characterized by its traditional market, it was placed in 2018, mostly in Algeria (46%), Brazil ranked second (21%) and Cuba in third (9%).

Regarding butter, Russia continues to be the largest buyer, even increasing its share with respect to 2017, going from 34% to 46%, Brazil absorbed 15% and Iran 10%. Finally, cheeses are the most diversified product in terms of destination markets, with Brazil, Mexico and Russia.

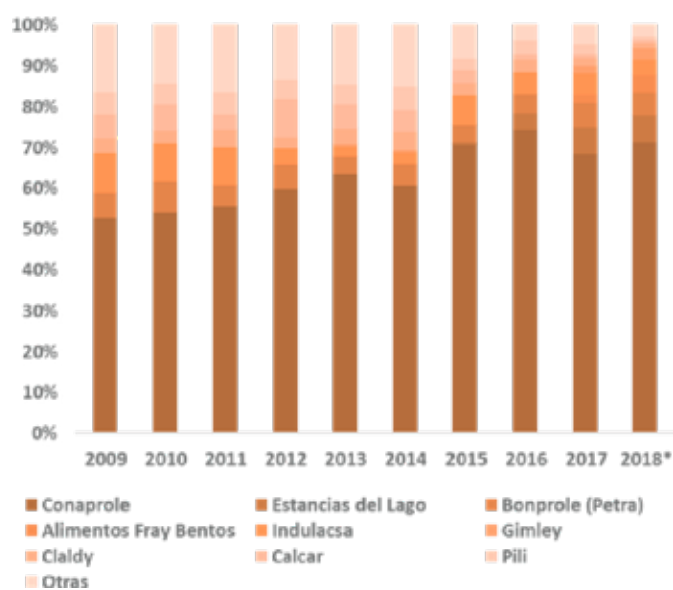
The product with the highest concentration of destination markets is skimmed milk powder, although this concentration decreases in 2018, as a consequence of the lower proportion sold to Brazil, which still remains the most important destination (62%). Whole milk powder, which is being the main buyers with 24%, 21% and 16% respectively.



Regarding the exporting companies, Conaprole continues to be the main one, leading all products and representing 70% of exports in the period January-October 2018. Estancias del Lago is the second largest exporter of dairy products, selling only whole milk powder. Bonprole (Petra S.A.) appears in the third place, being the second exporter of cheeses, after Conaprole.

In recent years there has been an increasing concentration of exports in the larger scale industries, while smaller companies (specialized mainly in cheeses) have been redirecting their commercial strategy towards the domestic market, which pays higher prices. Thus in the period January-October 2018 Conaprole and Estancias del Lago represented almost 80% of dairy exports, measured in FOB value (graph 4).

**Graph 4.** Participation of exporting companies in the FOB value of dairy exports (percentage)



\* The information for the year 2018 corresponds to the period January-October 2018.  
Source: OPYPA with URUNET data.

## 2.3 The Dairy industry in the domestic market

### Prices and costs

In the year-on-year comparison of the January-August 2018 period, the average sales price of the industry for export decreased by 5%, standing at 48 cents per liter of milk equivalent. In the domestic market, the price increased 4% (January-July period) with respect to 2017, selling at 78 cents per liter of milk equivalent. The average weighted by the relative shares of both markets determines that the industry sold at 57 cents a liter of milk equivalent, 3% less than the same period of the previous year.

## 2.4 Primary dairy production

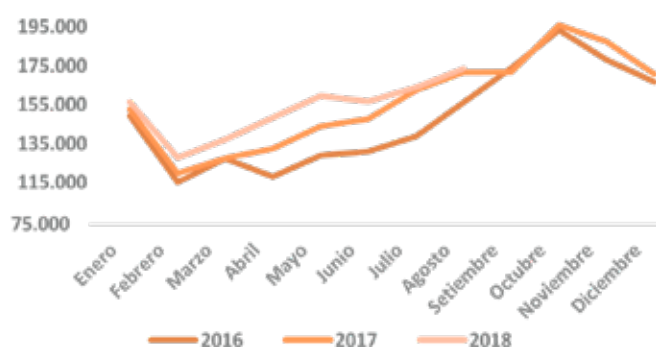
According to data from directorate of agricultural statistics (DIEA), in 2017 the number of dairy establishments in the country stood at 3,718, which implies a decrease of 4% compared to 2016, in line with the trend towards concentration of production at larger scale establishments. has observed worldwide. Thus, the only group of producers according to size that grows are those of more than 500 hectares, which goes from 298 to 349.

The number of producers sending to industry has followed the same trend as the total number of producers, with 2,532 active producers registered as of July 2018, according to the Dairy Fund data (1.5% less than the previous year).

The number of dairy cattle increased 2% and the area used for production 8% in 2017. The productivity indicators had a mixed performance, while the ratio “milking cows / cows mass” improved one percentage point compared to 2016, reaching 73%, Annual liters per cow mass decreased 7% in 2017.

The remission of milk to industrial plants grows 6.3% in the period January-September 2018 with respect to the same period of the previous year, this positive performance would be the product of an increase in individual production, a consequence of a good availability of fodder, and a greater endowment of animals.

Graph 5: Monthly milk to plant remission (thousands of liters)



Source: INALE

In 2017-2018 there was a severe summer drought which did not significantly affect milk production, however, producers faced an increase in costs, due to the affectation of the pastures. INALE estimated losses of more than 12 million dollars due to increased supplementation to sustain milk production.

## 2.5 Activity of the dairy industry

In the first semester of 2018 there was an increase in the concentration of remission in the three main industries of the country: Conaprole, Estancias Del Lago and Alimentos Fray Bentos (see table 3). The loss of participation of the smaller scale industries is related to a financial situation compromised in some of them, with very high levels of indebtedness and committed payment capacity. This is the case of Pili, which called for the bankruptcy in August 2018, leaving an important debt with banks, workers and producers.

Table 3: Distribution of the remission by processing plant

	January-December 2017	January-June 2018
Conaprole	71%	73%
Estancias Del Lago	5%	6%
Alimentos Fray Bentos	3%	4%
Indulacsa	4%	3%
Calcar	3%	3%
Clady	3%	2%
Pili	3%	2%
Granja Pocha	2%	1%
Otras empresas	6%	6%

Source: INALE with data from FFDSAL

The industrial activity measured by the Physical Volume Index (PVI) increased 1% in the last 12 months closed to July 2018, while the Index of Employed Personnel (IPO) and the Index of Hours Worked (IHW) were reduced 2 %. As a consequence of the evolution outlined, the apparent productivity (measured as PVI on IHW) increased 3%.

## 2.6 Policy measures

The production of milk in Uruguay grows again in 2018, it is expected that at the end of this year the remission of milk to industrial plants will increase by 6.2%. However, the average margin per liter of milk of the producers was reduced, as a result of lower prices and higher costs. In this context, discounts were made to the UTE tariff for dairy producers, as a way to reduce the pressure of the cost of electric power on the economic performance of dairy companies. On the other hand, Law 19,596 of February 16, 2018 creates the Guarantee Fund for Dairy Producer Debt (FGDPL), which is financed through a retention of 1.3 pesos



per liter of pasteurized milk sold in the domestic market. The main objective of the instrument is to facilitate the restructuring of the debts of the producers, from short to long term.

The industrial phase of the chain has shown difficulties, a financial situation compromised at the level of some companies, which adds significant levels of labor unrest in 2018. As mentioned above, the dairy industry PILI S.A. He applied for bankruptcy in August 2018, leaving a significant debt to the workers and the producers who sent them to the industry. In this regard, in response to a situation of an exceptional nature, two Funds are created by law to assist workers (Law 19,648) and producers (Law 19,649). In both cases, the funds will come from transfers from the Development Fund and would have a maximum of up to \$ 14,400,000 in the case of the debts with the workers and of \$ 38,400,000 for the debts with producers that are remitting to the industry.

The Ministry of Livestock, Agriculture and Fisheries (through Resolution 7778) ordered the payment of the debts that the industry maintained with the producers, for the milk sent between January and June 30, 2018.

Faced with the growth of production at the regional level, problems have appeared to place the production in the external market. Some industries have changed their commercial strategy, focusing on the domestic market. However, the consumption of dairy products in the domestic market has little potential for growth, because per capita consumption is already very high, in this context, access to non-traditional markets becomes particularly relevant.

## 2.7 Trends and commercial opportunities in the dairy industry of Uruguay

The remission of milk to industrial plants grew during the financial year 2017/2018. Unlike of other agricultural items, the drought of summer 2017-2018 did not affect significant milk production, although to mitigate the impacts of this phenomenon the producers faced an increase in costs, due to the affectation of the pastures.

The largest offer observed in Uruguay was also recorded at the level of the main producers worldwide, which makes it difficult to place additional volumes and a sustained recovery of sales prices. At the end of 2018 exports of dairy products would reach an increase of 17% in value with respect to the previous year, as a result of higher volumes traded, which will be partially offset by lower sale prices.

For the financial year 2018/2019, an additional increase in milk remission is projected. Industrial plants of the order of 4%. Thus, at the end of 2019 the external sales of dairy products they would register a year-on-year growth of 2% measured in value.



During interviews with many key-figures from the industry in Uruguay the following assessment has been made about what and where opportunities lay for Dutch agro-entrepreneurs and or knowledge institutions such as universities.

The national research institute for agriculture (INIA) has the following research topics which are open for Dutch students and universities to participate in.

- Nutrients in grazing systems: going into high stocking rate systems we are aiming to double the yields of home-grown forage/ha whilst we should have a more clear understanding of the flow of N both from fertilizer and cow excreta.
- Cow behavior in grazing systems: we have 4 farmlets of 30 cows each with different genotypes and need to study grazing behavior in more depth. Besides this there is a PhD student evaluating adaptation of cows with different temperament to the robotic dairy.
- Impact of high stocking rate on soil properties and plant-soil system: Uruguay has a particular soil texture with high clay and frequent saturation during autumn and winter, hence increasing stocking rates in grazing systems might affect soil properties and pasture performance but is not clear extent of the damage and resilience. This can be assessed in the 40 paddock array of the Farmelt study.

As the Uruguayan dairy industry mainly operates with a free range grass fed system over the years with the majority of farms there have not been made big improvements on the style of farming since the 1990's. With a changing demographic in managers and owners of farms to a younger generation their unwillingness to change and invest in modern dairy farming is gradually shifting. Especially since the Uruguayan farmers were hit by the third dairy price crisis since 2002 their willingness to change and invest has shown significant potential. This is reflected by the stable growth of large scale farms with a herd larger than 250+ cows. Due to the scale of the industry the trend is visible that small scale farms 150 cows or less are slowly pushed out of the business as either due to age, high debts and fluctuations in dairy prices forces the small farms to stop or be foreclosed.



The trend where all farms need to invest and grow in order to remain competitive poses a broad range of opportunities for entrepreneurs. With the cows current production hovering around 20kg's per day many gains can be made to increase in production. There is high interest in personal tracking of the cows as currently in most businesses the average is measured over the whole heard. Hence technology and equipment that streamline the production are assessed with high interest from the Uruguayans. Another field where technology could find high demand is field analysis and systems which adjust grazing patterns of the cattle in order to gain the highest quality of produce. Systems that analyze the soil and pastures via drone and satellite imaging are opportunities to be seized.

In the field of branding Uruguayan milk many gains are to be made. When advertised as year-round free range produced milk a certain value to the consumer could be added. Furthermore adding value to the produce locally shows many opportunities for entrepreneurs. Conaprole, the largest processor of dairy in Uruguay has started a pilot-project where the company aims to start producing infant formulas destined for the Asian market.

An option could be to import the required produce and produce the infant formulas in a collaboration in Conaprole at a higher scale hence gaining a threshold in the Uruguayan market whilst improving access to the Asian, mainly Chinese market.

A market with great potential both for the domestic market as export to neighboring countries, Russia, Algeria and China is the production of cheese and butter. As the production of cheese is considered favorable by both INALE and the Uruguayan government this actively promoted amongst producers. In collaboration with INALE significant access to the market is possible advertising any and all technologies, post-production resources and after production knowhow with regard to the production of these products.

## Chapter 3: The bovine meat industry in Uruguay

The bovine industry in Uruguay is characterized by its traditional way of farming. Free range cattle solely grazing on green pastures without too many measures to control the cows' movements. From a marketing perspective, this way of farming can count on a high demand from certain groups of consumers willing to pay the extra euro for an animal that had the best life predicate.

This way of farming has also revealed critical flaws in the way businesses operate since recent droughts have resulted in dwindling birth rates and lower growth per cow. For the producers in Uruguay, it has revealed that it becomes necessary to modernize their way of farming. This opens up opportunities for Dutch businesses to sell equipment and knowledge regarding personal tracking, pasture analysis via drones and satellite imagery. The lower birth rates also open up opportunities to enhance the herd by importing sperm from steers that have proven to produce stronger offspring.

Domestic production of beef in 2018 was slightly lower than in 2017. The main characteristic of the year that ended was the participation of standing exports, mainly to Turkey, which had direct consequences on the remaining stock of steers. Summer conditions adversely affected pasture growth and this could have an effect on reproductive efficiency indicators of the breeding herd. The prices of the fat cattle remained relatively high, as well

as those of export, in comparison with the previous cycle, with a relation of replacement that has played in favor of wintering. Exports of meat grew both in volume and value during the last year, but a fall is expected for next year. In the world market, the United States and Brazil have commanded the expansion of trade and Argentina has once again occupied a central place. Australia, meanwhile, continues to face adverse weather conditions that have played against further growth.

### 3.1 The international market

World production of beef in 2018 would reach 62.9 million tons, according to USDA estimates, 2% more than the previous year. The countries with the highest growth in 2018 would be Australia, Brazil, Argentina and the United States. Brazil's expansion is associated with a stronger domestic demand than in previous years and a sustained flow of exports to Asian countries. The growth of Argentina is partly associated with the production of heavier animals than usual, due to growing international demand. Argentina is rapidly recovering its position in the world market, after a notable drop in exports, as a result of sectoral policies followed by the Kirchner administration. In Australia, climatic conditions remain unfavorable, especially for pastoral-based livestock, which has led to a greater enclosure of animals in pens.



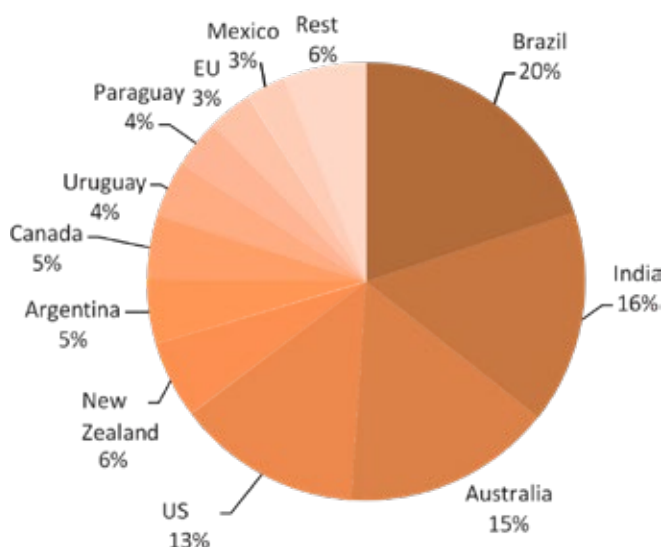


At world trade level, this year it would close with a total export volume of 10,558 million tons of carcass equivalent, according to USDA projections. This means a 6% growth for the second year in a row.

World exports account for almost 17% of world beef production. The growth of Argentine exports was extraordinary, with a jump of 70%, although starting from a relatively low level. Argentina would export 500 thousand tons in this year. For its part, Brazil would increase its exports by 13%, leaving India behind as the world's leading exporter. India's exports fall 10%. The United States production is growing steadily and its exports would be 10% higher in 2018 than in 2017.

Figure 1 illustrates the participation of the main exporters in 2018, in terms of volume. Brazil, India, Australia and the US together account for 64% of world exports, while Uruguay accounts for 4% of the market. These proportions change relatively little from year to year. In the current year and in the next, a strong recovery is expected in Argentina, which, as a result of domestic sectoral policies, had fallen to less than 2% of the world market.

**Figure 1:** global exports of bovine meat and their global market share



Source: OPYPA, based on USDA projections for 2018.

Note: European Union excluded internal trade

In the construction of the FAO index, Brazil has a relevant weight, since it is the main world exporter, but in the comparison with Uruguay, its prices have always been below, as shown in Figure 3. Both in frozen meat and in cooled meat, Uruguay obtains higher prices than those of Brazil, mainly because the proportion of the destination markets is different. In chilled meat, Uruguay obtains values in the order of US \$ 9,000 / t, while Brazil is below US \$ 6,000 / t. In frozen meat the differences are not as important, but even so the export price of Uruguay exceeds that of Brazil. In chilled meat, the average price of Brazil for the period January-September 2018 was 12% lower than the same period of the previous year, while in the case of Uruguay there was an increase of 2%.

Brazil exports approximately 20% of its production, mainly to China / Hong Kong, Egypt and Chile. The growth of exports to these destinations balanced the loss of the Russian market, which indirectly favored Uruguay. Brazil does not have access to the United States market but with processed meats and in the case of Europe, its exports are a smaller fraction of the total.

Argentina has been processing a major change in its meat industry in the last two years, in response to the changing macroeconomic context. The inventory of cattle has been growing in recent years to reach 54.2 million heads, a figure that could have been higher had it not been for the weather conditions last summer, which negatively affected the procreation, apart from growth in the cow slaughter. Argentina is positioned to return to the levels of exports that had registered in 2009, with, among other things, a progressive increase in the weight of slaughter, according to the specifications of external demand (the slaughter weight in Argentina has been of the order of 300-380 kg, because it is the type of animal demanded in the domestic market).

### 3.2 Domestic situation

The livestock production (Economical year from July-June (EY) 2017/18) was characterized by a dry summer with a low production of forage during the summer until well into the autumn. The production of calves was higher than the previous year, but the indicators of reproductive efficiency are still stuck at a level that seems difficult to surpass.

The year closed with a volume of production almost 4% lower than the previous year. This fall is explained by a lower slaughter (-2.6%), a fall of stocks of 4.2% and an explosive growth of exports standing, equivalent to 83% (450 thousand heads). Given the proportions of each of the components of production, the final result is marked mainly by the task. In EY 17/18 almost 70 thousand animals were slaughtered less than in EY 16/17. The average slaughter weight decreased from 519 to 514 kg in steers and cows from 461 to 447 kg.

The general extraction rate was 23.7%, 1.5 percentage points more than the previous EY. With such extraction and calf production of only 2.8 million, inventories fell, for the second consecutive year. In number of animals, the fall of the cattle stock was about 400 thousand heads, totaling a reduction of 700 thousand animals in two years.

At the end of 2018, the total cattle is expected to be around 2.37 million heads, somewhat below the previous year's. As of October 31 2018, 329,000 animals were exported during the year.

Cattle slaughter in the EY 2017/18 was 2.9% lower than the previous year (Table 4). There were growths in the slaughter of calves, heifers and steers from 1 to 2 years. The slaughter of females of more than 1 year represented 48% of the total, and the one of males of more

than 1 year, 51%. Within males, those from 1 to 2 years represented 16.5%, those from 2 to 3 years 29%, and those over three years 54%. The proportion of males from 1 to 3 years in the slaughter has remained in the order of 45% in the last 3 years, below the values of 48% achieved in the years 2012 to 2015.

**Table 4:** Slaughter of cattle by age the past 2 years

Category	EY 16/17	EY 17/18	Differ%
Age from	33.869	37.565	10,9
F 1-2	95.086	115.998	22,0
F 2-3	179.641	173.468	-3,4
F +3	926.410	830.115	-10,4
M 1-2	177.844	196.012	10,2
M 2-3	349.236	349.230	0,0
M +3	652.344	643.166	-1,4
<b>TOTAL</b>	<b>2.414.430</b>	<b>2.345.554</b>	<b>-2,9</b>

Considering the period October-September of the last two years, the total number of slaughtered animals has almost not changed, staying on the axis of 2.38 million. But the behavior is mixed between females and males, while the former fell 1.4%, the latter rose 2.2%.

However, the replacement of females does not have much slack since there has also been a strong extraction of heifers and a relatively stabilized production of calves.

The difference between the females that leave the system (by slaughter or standing export) and the females that enter the system (registered heifers) determines whether or not there is a "reserve" of females to increase the breeding herd. In 2016/17, the balance was negative since the number of registered calves was lower than the number of females slaughtered, exported standing and dead. This situation changed in EY 2017/18 thanks to an increase in the number of calves entered by 5% and a reduction in the slaughter of 6.5%, but the deficit of the previous year translates into fewer heifers available for replacement of breeding cows.



An increase in the rate of extraction without an accompaniment of a greater reproductive efficiency is not sustainable in the medium term since it would lead to a liquidation of stocks and a return to the marked livestock cycles of another era. In the last two years the global extraction rate has been higher than the replacement rate.

### 3.3 Results at company level

Taking the results at the national level, beef production was 94.5 kg / ha of grazing in the EY 17/18. This implies 3% less compared to the previous EY. Considering only the grazing area assignable to the production of beef and excluding the dairy cattle units (U), it can be seen that the result of EY 17/18 is associated with a higher extraction rate and a lower average weight of output. Indeed, the growth of the extraction rate, measured as the number of animals that leave the system (slaughter plus standing export) per 100 U in stock was 8.5%. However, a higher extraction rate usually goes hand in hand with a lower average live weight of the animals that leave, and in this case the fall was 3.2%. The fall of the average live weight of departure derives from two factors: a lower slaughter weight of both steers and cows and a greater proportion of exported animals standing, with an average weight of 280-300 kg.

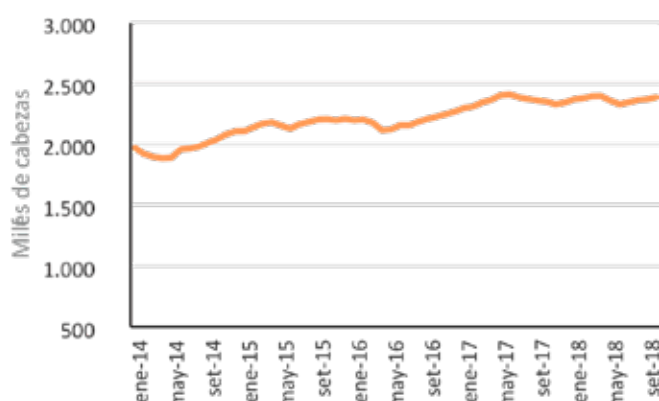
The results of the properties monitored by the Agricultural Plan show that in the EY 17/18 the production increased with respect to the previous year, thanks in general to better prices, which more than compensated for an almost generalized loss of productivity. There was also an increase in production costs, which led to a decrease in capital income in most cases. The cost of land has remained relatively unchanged, which has hampered the situation of the farmers who lease land. The levels of productivity reached, in the axis of 100 kg of equivalent meat per hectare, were affected by the drought conditions of spring-summer. Where the conditions were more severe, the losses in productivity were greater.

The indebtedness of the livestock sector with the banking system reached the figure of 710 million dollars at September 2018, with a 4% delinquency rate. Compared to the month of September 2017, this debt is 7.4% higher in current dollars, and delinquency is one percentage point higher. But taking the value of final sales of beef cattle (slaughter plus standing export) of EY 17/18 (about 2,200 million US \$), the current indebtedness represents 32%, while at the close of the previous EY, the Indebtedness was 33% of the sales value. This is a general indicator of the sector, the particular situations can be very different.

### Supply and demand of cattle for slaughter

The slaughter of cattle in periods of 12 months shows a growing trend since the autumn of 2014, with a maximum achieved precisely at the close of EY 2016/17, with more than 2.4 million heads (Graph 6). In recent months growth has stopped, remaining at the axis of 2.36 million heads +/- 1.5%, possibly because the system is at the maximum of short-term response possibilities. Maintaining the growth observed since 2014 would require better performance of the breeding herd or a slowdown in standing exports.

**Graph 6:** Slaughter of cattle per EY (\*1000)



Source: OPYPA based on figures from INAC

The sales structure of cattle by region of origin is a fact that changes relatively little from one year to the next. The data for the year 2018 (January to October) are presented in Table 5. The differences between regions reveal the dominant production systems in each of them.

**Table 5:** Sales structure of cattle by region of origin. (% of regional total, January-October 2018)

Region	Breeds intended for meat		Breeds intended for dairy	Total of breeds	
	F 1-3 years	F +3 Years	F+1 Years	M 1-3 years	M +3 years
I	6,5	46,2	1,3	10,1	34,6
II	8,0	37,5	3,0	16,3	33,6
III	14,3	29,1	4,3	24,2	25,3
IV	16,9	22,4	3,5	36,7	19,2
V	11,4	23,2	18,7	27,8	15,1
Total	11,1	32,7	5,6	21,9	26,6

M=Males F=Females

Regiones: I: Ar-Sa-Rv-Tb; II: CL-Du-Lv-TyT-Ma; III: Ca-Ro-Fs-Pay; IV: RN-So; V: Fd-SJ-Co. The totals do not add up to 100% because calves are not measured in this table.

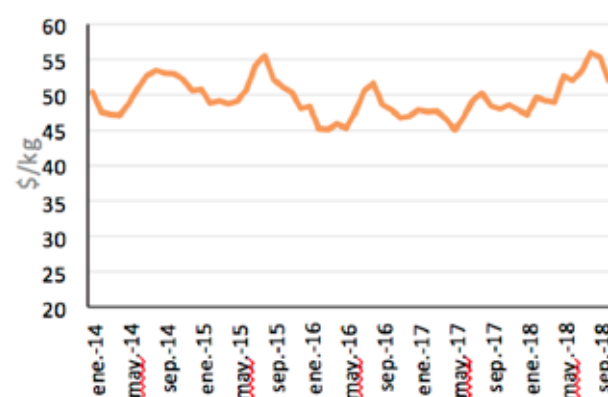
Source: OPYPA based on information from Instituto nacional de informacion ganadera.

In Region I, integrated by Artigas, Salto, Rivera and Tacuarembó, the sale of cows and steers over 3 years (80% of the total) predominates. In Region II (Cerro Largo, Durazno, Lavalleja,

Maldonado and Treinta y Tres) steers and cows over 3 years old are also the most important categories, but to a lesser extent (71%) than in Region I. III (Canelones, Flores, Rocha and Paysandú) increases the proportion of younger females and steers over and under 3 years are almost halved. Region IV is formed by the more typically agricultural departments (Río Negro and Soriano) and there the participation of steers less than 3 years old is dominant among males and among females those less than 3 years old are a few points below of more than 3 years. Finally, Region V concentrates the dairy departments, so that there the sale of cows of dairy breeds becomes more important.

The price of steers is shown in Graph 7 in terms of its value relative to the replacement cost. For this, a composite index was constructed by INAC at 50% for the value of a calf and 50% for the value of a wintering steer. The graph shows that, in the period from January 2014 to October 2018, the real price of the fat steer has been fluctuating between 45 and 55 \$ / kg on foot (the maximums coincide in general with the months of August-September and the minimum in April-May). But in the last year and a half there has been an upward trend, where the April-May prices of this year were similar to those of August-September of the previous year, going from a minimum of \$ 45 to reaching almost \$ 56 in August 2018.

**Graph 7:** price of new cattle



Source: OPYPA

The price shown in Graph 7 is deflated with an index of the replacement cost. When compared to the cost of labor, the situation is a bit different. Between January 2014 and June 2015, the value of a fat bull of 500 kg and the monthly salary of a cattle foreman were approximately equal. As of August 2015, the cost of labor increased steadily until reaching the equivalent of 1.3 steers in May 2017. In the following 12 months, it remained at the axis of 1.25 steers and from then it has tended to fall, as a consequence of the increase in the values of the cattle.



**Graph 8:** Price development new cattle compared to labor.



Source: OPYPA

The participation of the processing companies in the demand of cattle during the period October 2017 to September 2018 is illustrated in Table 6. The percentage of slaughter that the first 4 companies control increased from 53.7% in 2016/17 to 56.3% in 2017/18. While the first 8 firms now represent 73.1% of the market, against 71.6% of the previous year. The process of concentration of the work of recent years has been between the first 4 firms: in 2012/13 they accounted for 48.8%. But if you look at the first 8, in 2012/13 the concentration was somewhat higher than the current one (74.5%).

During 2018 the Japanese firm, owner of the BPU processing facility, held negotiations aimed at acquiring the majority shareholding of Figorífico San Jacinto, which finally did not go through. Chinese capitals currently hold a smaller share in the local market: the Rosario plant, Rondatel S.A., and the Lirtix S.A. (currently undergoes disposal at its plant in Nueva Paris, but will start operating in 2019), which are subsidiaries of Qiqihar Hengyang Food Processing; and the plant of Lorsinal S.A. in Camino Melilla, which is a subsidiary of Foresun (Latin-America) Investment and Holding.

**Table 6:** Slaughter of cattle at the top 8 processing companies from October 2017-September 2018

	Firma	steers	Cows	Total	% Total
1	Marfrig	284.308	236.221	528.350	22,3
2	Minerva	181.765	242.117	428.291	18,1
3	BPU-NH Foods	119.706	71.919	193.263	8,2
4	Las Piedras S.A.	133.457	46.279	180.407	7,6
	<b>Top 4</b>	<b>719.236</b>	<b>596.536</b>	<b>1.330.311</b>	<b>56,3</b>
5	Ontilcor S.A.(PANDO)	83.626	45.483	132.162	5,6
6	San Jacinto-NIREA S.A.	57.014	48.914	106.999	4,5
7	Bilacor S.A.	51.216	28.813	80.601	3,4
8	Casablanca S.A.	24.414	53.497	78.784	3,3
	<b>Top 8</b>	<b>935.506</b>	<b>773.243</b>	<b>1.728.857</b>	<b>73,1</b>
	Los demás	224.152	381.923	636.027	26,9
	<b>TOTAL</b>	<b>1.159.658</b>	<b>1.155.166</b>	<b>2.364.884</b>	<b>100,0</b>

Source: OPYPA with data retrieved from INAC

Table 7 shows the number of animals sent to slaughter from fattening pens during EY 17/18 compared to EY 16/17: the total grew 6.5%, with an extraordinary growth in the slaughter of heifers.

The two columns on the right of Table 5 show the relationship between animals to slaughter from pens in relation to the number of animals that come from pastoral systems. In the total, the farm animals represent 12-13% of the field animals. But in the category of bulls from 1 to 2 years old, for every 100 field bulls that go to slaughter, 124 come out of the pens.

This ratio, which had previously reached a level of 144, decreased in the last exercise. The second category in importance are heifers, which represented 41% of those that come from pastoral systems.

The pens produce mainly young bulls that are destined for the European Union. In the winter quarter, the cattle of steers exceeds 21% of the total slaughter of steers, while in the rest of the quarters remains at the axis of 15-16%.

**Table 7:** Shipments to slaughter from fattening pens and relationship between slaughter of farmyard animals. Animals of pastoral systems (periods November to October of each year)

Category	Amount of cattle slaughtered			Relacion pastoral/fattening pens	
	2016/17	2017/18	Difer%	2016/17	2017/18
cattle	2.912	2.890	-0,8%	0,12	0,10
F1-2	21.526	30.565	42,0%	0,35	0,41
F+2	38.227	33.525	-12,3%	0,04	0,03
Subtotal female +1	59.753	64.090	7,3%	0,05	0,06
M1-2	89.652	93.607	4,4%	1,44	1,24
M+2	100.488	108.660	8,1%	0,11	0,12
Subtotal males +1	190.140	202.267	6,4%	0,19	0,20
<b>TOTAL</b>	<b>252.805</b>	<b>269.247</b>	<b>6,5%</b>	<b>0,12</b>	<b>0,13</b>

Source: SING

### 3.4 Domestic beef market

In the last two years there has been import of beef for domestic consumption. In 2017, 6,429 tons had been imported (shipping weight) and in 2018 (up to November) 14,250 tons had been imported. Imports of meat mainly come from Brazil and second from Paraguay, this was stimulated by a price relationship associated with devaluations of stronger local currencies in neighboring countries compared to Uruguay.

Considering a domestic supply of 595 thousand tons equivalent casing and an export of 460 thousand tons, the residue for the domestic market would be 135 thousand tons. Domestic consumption is estimated at 156 thousand tons, or 46 kg / person, without taking into account by-products.

The wholesale price, increased, from October to October 2017/2018, in current terms, 14.5% for the carcass of the steer and

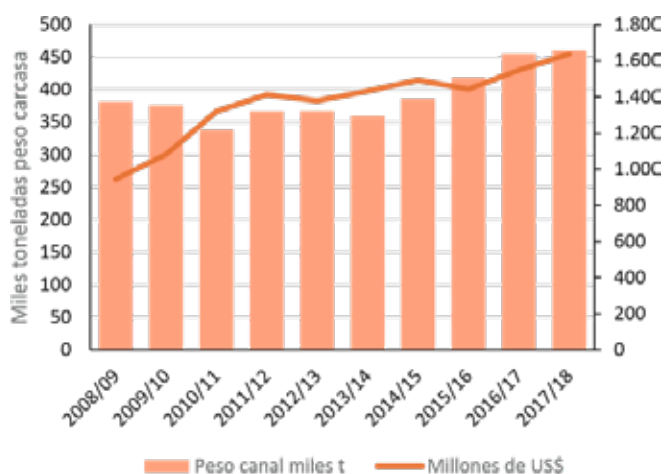
17.4% for the cow, well above the general inflation of 8 %. In the same period, the domestic price of fresh beef increased 9.3%. The prices of a set of cuts offered in the domestic market show that the roast of strip, for example, increased 12% and the brisket almost 15%. The cuts that were relatively cheaper were the loin, the tail of loin and buttock, none of which increased more than 7%.

### 3.5 Exports

In the refrigerated meat category, 87% of the volume and 77% of the value are represented by frozen cuts and carcasses. The average price for EY 2017/18 was US \$ 3,587 / t equivalent carcass. The frozen cuts averaged US \$ 3,163 / t while the chilled cuts achieved an average price of US \$ 6,399 / t (Graph 8). The price range is associated to the different markets that acquire different combinations and product specifications. In frozen meat, prices range from a minimum of US \$ 2,292 in Russia to a maximum of US \$ 3,853 in Israel (cuts from the front). In chilled meat, the lowest price was obtained in Mercosur with US \$ 4,645 (bone-in meat) and the highest in NAFTA, US \$ 7,790. Although the NAFTA market for chilled cuts represents only 0.6% of the total, compared to 8.7% of the EU, in the last two years it has outperformed the European market.

Apart from refrigerated meat, in EY 17/18 organ meat and by-products were exported for US \$ 46.5 million, at an average price of US \$ 2,657 / t, almost all destined for the United States. The price was slightly lower than last year (-2%) but the volume was 15% higher.

**Graph 8:** exports of beef from 2008/09-2017/18



Source: INAC

**Table 8:** Exports of beef per market 2017/18

	US\$/t		% of volume	
	frozen	chilled	frozen	chilled
China	2.925		50,8	0,0
Israel	3.853		6,1	0,0
EU	5.004	6.838	5,2	8,7
Rusia	2.292	7.146	3,8	0,1
NAFTA	3.100	7.790	15,4	0,6
Mercosur	5.200	4.645	1,5	3,1
Others	3.067	7.473	4,0	0,5
<b>Total</b>	<b>3.163</b>	<b>6.399</b>	<b>86,9</b>	<b>13,1</b>

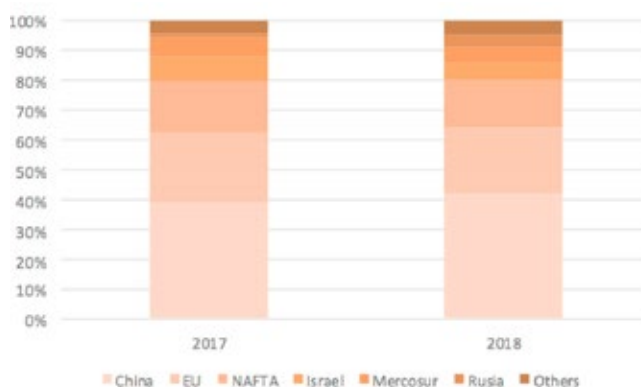
Source: INAC

### 3.6 Export markets

China continues to be the most important destination for Uruguayan meats (Graph 9). In the period from January to October 2018, exports to China accounted for 42% of the total value, US \$ 576 million, 17% higher than the same period of 2017, while the EU represents 22%, one point less than in 2017. In third place, the North American market comes, with 16%. Israel continues to be a regular destination for the country's exports, while Mercosur has tended to reduce its participation. For its part, Russian imports of Uruguayan meat almost tripled in the January-October period of 2018 compared to the same period of 2017.

The exports of high-quality beef to the European Union are shown in Table 9. In the EY 2017/18, the share of high quality beef from finished cattle represented 38% of the total value exported to the EU. The average price within the 481 quota was US \$ 9,276 / t. This price is 3.7% higher than in the previous EY.

**Graph 9:** Exports of refrigerated beef by year according to destination (January-October, % of value)



Source: INAC

### 3.7 Short-term perspectives

According to USDA projections, world production of bovine and buffalo meat would grow 1.2% in 2019, while exports would remain unchanged. Exports from the United States, Mexico and Argentina are expected to grow the most. Brazil's production would continue to expand (3.6%) but its exports will decrease due to higher domestic consumption. In 2019, Argentina would reach the largest slaughter in 10 years, with 13.2 million heads, which would allow it to increase, although to a lesser extent compared to this year, its exports.

Apart from Brazil, other countries that would see a decline in their exports would be India, Australia, New Zealand, Uruguay and Paraguay. In Australia, contrary to what was expected a year ago, the continuity of unfavorable weather conditions is predicted, with high temperatures and low rainfall, which will lead producers to liquidate females and consequently to a decrease in their inventories. It is expected a slaughter of 7.8 million heads, 5% less than in 2018, and a drop in total production from 2.3 million tons carcass equivalent to 2.18 million.

The world consumption of beef is expected to grow 1.7% in 2019. The countries with the highest growth in consumption would be the United States (3.7%), India (2.7%), Brazil (2.5%), and China (2.1%). While those that would reduce consumption, among importers, would be the European Union (-1.5%), and Russia and Turkey (-1% each).

China's domestic demand continues to grow faster than local production, so a steady flow of trade in that direction is expected. The Chinese market is divided between Australia, New Zealand, Brazil, Uruguay and Argentina, with Canada and the United States occupying a marginal fraction. But the conditions of access to this market are clearly more favorable for the countries of Oceania.

In the European market no changes are expected at the level of demand. The European Union - Mercosur bilateral negotiations are still unsuccessful, and in addition, there is a strong likelihood that the terms of the 481 quota will be modified. At the time of writing this report, the United States and the EU are negotiating the future of this quota. The United States expects to have an exclusive reserve of 35 thousand tons, which would leave less than 10 thousand tons for the other suppliers, mainly Australia and Uruguay. This issue leads to an approach by suppliers to the WTO, since under the rules of the WTO the EU cannot open an exclusive quota for a country, that must be done under an FTA and this is not the case. The EU understands that if an agreement is not reached, it can still decide to fully liquidate this quota, which would mean a great loss for Australian, Uruguayan and Argentinian producers.

### 3.8 Opportunities within the Uruguayan beef sector

87% of the current bovine industry in Uruguay is still being conducted in traditional manners regarding free range cattle grazing without the adding of additional nutrients to the feed of the animals. This opens opportunities both in selling technology to Uruguayan cattle ranchers and marketing wise all over the world.



China has become one of the most important trade partners over the past 10 years for Uruguay yet there are still many gains to be made. Trade wise, if there are companies with an already established sales network in Asia it definitely is worth investigating to purchase produce in Uruguay and sell that within your network in Asia as the Uruguayans currently still lack a good sales infrastructure within China and Southeast Asia.

Regarding marketing there are many opportunities within the EU to add value to the products produced in Uruguay. Although tied to certain import levels by the 481 quota the products that are imported could be marketed much better within the union. The best example is that within the Ahold group they sell Uruguayan beef as “matured” 28 days. Although this is a marketing term to persuade the customer to buy the product it could still be improved. With the growing demand for honest, fair and biological meat which are sold for better rates this is an angle that has not been used in mass advertisements for Uruguayan and or Argentinian beef. Although the label biological requires many procedures before being allowed in the EU it could still pose a major opportunity to start a program in collaboration with several medium, big companies in Uruguay to achieve this. Even without the biological label demand and prices for Uruguayan beef could be increased by simply creating a campaign about the life cows have in Uruguay before they end up on consumers plates all over the EU.

Taking In mind the drop in new cattle being born due to the draught of 2016/17 and their levels have still not increased into desired levels this poses opportunities to be seized by the insemination industry. By gaining a threshold in this period a long standing collaboration could be created. As farmers currently still import significant amounts of calves from Turkey ranging in the area of 300.000 calves per year this could potentially make business much more efficient, controllable and environmentally friendly.

The earlier draught has also revealed the need with Uruguayan producers that there are many more improvements to be made with regard to how the herd is managed. There is a high interest in tracking personal growth per cow which is currently almost not being done. Any technology that helps gathering and analyzing data on a per cow basis can count on interest from the current producers. Furthermore the necessity to analyze and control on which pastures the herd is grazing in order to generate consistent A-quality produce can count on interest. Hence, companies that sell technology regarding pasture analysis through satellite and drone imagery should definitely look into the opportunities Uruguay has to offer.

With Agrifirm already opening up their first animal feed facility in Uruguay and the amount of 4,5 million cows to be fed on a yearly basis in Uruguay it shows that both for consultants and feed producing companies there are many opportunities to be seized as the 13% of farmers raising cattle in a more industrial way are slowly but steadily increasing market share.



## Chapter 4: Greenhouse farming in Uruguay

Greenhouse farming in Uruguay is an underdeveloped sector. As the climate in Uruguay is currently facilitating a harvest period for their most domestically consumed products of 9 months per year. Yet, the scope of this investigation will focus on those 3 months where the most commonly purchased products are not available from domestic production and are imported from neighboring producers such as Brazil, Argentina and Chile. As prices soar for produce in these 3 months major gains are set to be made if planned and invested with a vision.

The main farmed products are bell peppers, strawberries and tomatoes which are also responsible for a major part of domestic consumption. With the legalization of marihuana in 2013 under strict conditions some changes are to be detected. Currently there are several pilot projects for the production of marihuana where companies have set up modern greenhouses similar to production facilities being deployed in the Netherlands for the production of vegetables and fruits.

There are major opportunities for entrepreneurs if they figure out a smart planting scheme that adjusts to the changing demand in the domestic market.

The local production of all horticultural items had a heterogeneous behavior in 2018, but in general it was a year with

high revenues (although somewhat below the records of 2017 that was high compared to the average of recent years ) and that therefore would account for encouraging behavior of production in general. Potato production showed a slight drop, after the 2017 harvest, which was the highest in the last 5 years; there would have been an increase in the production of carrots and onions, while during 2018 there were significant fluctuations in the incomes (and prices) of tomatoes and peppers.

### Production

The volume of vegetables entered into the market illustrates this, which is expected to be somewhat lower than the record verified in 2017, but also higher than the historical average. Within the year, some particular issues that affected the punctual supply of some products were registered but in general the production of the main items was deemed excellent.

For some items the data for the harvests 2016/2017 and 2017/2018 were approximated through the extrapolation of the volumes entered into the Model Market (which represents between 50% and 80% of the supply available for consumption according to the item analyzed. ) since no Horticultural Survey was carried out for those years. Likewise, the information with which they arise from horticultural records was supplemented.



#### 4.1 The main items produced in greenhouses: tomato and the bell pepper

Tomatoes and peppers are produced mainly under cover (greenhouses) and come mainly from the northern part of the country. Beyond being protected crops, they are dependent on what happens with the climate. Production is favored by high temperatures and higher levels of insolation, and is otherwise affected (Farmer Observatory, 2018c). During 2018 climatic events were registered that affected both the up and down production of tomato and bell pepper (moments of oversupply, above normal, followed by product shortages) and that implied important swings in their prices during the year.

In this sense, autumn with higher average temperatures (particularly April was the hottest in 48 years) led to an extension of favorable conditions for the development of crops. In addition, it advanced the harvest of protected crops from the north, making both the production coming from the south and the north coincide. This meant that volumes of tomatoes entering the market in April almost doubled the usual levels of that month. Later, during the winter (when the supply tends to be lower), there was a significant shortage of the product and the incomes of both pepper and tomatoes were well below the usual levels, beginning to recompose towards September-October. The wholesale and retail prices of these products during the fall were substantially below average, and then recorded unusually high prices during the winter.

Thus, the total production of tomatoes would have been around 34 thousand tons in 2017/18, slightly below the levels of supply that would have been registered in the previous year.

Graph 10: production of tomatoes (\*1000 tons)

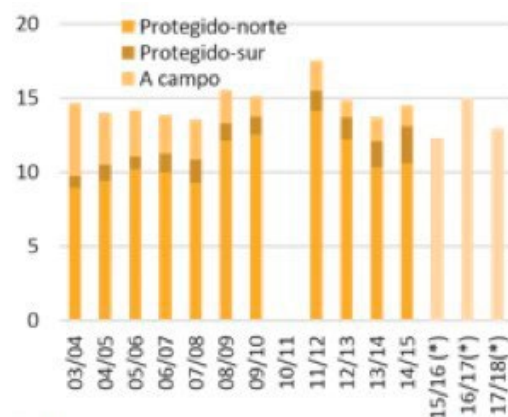


\*estimated production.

\*\*sur-protégido= southern region produced in greenhouses, Norte-protégido= northern region produced in greenhouses, a campo= field production.

Source:DIEA

Graph 11: production of bell peppers (\*1000 tons)



\*estimated production.

\*\*sur-protégido= southern region produced in greenhouses, Norte-protégido= northern region produced in greenhouses, a campo= field production.

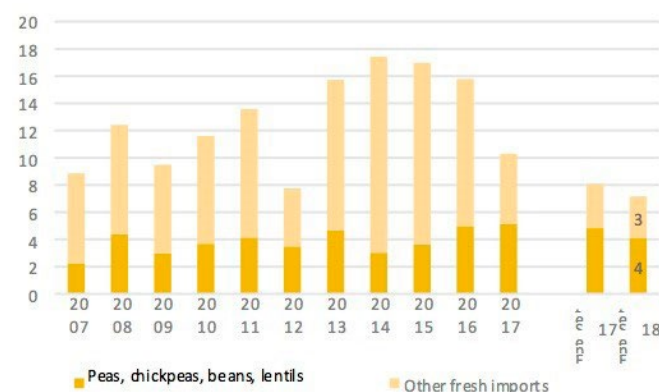
Source:DIEA

#### 4.2 Imports

The supply of horticultural products available for consumption is complemented by imports of fresh products, which tend to exhibit erratic behavior based on local productive performance (with the exception of imports of sweet corn, lentils, chickpeas, beans and peas). they are stable).

Vegetable imports have shown a strong downward trend in both 2017 and 2018, totaling 7 million dollars in January-September, 11% less than in the same period of the previous year.

Graph 12: Imports of fresh vegetables (Millions of dollars)



Source: Urunet

Imports from both tomatoes and bell-peppers have plummeted in the years of 2017 and 18 due to extreme weather conditions that allowed producers to produce enough for the local demand.

Imports of fresh fruits are characterized mainly by those not produced locally (bananas, kiwis, pineapples and other tropical) that in normal years represent between 85% and 90% of the imported value. The remaining 10% to 15% consists of fruit in which there is usually local production, so the role of these imports is to supplement the supply available for consumption when local production is at a time far away from the harvest season or when problems of production are verified that does not reach to satisfy the demand of the consumers (as happened in the year 2016 and during 2018).

Purchases abroad of fresh fruit reached 40 million dollars in 2017, and between January and September 2018 it was imported 29 million, 14% more than in the same period a year ago. The growth of purchases is mainly explained by the “rest” item, the competitive one at the local level, in which 7 million dollars were imported between January and September, compared to 3 million reported the previous year.

### 4.3 Wholesale and retail prices of horticultural items

The wholesale and retail prices of the vegetables showed heterogeneous trajectories according to the data. In some areas such as potatoes, carrots and onions prices seem to stabilize throughout the year. On the other hand, the peppers and tomatoes presented very sharp fluctuations, according to what was recorded in the production.

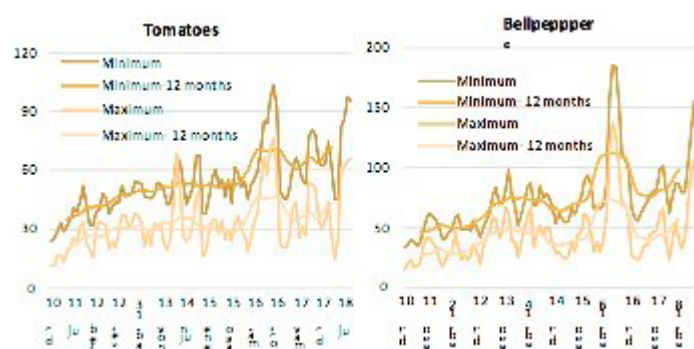
The prices of potatoes averaged 23 pesos per kilo at the wholesale level and 40 pesos at the retail level during January and September 2018, showing a slight increase compared to the prices of 2017. In fact, the wholesale and retail price fluctuate around those price levels since 2016.

The tomato, as mentioned, presented prices below the average levels in the fall (in April it was sold at less than 15 pesos at the wholesale level, a price level that was not observed since 2010) and together with the bell pepper it verified very high rises accentuated in winter (the tomato came to be sold above 60 pesos and the red bell pepper above 100 pesos per kilo in the wholesale market).

Averaging the values recorded between January and September, the tomato was sold in the wholesale market at an average of 44 pesos per kilo, 23% above the records of a year ago. At the retail level, the increase was 18%, with an average of 72 pesos per kilo in the period analyzed. On the other hand, the price of bell peppers between January and September increased 60% at the wholesale level (marketed at an average price of 62 pesos per kilo -considered a weighted average of red and green pepper) and

42% at the retail level (103 pesos) average the kilo) compared to a year ago.

**Graph 13:** Wholesale and retail prices of tomatoes and bell peppers horticultural items (pesos / kg)



Source: INE

### 4.4 Production costs of the items in the northern area of the country

From the DIGEGRA technical team, the costs related to the horticultural production of the country are systematized and updated based on the application of a medium technology that incorporates irrigation within the technological package. In addition, they refer to the time of harvest, so they do not include transport costs, nor post-harvest conservation, nor any other marketing expenses. Table 7 shows the cost structure of three crops referring to the northern area of the country, namely: tomato and red pepper in greenhouse and strawberries in small plastic tunnels.

**Table 7:** Costs of Horticultural harvest 2017/2018 for the northern region (Participation of the different analyzed items and total cost per kilo produced)

Build up of costs	Tomatoes (greenhouse unit 960 m2)	Bell peppers (greenhouse unit 1008 m2)	Fruits grown in micro-tunnels
production(kg/unit)	7.680	7.056	33.300
depreciation	30%	17%	13%
Energy	1%	1%	1%
Fertilizers	3%	3%	7%
Phytosanitary	2%	4%	1%
Gas Oil	6%	5%	2%
Manual labor	55%	49%	52%
Others	15%	17%	8%
Seeds/planting	8%	5%	17%
Total cost (pesos/kg)	35,4	40,7	34,5

Source: based on production costs of DI.GE.GRA.

As can be seen, the cost of the different items ranges from 34.5 to 40.7 pesos per kilogram. Like fruit growing, the item with the highest incidence in the cost structure is labor with a weight of around 50% in all three areas. The second item in importance in the cost structure is disputed between the amortizations and the cost of seedlings and seeds. In addition, the cost in fuel and lubricants ranges between 2% and 6% and the consumption of electricity is 1% in all areas.



It remains to mention that there is a residual component called “Other”, which includes spending on insurance, taxes, land rent, a component for contingencies and another for some repair to the machinery that must be made. It represents a percentage of at least 8% in the total, although it reaches 15% in the case of tomato in greenhouses.

Greenhouse farming is a small sector that has traditionally received support from the public institutions in order to encourage their development, some led from the MGAP and the rest accompanied by other organizations linked to the sector. In this sense, many supports are specific to horticulture and others are shared with fruit growing.

Among those that are specifically designed for the horticultural sector, the FPTA 344 Project stands out, which aims to improve the integrated management of pests and diseases in horticulture in the southern region. To this end, it incorporates biological control agents and other tools that are alternative to chemical control at a regional scale. This project includes protected crops (tomato and bell pepper) and field crops (tomato, onion and sweet corn).

For the purpose of carrying out this plan, a technical team was formed consisting of representatives of the Faculty of Agronomy, INIA, DIGEGRA and the SFR Arenales, whose role is to articulate the introduction of alternative methods to the chemical control of pests and the promotion of new research, facilitate records and advise on matters of safeguards for the promotion of biological control.

#### 4.5 Trends and opportunities in greenhouse farming

Regarding trends in greenhouse farming in Uruguay, the biggest trend is actually that there are no big developments over the past 20 years. The main farmed products are bell peppers, strawberries and tomatoes which are also responsible for a major part of domestic consumption. With the legalization of marihuana in 2013 under strict conditions some changes are to be detected. Currently there are several pilot projects for the production of marihuana where companies have set up modern greenhouses similar to production facilities being deployed in the Netherlands for the production of vegetables and fruits.

There are major opportunities for entrepreneurs if they figure out a smart planting scheme that adjusts to the changing demand in the domestic market. With prices of tomatoes and bell peppers souring up to €3,- per kilo in the wholesale market for 3 months a year and an average price of €2 per kilo for bell peppers and €1,50 for tomatoes for the other 9 months the cost/benefit ratio seems very desirable for any entrepreneur willing to invest. A major competitive advantage when produced locally is that the producer will have a 25% import levy advantage over products imported from competitors in that 3 month period of winter.

Furthermore, the demand for more biological approaches to pest control and a higher demand for biological/organically produced products shows great potential for Dutch knowledge and ingenuity to be exported to either local producers or opening up a local production facility based around these marketable features if sold to the high end of the market.





## Chapter 5: General market opportunities for Dutch businesses

Overall the country has many opportunities currently not being seized by Dutch entrepreneurs. The following products and knowledge available in the Netherlands are worth it to pursue in the. There is an abundance of companies operating in agriculture yet, only a small percentage of the companies are currently using high tech monitoring equipment as such the following are worth investigating.

- Yield monitoring systems
- Global positioning systems
- Soil analysis and advice
- Analysis on what crop to foster where
- Remote monitoring systems for crops
- Equipment used to process grains
- Equipment related to processing fruits and vegetables
- Separation systems in order to place harvested grains in different storage units
- High-tech sprayers and correlated pumping systems
- Mechanical parts for tractors (80% already sources from the EU)
- Refurbished agricultural machinery such as tractors if combined with solid after sales services regarding parts and insurances regarding reliability
- Harvesting equipment
- Equipment related to preparing soils such as seeders and equipment related to fertilizing
- Cheap storage facilities such as silos

In 2016 a new department within the Oficina de Planetario y Presupuesto(OPP) was created. The Planning Department of OPP works on the construction of the National Development Strategy, Uruguay 2050, in order to establish the bases for Uruguay to move towards a sustainable development.

By March 2019 the OPP expects to publish their first vision on how to further the country into a sustainable manner. One of the key pillars in their assessment will be that they have a goal to create a structure in which the whole agricultural sector is 100% circular by 2040. With the Dutch government aiming to have a fully circular agricultural sector by 2030 this entails that the Netherlands should have a major competitive advantage on a business level with many technological advantages ready to export and deploy in both Uruguay and other countries who aim to be circular.

The repeated droughts in Uruguay over the past 2 decades have made watermanagement and irrigation key pillars in government policy. Hence, in 2019 there are policy measures expected to benefit and further investments in watermanagement on every possible level. As the Dutch society has a long standing experience and good reputation regarding this topic there is an abundance in opportunities to be seized in Uruguay.

As displayed in dataset 1 Uruguay imported a value of \$59 million USD of swine produce in 2016. This is a clear indicator that the domestic demand superceeds domestic production and requires further research in order to determine whether or not it is an opportunity to start a swineproduction facility in the country.

Although the Dutch government currently does not have an economic mission in Uruguay a cost beneficial option would be to seek collaboration with the Belgium trade office that is currently handling affairs for Flemish, Wallonia's and Luxemburg's companies seeking to trade or invest in Uruguay. They have a standing mission in Montevideo for over 20 years and their knowledge and network could be very beneficial and further the economic ties within the Benelux.



Dataset 1: Imports of unprocessed foods Uruguay(2016). Retrieved from the observatory of economic complexity (OEC)

## 5.1 Conclusions

Overall the conclusions regarding the overview of the researched agricultural sectors in Uruguay can be per sector. The Dairy industry in Uruguay has faced several defining moments in how the sector developed. Firstly the dairy price crisis in 2001 which forced many producers to end their business or scale up their operations. Then the second crisis came in 2011/12 when historically the biggest markets for Uruguayan dairy, Argentina and Brazil went through continued economic turmoil demanding from exporting companies to find new markets to sell Uruguayan produce. Combined with the ongoing crisis in Venezuela since 2015, Uruguay's 3th export market, this has resulted in China becoming Uruguay's most important trade partner.

The bovine meat industry in Uruguay did not go through such existential crisis in the past decades although through recent droughts face other challenges. The industry suffers from declining birthrates which are expected to increase to normal levels within 3 years. Even though this has revealed to producers that further planning is supposed to be made both on a level of how they treat their pastures regarding water management and the creation of grazing plans that fit both the balance between nature and the needs of the cattle.

For greenhouse farming the conclusions can reached that the sector is still underdeveloped with regard to the potential. With proper planning domestic demand could be met at all time resulting in a more stable market and certainties on prices for both the consumer and the producer.

The expectations and vision on agriculture in the future by the Uruguayan policy makers lead to conclude that an abundance of research and purchases of farm equipment are required in order to become a country with a circular agricultural economy creating food for 50 million people by 2050.

Overall the market opportunities that are available to Dutch agri-businesses in Uruguay are there in abundance. Especially regarding products and knowledge about circular farming, animal welfare, upscaling of production and quality of the end product.' Furthermore companies operating in the Asian market could benefit from using their relations to introduce produce from Uruguay.

## 5.2 Recommendations for further research

As the report reveals many opportunities to be seized it is recommendable to further the research on greenhouse-farming. With the fluctuations in pricing of fresh produce the next report should focus on what products can be grown in which seasons in order to benefit from the spikes in prices at the right time with a year round crop-circulatory system.

Due to time constraints there is no sectoral report regarding the food processing industry. However with relatively high prices for processed and mainly imported foods there is great potential. This potential should be sought in research on what products should be processed in local facilities solely for the domestic market.

Further research should also be conducted in order to determine in what way Dutch entrepreneurs involved in circular farming can exploit the opportunities in Uruguay to their full potential.

With regard to water management the Dutch government should step in now and deploy an advisor to the Uruguayan government that can hopefully connect Dutch businesses to the projects that will be developed in the coming decades.

## Annex 1: Interviewed institutions/persons/companies

Santiago Farina:	Instituto Nacional de Investigacion agropecuaria (INIA)
Catalina Rava:	Ministerio de Ganaderia, Agricultura y pesca. (OPYPA) Oficina de programacion y politica agropecuaria
Ricardo Nario:	Former ambassador of Uruguay stationed in The Hague (Netherlands) Jimena Villar Bouchacourt: Agregada Economica y comercial. Flanders/Wallonia/Luxemburg invest and trade.
Carolina da Silva:	Presidencia. Oficina de planeamiento y presupuesto(OPP) Coordinadora de Unidad de prospectiva Direccion de planificacion
Lautaro Perez:	Marketing manager at Instituto nacional de carnes (INAC)
Gabriel Bagnato:	General manager at Instituto nacional de la leche (INALE)
Rogier Hofman:	Head of finance at Interfood Americas S.A.
Adrian Tamber:	Director of the Agricultural Policy Office (OPYPA)
Gonzalo Souto:	Coordinator of agricultural chains(OPYPA)
Wilfred Morren:	Founder of Farmland Uruguay
Mattijn Heine:	Lecturer at Universidad de Montevideo (UM) Vendor of Agricultural equipment
Gabriel Oleggini:	General manager, Producción Lechera y RRCC, Coneprole
René Sonneveld:	Honorary consul of the Netherlands in Montevideo, Uruguay
Camila Santelices:	Gerente de Finanzas, Geogrow
Santiago Teperino:	Departamento de Comercio Internacional en Cámara Nacional de Comercio y Servicios del Uruguay

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Graph 6:	Slaughter of cattle per EY (*1000) Source: OPYPA based on figures from INAC	Table 8:	Exports of beef per market 2017/18 Source: INAC
Graph 7:	price of new cattle Source: OPYPA	Dataset 1:	Imports of unprocessed foods Uruguay (2016). Retrieved from the observatory of economic complexity (OEC)
Graph 8:	Exports of beef from 2008/09-2017/18 Source: INAC	Figure 1:	global exports of bovine meat and their global market share Source: OPYPA, based on USDA projections for 2018.
Graph 9:	Exports of refrigerated beef by year according to destination (January-October,% of value) Source: INAC		
Graph 10:	Production of tomatoes (*1000 tons) Source: DIEA		
Graph 11:	Production of bell peppers (*1000 tons) Source: DIEA		
Graph 12:	Imports of fresh vegetables (Millions of dollars) Source: Urundet		
Graph 13:	Wholesale and retail prices of tomatoes and bell peppers horticultural items (pesos / kg) Source: INE		



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