



## POTATO PRODUCTION in ARGENTINA



**Buenos Aires  
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NETHERLANDS MINISTRY OF AGRICULTURE, NATURE AND FOOD QUALITY



**agriculture, nature  
and food quality**

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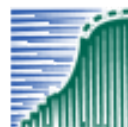
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## 1. INTRODUCTION

Argentina stretches 4,300 km from its sub-tropical north to the sub-antarctic south. Its terrain includes part of the Andes mountain range, swamps, the plains of the Pampas and a long coastline. Its people have had to struggle with military dictatorship, a lost war over the Falkland Islands, and severe economic difficulties.



Argentina is rich in resources, has a well-educated workforce and is one of South America's largest economies. But it has also fallen prey to a boom and bust cycle.

A deep recession foreshadowed economic collapse in 2001. This left more than half the population living in poverty and triggered unrest. The country struggled with record debt defaults and currency devaluation.

By 2003 a recovery was under way, and the International Monetary Fund (IMF) agreed to a

vital new loan. Since then, Argentina has restructured its massive debt, offering creditors new bonds for the defaulted ones, and has restructured its debt to the IMF.

### 1.1. POTATO

Potato is an important staple food and horticultural crop for Argentina. Being from European descent, Argentines include potato in almost every dinner. Average per capita consumption of potatoes is 40 kg. This is high for the region, but low compared to Latin countries like Spain, 83 kg/cap, and Portugal with 88 kg/cap. The total potato area of Argentina is 77,000 ha with a total production of 1.8 mln mt, resulting in a yield of 23 t/ha. The processing industry transforms around 450,000 t of potatoes, of this quantity 70% is being exported. This means the local consumption of processed potatoes is only 4 kg / capita; which is very low compared to The Netherlands with 44 kg / cap of processed potato consumption. Potato production is generally on a medium to low technical level, with much labor involved, less than 25% of potato production is fully mechanized. Bulk storage of ware potatoes is almost non existing, ware potatoes are mostly stored on the fields. The Argentine potato sector could use new technology to boost yields and quality and to lower losses; especially in the regions of Tucuman and Cordoba. Bs.As. province is much more developed.

Potato is an important crop in The Netherlands. Total area potato is 157,000 ha, of which almost 40,000 ha covered by seed potatoes; increasing by 0.7% each year since 1999. More than one third of the EU-25 seed potato area is concentrated in The Netherlands. Companies and farms in The Netherlands involved in potato production employ 24,000 people. Each year The Netherlands produce around 8 mln mt of potatoes, about half of this is ware potatoes, approximately 20% are seed potatoes and the remaining 30% is grown for starch; 2.5 mln mt of potatoes is destined for processing and about 1 mln mt of potatoes is exported each year. This makes potato production and processing an important sub sector within the Dutch agro conglomerate. Average potato yield in The Netherlands is 51 mt/ha; average potato consumption is 87 kg per capita of which 51% in processed form; the EU average potato consumption is 80 kg per capita. The Dutch potato sector has a lot to offer to the Argentine potato sector: potato varieties, equipment and services related to agricultural practices, quality management, control and certification.

The main potato production area in Argentina, in terms of total quantity of potatoes produced, is the South East of the province of Buenos Aires, although the area has come down. This is

where the largest farms are located and where yields are highest. The crop is considered medium late, with planting in November and harvest in April/May. Two potato production systems are dominating: mechanized production of processing potatoes and semi-mechanized production of fresh potatoes.

The production of processing potatoes is mainly for McCain, PepsiCo and FarmFrites. A limited number of selected farmers has contracts with the large processors, these farmers generally rent large areas of land, often between 100 and 500 ha, production is mechanized but storage capacity is lacking. The production costs of processing potatoes are around USD 4,700 /ha or USD 0.10 /kg. The processing companies prefer potatoes produced in the Bs.As. region. This is why they stress farmers in this region to invest in storage facilities, this would extend the period that the processing industry could process potatoes from the Bs.As. region without having to ship potatoes from other regions involving high transport costs and of less quality.

Fresh potato production is usually on a smaller scale. Potatoes are harvested by a wind row harvester and picked up, selected and graded by hand to be shipped directly to the market, usually sold at spot market through middlemen. The production costs of fresh potatoes, mainly of variety Spunta, are USD 6,500 /ha or USD 0.16 /kg. Potato prices are generally fairly stable through the year, different regions of the country can supply the market all year round with fresh potatoes. If severe weather conditions occur in the region due to be harvested at that time, prices can rise sharply since there is no buffer through storage. The production system can be improved by introducing better wind row harvesters combined with mechanical pick up and a combi to clean, grade and bag the potatoes on or close to the field.

Potato production costs in The Netherlands are € 3,050 including labor and harvesting costs or € 3,850 including land rent as well. At a yield of 50 t/ha, this results in respectively € 0.06 and € 0.08 /kg. At a exchange rate of USD 1.35 /€ integral cost price of potatoes, excluding storage and transport from the farm, is USD 0.10 /kg.

In The Netherlands about 90% of potatoes is stored to bridge the 8 month period until the next harvest; only an estimated 10% is sold directly from the field. Almost 75% of potatoes is sold on a contract, the remaining 25% is sold on the spot market. In Argentina only around 10% of the potatoes is stored, mostly on the field for relatively short period of time. McCain holds around 90% of storage capacity in the SE Bs.As. region, around 125,000 t and needs to expand by another 40,000 t. Total installed storage capacity in Argentina is around 140,000 t, which means that only 7% of total production could be stored for a longer period of time. Processors generally contract around two thirds of the potatoes the company needs, which means one thirds is bought at the spot market. The percentage of fresh potatoes sold on a contract is less, an estimated 10%. The spot market takes 90% of Argentine ware potatoes.

## 2. ARGENTINA

Annual data	2007(a)	Historical averages (%)	2003-07
Population (m)	39.4	Population growth	1.0
GDP (US\$ bn; market exchange rate)	262.5(b)	Real GDP growth	8.8
GDP (US\$ bn; purchasing power parity)	523.6	Real domestic demand growth	10.4
GDP per head (US\$; market exchange rate)	6,669	Inflation	9.4
GDP per head (US\$; purchasing power parity)	13,305	Current-account balance (% of GDP)	3.6
Exchange rate (av) ARP:USD	3.1(b)	FDI inflows (% of GDP)	2.3
(a) Economist Intelligence Unit estimates. (b) Actual.			

Table 2.1: Economic Indicators Argentina

### 2.1. GOVERNMENT

Democracy was restored to Argentina in 1983 after 50 years of instability and military regimes. A strong presidential system is in theory checked by a bicameral Congress, comprising a 257-member Chamber of Deputies and a 72-member directly elected Senate, but in practice the presidency dominates. The presidential term is four years. There are 23 provinces and the Buenos Aires federal district, each with their own government.

Economic liberalization in the 1990s under Carlos Menem (1989-99) of the Partido Justicialista (PJ, Peronists) resulted in rapid growth. However, failure to deepen structural reform in his second term left the economy vulnerable to external shocks, which contributed to the collapse in December 2001 of Fernando de la Rúa's centre-left government and his opposition party, the Union Civica Radical (UCR). Eduardo Duhalde of the PJ led an interim administration until Nestor Kirchner (also of the PJ) began a presidential term in May 2003. He presided over an economic rebound, which enabled his wife, Cristina Fernandez de Kirchner (a popular PJ senator), to win the October 2007 presidential election. However, her administration has quickly become destabilized owing to a series of distortions left by Mr Kirchner.

Cristina Fernandez de Kirchner took office as president on December 10<sup>th</sup> 2007, but her popularity has plummeted owing to a conflict with farmers over export taxes and rising inflation. She and her husband and predecessor have lost their comfortable majority in Congress over the handling of the conflict with the farmers, and are losing the support of rural Peronist governors. Facing testing economic and political times, there is a growing risk that the Kirchners will lose more power at the mid-term elections in October 2009, which would strengthen the emergence of other PJ leaders. Opposition parties, which have been weak and divided for many years now, are struggling to capitalize on the opportunities provided by the Kirchners' woes. The strongest challenge to a possible Kirchner candidacy in the October 2011 presidential contest is likely to come from within the PJ.

### 2.2. ECONOMY

On economic policy, the Kirchner government represented a departure from the free-market orthodoxies of the 1990s and Ms Fernandez de Kirchner will maintain an interventionist role for the state, especially with regard to infrastructure and energy. Policymakers will target a competitive exchange rate to support Argentina's twin fiscal and current-account surpluses. Price misalignments and distortions (which have contributed to electricity shortages and other problems) need to be addressed, as they pose a threat to the sustainability of Argentina's growth cycle. Price controls will eventually be phased out, but the process will be slow and piecemeal. The Economist Intelligence Unit expects little progress in pending structural reforms, for example of the tax system, leaving the public finances heavily exposed to a fall in commodity prices.



Heterodox policies are contributing to the erosion of fiscal and current-account surpluses threatening to undermine the economy's resilience. After a strong economic rebound in 2003-07 from the deep recession of 2001-02, discretionary and interventionist policies are weighing on private investment. The government has restructured and reduced its external debt, but total public debt remains large, at 56% of GDP in 2007. The government is trying to address a resurgence in inflation through administrative measures rather than policy tightening, but this has fuelled underlying inflationary pressures and could trigger an inflationary spiral. The situation of many foreign investors whose contracts were broken in 2001 is unresolved.

Key indicators	2007	2008	2009	2010	2011	2012
Real GDP growth (%)	8.7	6.0	3.5	3.8	4.7	4.5
Consumer price inflation (av; %)	8.8	9.3	10.4	8.7	7.7	7.4
Budget balance (% of GDP)	1.2	0.7	0.3	0.0	-0.3	-0.9
Current-account balance (% of GDP)	2.8	3.1	2.4	2.3	1.9	1.7
Lending rate (av; %)	11.1	13.6	13.0	11.0	9.0	8.5
Exchange rate ARP:USD (av)	3.1	3.1	3.2	3.3	3.4	3.4
<i>Source: Economist Intelligence Unit 2008</i>						

Table 2.2: Key Indicators Argentina

Inflation is the major concern in Argentina<sup>1</sup>. Official inflation data provided by the national statistics office (INDEC) show that the Consumer Price Index grew less than 10% in 2007. Estimates of real inflation put the figure well over 20%. The discrepancy between the numbers are due to direct government involvement in the calculation of the data. Early 2007, the Kirchner administration replaced the head responsible for the calculation of the inflation within INDEC. She had refused to reduce the effect of a 22% spike in health insurance costs on the January 2007 inflation figure. Since, inflation data has structurally been too low, and the government has had access to the basket of goods that are taken into consideration when calculating inflation. As the government had already pursued the policy of striking price agreements with retailers in order to contain the effects of inflation on the people (read: electorate), this only facilitated the safeguarding of low inflation. The fact that part of the public debt is linked to inflation is an additional bonus. A second issue is the amount of distortionary taxes that the government has implemented. A prime target has been the export sector. In these times of high commodity prices, the export sector is an easy target for government revenues. However, as the government wants an increasingly bigger piece of the pie, investment in those sectors will be limited. On the monetary front, the central bank has no tools to target inflation. The expansive policies of the government, combined with the denial of an existing problem, provide no incentive whatsoever. Furthermore, the central bank has lost the struggle for power over the economy with the Ministry of Finance and is now directed by government policy. It means that the primary activities of the central bank concern exchange rate policies. The central bank is not allowed to let the exchange rate appreciate too much in order to support the export sector.

Growth has remained impressive throughout 2007. With an 8.7% growth rate, Argentina slightly improved on the 2006 performance and now has posted five consecutive years of above 8.5% of GDP growth. As growth has allowed the unemployment rate to drop from more than 20% in 2002 into single digit numbers, poverty has decreased and domestic demand is an important contributor to growth. In fact, GDP per capita has more than doubled since 2002. The agricultural sector remains very important in Argentina, contributing almost

<sup>1</sup> Rabobank report 2007



10% to GDP in 2007. In the years before the 2001-2 Tango crisis, the sector contributed 5-6% of GDP. Under stable macroeconomic conditions, this is likely where the agricultural sector should end up. However, the current economic circumstances are highly influenced by the government's economic management. The business community disapproves of a lot of the distortionary measures and feels that the likelihood of another economic downturn is highly likely. This will not lead to an event such as in 2001-2, but nevertheless may lead to another severe setback in the country's development.

### 2.3. FOREIGN TRADE

Argentina is one of the world's main exporters of primary goods. The agricultural sector is an important sector in the country. Processed agricultural goods and primary goods account for more than 50% of all exports with fuel and energy adding another 16%. Fuels are also an important import good, with Argentina needing the natural gas imports from Bolivia to feed its energy network. Supply shortage and demand shocks have caused energy shortages in the past winter, and some problems are expected this year as well. The primary reaction of the government has been to shut down the supply of natural gas to Chile. The energy sector is a main concern for Argentina. With the government maintaining low price levels, at least for private consumption, the investment activity in the sector remains limited. According to some estimates, Argentina may become a net energy importer by 2012. In this sense, the current high level of economic growth will have a negative effect on the medium-term prospects, as the shortage may bring the economy to a screeching halt. This does not seem to be on the cards for 2008 at least, however. Furthermore, the aforementioned economic management of the government gives much more to worry about. The financial sector is rather small in Argentina. Confidence in the system has been shattered in the Tango crises, as the government forced measures onto the banks. These measures hurt both the banks and their clients. The banking system is now slowly regaining the trust of the Argentines. Accommodative monetary policy and a government program to increase the availability of credit to the public has helped the banks' clients to find their way back to the financial system. How the bank portfolio will hold up as policies become less accommodative remains to be seen. However, the exposure to the government has been reduced, which is a good sign.

<b>Major exports 2007</b>	<b>% of total</b>	<b>Major imports 2007</b>	<b>% of total</b>
Processed agricultural products	34.4	Intermediate goods	34.7
Manufactures	31.1	Capital goods	24.2
Primary	22.3	Consumer goods	11.6
Fuels&energy	12.2	Fuels	6.3
Leading markets 2007	% of total	Leading suppliers 2007	% of total
Brazil	17.4	Brazil	31.7
China	9.6	US	14.4
US	7.8	China	8.7
<i>Source: Economist Intelligence Unit 2008</i>			

Table 2.3: Export and Import Argentina

High commodity prices helped boost merchandise export earnings by 20%, to an estimated USD 55.8 bln in 2007, while import spending (cif) grew by 31% year on year to USD44.8 bln, leading to a trade surplus of USD11.1 bln.

## 2.4. TRADE WITH THE NETHERLANDS

The balance of trade between The Netherlands and Argentina is positive for Argentina. The trade deficit from The Netherlands with Argentina increased from EUR 465 mln in 2004 to EUR 619 mln in 2007. For a detailed trade overview see Annex 2.

<i>Trade Netherlands - Argentina (x EUR 1 mln)</i>			
	<i>Import into The NL</i>	<i>Export</i>	<i>Balance</i>
2004	668	203	465-
2005	862	223	639-
2006	844	239	606-
2007	968	349	619-

Table 2.4: Trade balance Netherlands - Argentina

The main import categories are related to feed production in The Netherlands. Total value of import into The Netherlands in 2007 was EUR 968 mln, of which EUR 874 mln or 90% of agricultural origin. The main products are soybean and soymeal, corn, sunflower, other grains, vegetable oil, etc.

<i>Import into The Netherlands from Argentina 2007 (X EUR 1 mln)</i>				
<i>Description</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
TOTAL	668,4	861,8	844,1	968,2
TOTAL AGRICULTURE	616,1	788,2	769,4	874,8
TOTAL INDUSTRY	52,3	73,6	74,7	93,5

(Source: CBS)

Table 2.5: Import from Argentina into The Netherlands

The total export value from The Netherlands to Argentina in 2007 was EUR 349 mln of which only EUR 14.6 mln in agricultural products. The major part of export is in chemical products with a total value of EUR 117 mln. There is no export of seed potatoes from The Netherlands to Argentina.

<i>Export from The Netherlands into Argentina 2007 (X EUR 1 mln)</i>				
<i>Description</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
TOTAL	203,2	222,9	238,5	349,4
TOTAL AGRICULTURE	8	9,5	12,5	14,6
TOTAL INDUSTRY	195,2	213,3	226	334,8

(Source: CBS)

Table 2.6: Export from The Netherlands into Argentina

## 2.5. TAXATION

The value-added tax (VAT) rate is 21%. Corporate income tax is levied on worldwide income at 35% and income tax at progressive rates between 9% and 35%. A tax on financial transactions was instituted in April 2001 as an emergency fiscal measure. Since May 2004 it has been levied at 0.4% on deposits and 0.6% on withdrawals. Taxes on exports were reintroduced in March 2002, having been abolished a decade earlier, and have since been expanded.

Argentina has relatively small government in terms of expenditures. Most advanced economies are cutting their corporate tax rates, but Argentina's top corporate and income tax rates are 35 percent. Yet tax revenue as a percentage of GDP is low, as is expenditure, as a result of tax avoidance and evasion.

## 2.6. INSTITUTIONAL CONDITIONS

Property rights, labor freedom, and freedom from corruption are scoring low on international rankings, but financial freedom is especially problematic<sup>2</sup>. The foreign debt crisis remains unresolved, and local capital markets are not healthy. Political interference with an inefficient judiciary hinders foreign investment, and popular and official obstructions of due process make international courts preferable to Argentine courts.

Corruption is perceived as widespread Argentina ranks 105 out of 179 countries in Transparency International's Corruption Perceptions Index for 2007, on the same position as Albania. Foreign investors complain about both government and private sector corruption. The T.I. list mainly reflects levels of corruption and the behavior of government related institutes and agencies.

## 2.7. BANKING

There were 89 registered financial entities listed in Argentina as of February 2006, including several foreign banks. The largest bank is state owned and serves as the sole financial institution in parts of the country. The financial system is recovering from the devastating 2001-2002 debt default and banking crisis. The banking sector returned to profitability in 2006, mortgages and personal loans are increasing, and non-performing bank loans are down, although the government has not fully compensated banks for the conversion of dollar-denominated instruments to pesos. Argentina remains unable to gain full access to international capital markets because of its USD 22 bln of outstanding debt. Ever since the 2001 crisis, financial services have been subject to government regulation and supervision. The stock market is active, although market capitalization is dominated by a few firms.

The executive branch influences Argentina's judiciary, and independent surveys indicate that public confidence remains weak. Courts are notoriously slow, inefficient, secretive, and corrupt. Many foreign investors resort to international arbitration.

## 2.8. GEOGRAPHY

Argentina is some 1,420 km across at its widest from east to west and stretches 4,300 km from the subtropical north to the sub Antarctic south. The country is bounded by Chile to the south and west, Bolivia and Paraguay to the north, and Brazil, Uruguay, and the Atlantic Ocean to the east. Its undulating Atlantic coastline stretches some 4,700 km.

Argentina's varied geography can be grouped into four major regions: the Andes, the North, the Pampas, and Patagonia. The Andean region extends some 3,700 km along the western edge of the country from Bolivia to southern Patagonia, forming most of the natural boundary with Chile. It is commonly subdivided into two parts: the Northwest and Patagonia.

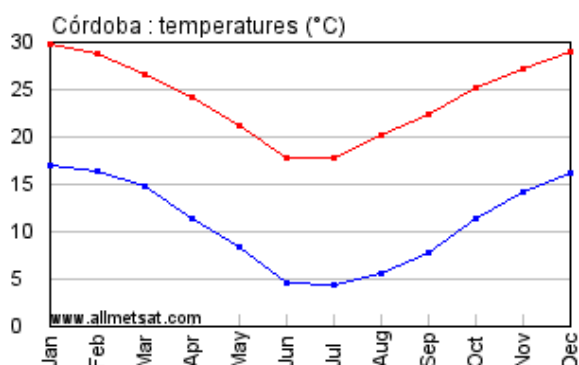


<sup>2</sup> Index of Economic Freedom 2008

The North is commonly described in terms of its two main divisions: the Chaco, comprising the dry lowlands between the Andes and the Paraná River; and Mesopotamia, an area between the Paraná and Uruguay rivers. The centrally located plains, or Pampas, are subdivided into arid western and more humid eastern parts called, respectively, the Dry Pampa and the Humid Pampa. Patagonia is the cold, parched, windy region that extends some 1,900 km south of the Pampas, from the Colorado to Tierra del Fuego.

## 2.9. CLIMATE

Table 2.7: Temp Córdoba



Argentina lies almost entirely within the temperate zone of the Southern Hemisphere, unlike the rest of the continent to the north, which lies within the tropics. Tropical air masses only occasionally invade the provinces of Formosa and Misiones in the extreme north. The southern extremes of Argentina, which extend to latitude 55° S, also have predominantly temperate conditions, rather than the cold continental climate of comparable latitudes in North America.

The South American landmass narrows so markedly toward its southern tip that weather patterns are moderated by the Pacific and Atlantic oceans, and average monthly temperatures remain above freezing in the winter. The temperate climate is interrupted by a long, narrow north-south band of semiarid to arid conditions and by tundra and polar conditions in the high Andes and in southern portions of Tierra del Fuego.

Table 2.8: Temp Mar del Plata →

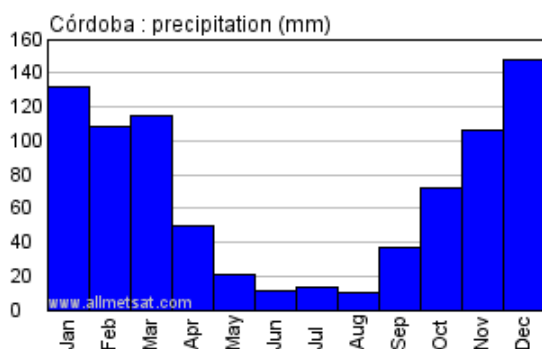
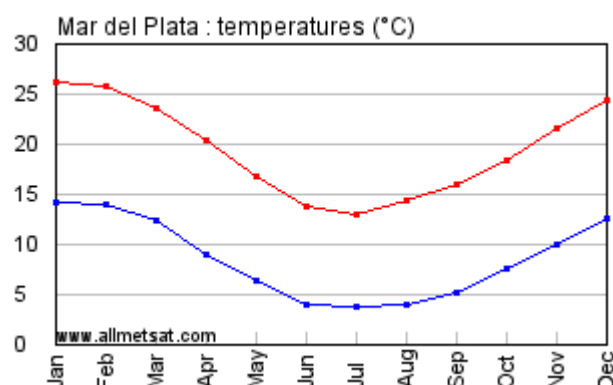
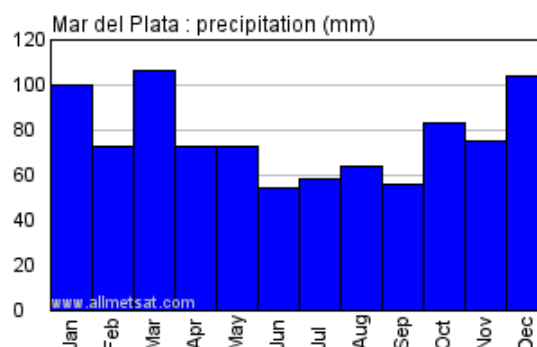


Table 2.9: Precipitation Córdoba

Precipitation is moderate to light throughout most of the country, with the driest areas in the far northwest and in the southern part of Patagonia. Most rainfall occurs in the northeast, in the Humid Pampa, Mesopotamia, and the eastern Chaco.

Table 2.10: Precipitation Mar del Plata →



## 2.10. SOIL

The largely flat surface of the Pampas is composed of thick deposits of loess interrupted only by occasional caps of alluvium and volcanic ash. In the southern Pampas the landscape rises gradually to meet the foothills of sierras formed from old sediments and crystalline rocks.

The sea-clay regions of The Netherlands are famous for their deep, rich soils, but Argentina's Pampas soils are equally fertile and have produced bountiful grain and oilseed crops for decades with very low fertilizer use. However, most of Argentina's cereal yield gains of the 1990s have resulted from increased use of chemical inputs and improved seeds.

Like its precipitation pattern, soil fertility in Argentina's main agricultural region tends to increase in a north-easterly direction from the Rio Negro across the northern half of Argentina and into Brazil's South. As a result, there is a west-to-east distribution of soils and climatic conditions that become progressively more favourable to intensive field crop production. Just to the east of the Andes Mountains, a wide band of generally dry soils runs the length of the country dividing Argentina down the middle and permitting only seasonal grazing at best. Moving eastward, increasing precipitation allows for grazing or crop fallow rotations with drought-hardy small grains and oilseeds. Further eastward into Cordoba and Buenos Aires, highly fertile soils combine with more favourable moisture to promote intensive production.

## 2.11. INFRASTRUCTURE

Argentina developed the most extensive rail system in Latin America. After the railways expanded, the nation built up its road network. Argentina's roadway mileage is now outranked in Latin America only by Brazil and Mexico; nearly one-third of the roads are paved. The largest share of surface freight is now carried by road, with lesser amounts carried by river and railroad.

The largest river basin in the area is that of the Paraguay-Paraná-Rio de la Plata system. It drains an area of some 1.6 million square miles (4.1 million square km), which includes northern Argentina, the whole of Paraguay, eastern Bolivia, most of Uruguay, and a large part of Brazil. In Argentina the principal river of this system is the Paraná, formed by the confluence of the Paraguay and Alto Paraná rivers. The Río de la Plata (often called the River Plate) is actually the estuary outlet of the system formed by the confluence of the Paraná and Uruguay rivers.

The ocean shipping fleet is not well developed considering Argentina's extensive export trade. Airlines link all regions of the country. Every major city has an airport, and even small, remote centres such as Ushuaia in southern Patagonia have reliable air service. Nearly all the largest cities have international airports, the most important being Ezeiza outside Buenos Aires.



Figure 2.1: Ports in the Río de la Plata

Several major Argentine grain terminals, all relatively close to grain producers, located along the Parana River have large storage facilities and are able to handle millions of tons of grain annually. Nearly two-thirds of Argentine exports coming down the Parana River originate in and around Rosario, about 400 kilometers from the Atlantic Ocean (see figure 2.1).

According to Murchison SA there is enough capacity for containers in case of drastic expansion of potato export. Alternatives to Buenos Aires are feeder services from Santa Fé and Zarate (to Buenos Aires and Montevideo).

Rosario is the largest export port in Argentina (39 mln tons), 2<sup>nd</sup> is Bahia Blanca (11 mln tons), 3<sup>rd</sup> Bs.As. (5 mln tons) and 4<sup>th</sup> Zarate/Campana (2.5 mln tons). The most important container shipping companies are Hamburg Sud, Maersk and Mediterranean Shipping. Most ships have about 1,000 reefer plugs.

Zarate, Santa Fé and Rosario have no reefer slots, but there are some persons with long-term concessions in Santa Fé that would be willing to invest in reefer slots against long term contracts.

Most Argentine Agricultural production areas are within a 300 km range of port facilities. Average transport costs to export position are therefore relatively low compared to Brazil. Transport costs per km are high and weighted transport costs are almost four times higher compared to US transport cost (see table below<sup>3</sup>).

Average distance to export position (km)	300	300-1,500	1,400
Average cost (USD/t/1,000 km)			
Barge	10	8-13	5
Rail	50	25-30	25
Truck	60	33-50	45
Weighted average transport cost (USD/t/1,000 km)	63	26-43	16
Weighted av transport cost to export position (USD/t)	25	8-65	16

Table 2.8: Transport costs Argentina

<sup>3</sup> Economic Resource Service, WRS-01-3



### 3. ARGENTINE AGRICULTURE

As the largest beef exporter in the world and the third largest producer of soy beans, Argentina has a very strong and significant agricultural sector. Almost 60% of Argentina's total exports are agriculture related. Currently, processing facilities are being updated to meet improved food quality and safety initiatives. Argentina has very good storage, distribution and logistics systems to facilitate the export oriented activities of the sector.

Despite consumer hesitation surrounding genetically modified organisms, Argentina is a world leader in bio-technology. Soy beans, Argentina's most prominent commodity, are planted almost entirely with GMO seeds. In addition, approximately 90%<sup>4</sup> of corn acreage is grown using GMO seeds. At the other end of the spectrum, Argentina is also a strong producer of organic products, which are mostly destined for European markets.

- Agriculture accounts for over 11% of Argentine GDP.
- Top agricultural field crops are soy beans, sunflower seeds, lemons, grapes, corn, tobacco, peanuts, tea and wheat.
- Top livestock production is in beef, poultry, dairy and some specialty meats such as llama, frog and iguana.
- Argentina's land base is approximately 12% arable land, with less than 1% in permanent crops.
- Environmental concerns in Argentina include deforestation, soil degradation, desertification, and air and water pollution.

#### 3.1. AGRICULTURAL PRODUCTION ZONES

Figure 3.1: Production zones Southern America



In Argentina, nearly all field crop production and most livestock activity occurs in the north-eastern third of the country (see map<sup>5</sup>).

Argentina's primary agricultural region produces a variety of temperate crops, including most grains, oilseeds and horticultural crops. Traditionally, most row-crop producers include some livestock operations as part of their activities. The central Provinces of Buenos Aires, Cordoba, Santa Fe, and western Entre Rios dominate row-crop production.

Over 90 % of Argentina's soybean production takes place in these provinces. Between 80 to 90 percent of corn, wheat, sorghum, and barley production is also centred on these same provinces, but extends farther south and west into the more arid provinces of La Pampa and San Luis. The majority of sunflower production is also in the Pampas, but spreads into the Southwest and the warmer, wetter Provinces of the North. Argentina's rice production has traditionally been in the north-eastern corner of the agricultural zone, while most cotton production is in the north-central states bordering the Gran Chaco scrubland. Row-crop production has recently been developing in Argentina's north-western provinces of Salta, Tucuman, and Santiago del Estero, spurred by the development of new varieties suited to their climates, improvements in the transportation infrastructure (via the river port of Resistencia on the Parana River), and improved access to export markets.

<sup>4</sup> [www.gmo-compass.org](http://www.gmo-compass.org)

<sup>5</sup> USDA WRS-01-3



Given Argentina's extended frost-free period and highly fertile soils, a preferred cropping strategy in terms of relative returns is double-cropping winter wheat with soybeans. However, the opportunity to plant a second crop is limited to the central states of Buenos Aires, Cordoba, and Santa Fe due to the strong seasonal nature of precipitation. In addition, due to declining rainfall toward the end of the growing season, double-cropped soybean yields are generally much lower than first crop soybeans.

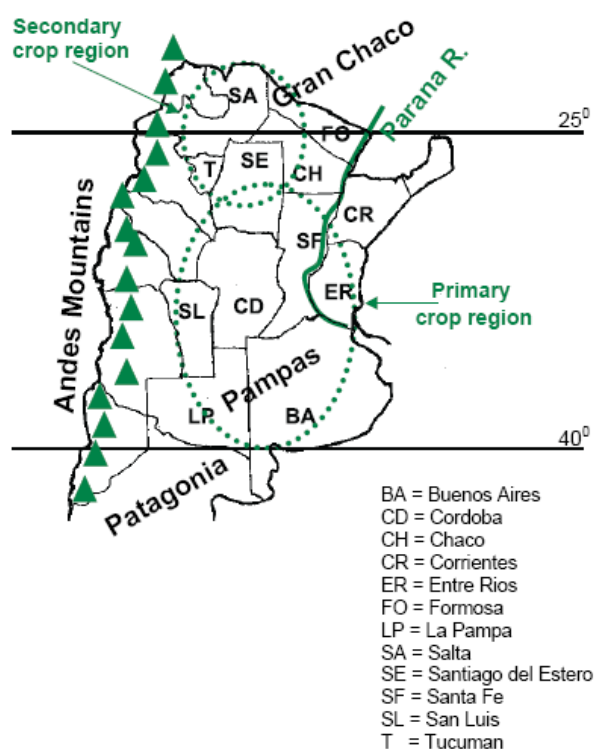


Figure 3.2: Production zones Argentina →

Apart from the longer frost-free period, Argentina's average growing-season temperature and precipitation levels nearly mirror the U.S. Corn Belt, except for the winter months. During the growing season, average rainfall in Argentina's central provinces ranges from 80 to 120 mm/m, while the average temperature range at 20-24° C. Argentina's rainfall and temperature distributions tend to increase in mean level and decrease in variability from the south-western corner (La Pampa and San Luis where rainfall is least abundant and most variable) toward the northern Provinces (where average precipitation and temperature levels are highest).

### 3.2. CROPS

Crops Argentina (07-08) <sup>6</sup>	Area (x mln ha)	Yield (t/ha)	Production (x mln t)
Corn	3.10	6.77	21.0
Wheat	5.60	2.86	16.0
Sunflower	2.60	1.75	4.6
Soybean	16.80	2.80	48.8
Cottonseed	0.30	0.73	0.24
Coarse Grain	4.60	5.70	26.5
Potato	0.07	28.00	2.0

(Table 3.1: Crop area Argentina)

The technical and institutional changes that occurred in the Pampas over the past decade have drastically reduced pasture in rotation cycles. Pasture has been the traditional form of recovering organic material and soil fertility following intensive cropping. In The Netherlands potato is an important crop but in Argentina potato area is only 0.5% of soybean area.

( Next page: Table 3.2 Argentina: Role of Agriculture in Economy)

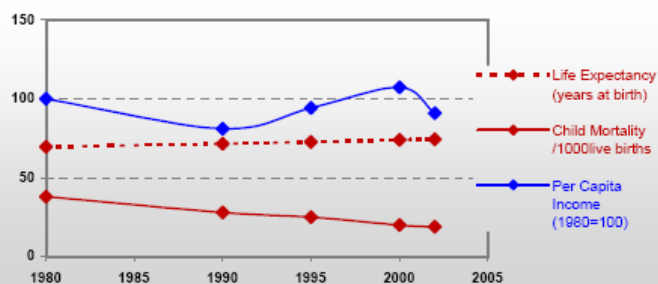
<sup>6</sup> SAGPYA, 2008

# Argentina



## General / Welfare

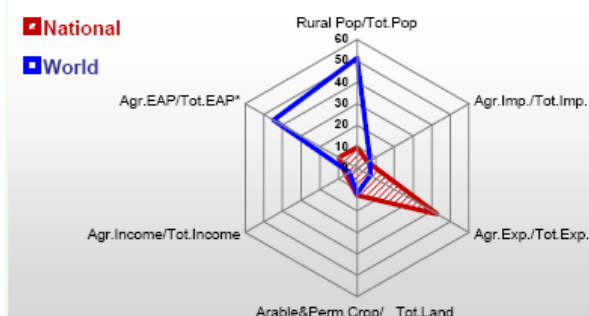
Population <sup>04 *</sup>	38 871
Per Capita Income <sup>02 **</sup>	6 842
Per Capita Agricultural Income <sup>02**</sup>	4 037
Total Exports <sup>02 ****</sup>	25 709
Total Imports <sup>02 ****</sup>	8 990
Agric. External Assistance <sup>99-01 ***</sup>	67 190
Food Consumption Inequality (G) <sup>ly</sup>	0,12
Income Inequality (G) <sup>ly</sup>	0,52
Land Inequality (G) <sup>ly</sup>	0,83
Undernourished Population % <sup>00-02</sup>	< 2.5



\* 1000 \*\* \$ \*\*\* 1000 \$ \*\*\*\* Million \$ --- (G) : Gini Coefficient --- Income refers to GDP at 1995 Constant Prices

## Agriculture In The Economy<sup>ly</sup>

## Resources

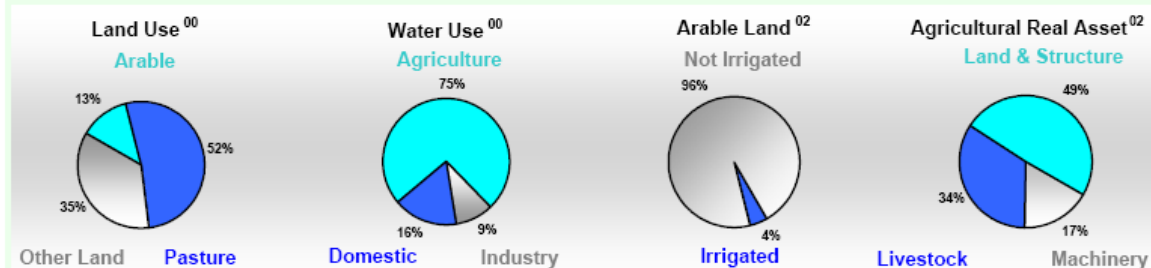


Arable Land <sup>00 *</sup>	33 500
Permanent Crops <sup>00 *</sup>	1 300
Pasture <sup>00 *</sup>	142 000
Cattle & Buffaloes <sup>03 **</sup>	50 869
Sheep & Goats <sup>03 **</sup>	16 650
Tractors <sup>02 *</sup>	9
Harvesters&Threshers <sup>02 *</sup>	1
Fertilizers Production <sup>02 ***</sup>	523 700
Fertilizers Consumption <sup>02 ***</sup>	739 526
Rainfall Index <sup>02 (mm)</sup>	1 062

\* EAP : Economically Active Population

\* 1000ha \*\* 1000heads \*\*\* Tonnes N,P<sub>2</sub>O<sub>5</sub>,K<sub>2</sub>O

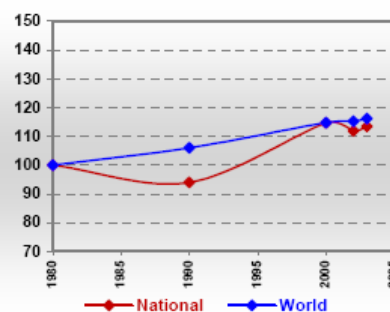
## Resources Distribution



## Production

<b>Agriculture</b> <sup>03 *</sup>			<b>Production</b>			<b>Per Capita Agricultural Production Index</b>		
Cereals	33 961	Pulpwd.,Rnd&Split **	2 962					
Meat	3 725	Roundwood **	9 307					
Fruits & Vegetables	10 585	Log:Saw&Veneer **	2 274					
Roots & Tubers	2 635	Sawnwood **	2 130					
Pulses	277	Wood Charcoal *	6					
Oilseeds & Nuts	7 947	Woodfuel **	3 972					
Sugar Crops	19 250	Wood Pulp *	678					
Tobacco	118	Wood-based Panels **	692					
Fibre Crops	68							
<b>Forestry</b> <sup>02</sup>			<b>Fisheries</b> <sup>02 *</sup>					
Indust.Roundwood **	5 335	Pelagic	30					
Paper, Paperboard *	1 338	Freshwater	33					
		Demersal	602					
		Molluscs	52					

\* 1000Tonnes \*\* 1000m<sup>3</sup>



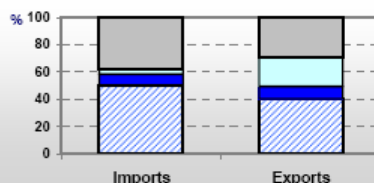
Time reference= <sup>99-01</sup>:1999-2001, <sup>00</sup>:2000, <sup>02</sup>:2002, <sup>00-02</sup>:2000-2002, <sup>03</sup>:2003, <sup>04</sup>:2004, <sup>ly</sup>:Latest Available Year

## Argentina

### Trade <sup>02</sup>

Agricultural Imports *	502
% 4 Major Imports in Agr.Imp	15
% Agr. Imports in Tot. Imports	6
Fishery Imports *	14
Forestry Imports *	259
Agricultural Exports *	11 022
% 4 Major Exports in Agr.Exp.	32
% Agr. Exports in Tot.Exports	43
Fishery Exports *	728
Forestry Exports *	281

\* Million \$



Composition of Agricultural Trade %

- Non Food Products
- Cereals
- Livestock Products
- All Other Food

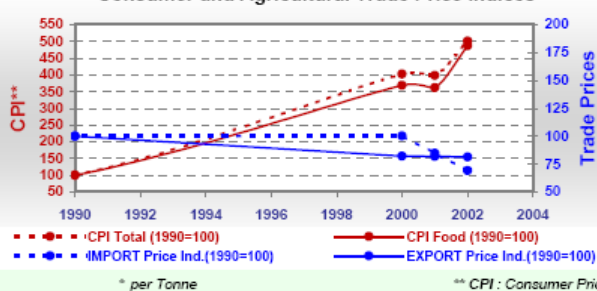
### Trade Partners & Products

Major Import Partner	Brazil	Paraguay	USA
Major Export Partner	Brazil	Netherlands	China
Major Imports	Soybeans	Food Prep	Bananas
Major Exports	Cake Soybean	Oil Soyabean	Soybeans

### Prices

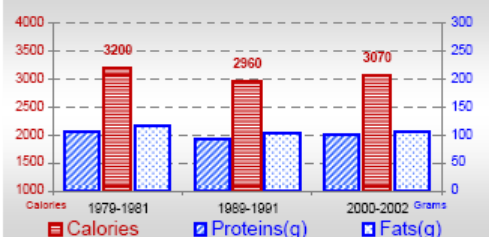
Producer Prices <sup>00-02</sup>	\$*	\$ Green *
Wheat	118	147
Rice	117	147
Maize	81	97
Soybean	168	199
Coffee	-	-
Tobacco	610	752
Cow Milk	134	144
Cattle (Live Weight)	710	763
Pig (Live Weight)	697	760
Chicken (Live Weight)	576	607

### Consumer and Agricultural Trade Price Indices



### Consumption

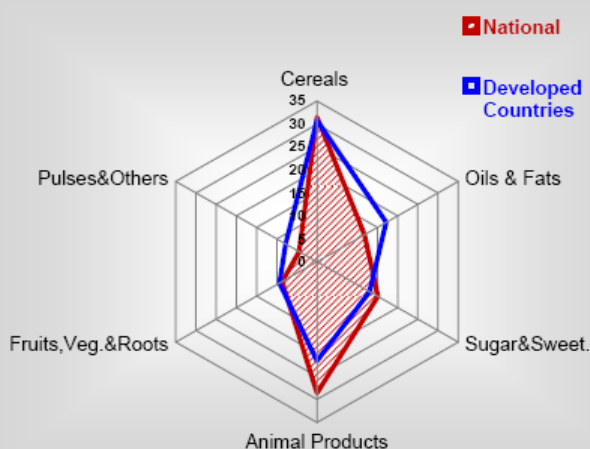
#### Per Capita Daily Consumption



#### Per Capita Daily Calorie Intake From Selected Food Items <sup>00-02</sup>

Rice	45
Wheat	824
Maize	87
Sorghum	-
Potatoes	93
Cassava	5
Sugar	392
Soybean Oil	33
Palm Oil	-
Milk	270
Anim.Fats(Raw&Butter)	74
Eggs	26
Pig Meat	50
Poultry Meat	113
Bovine Meat	371
Sheep & Goats Meat	9

#### Source of Dietary Energy Consumption % <sup>00-02</sup>



### Food Balance <sup>00-02 (1000Tonnes)</sup>

Food Groups	Production (+)	Exports (-)	Imports (+)	Seed, Feed, Other Uses (-)	Consumption (=)
Cereals	35 306	22 682	69	7 738	4 955
Veg.oils	5 216	4 595	29	203	447
Sugar&Sw.	2 122	430	21	-62	1 775
Roots&Tub.	2 832	157	58	477	2 255
Meat	3 990	366	95	118	3 601
Milk	9 496	1 395	63	578	7 586

Time reference= <sup>99-01</sup>:1999-2001, <sup>00</sup>:2000, <sup>02</sup>:2002, <sup>00-02</sup>:2000-2002, <sup>03</sup>:2003, <sup>04</sup>:2004, <sup>ly</sup>:Latest Available Year

#### 4. POTATO PRODUCTION IN ARGENTINA

Potato is an important staple food and horticultural crop for Argentina; although potato area only covers 0,5% of the area covered by soybean: respectively 0.08 mln and 17 mln ha. Being from European descend, Argentines include potato in almost every dinner. Average per capita consumption of potatoes is 40 kg. This is high for the region, but low compared to Latin countries like Spain, 83 kg/cap, and Portugal with 88 kg/cap. The total potato area of Argentina is 77,000 ha with a total production of around 2 mln mt, resulting in an average yield of 26 t/ha. The processing industry transforms around 450,000 t of potatoes, of this quantity 70% is being exported. This means the local consumption of processed potatoes is only 4 kg per capita; which is very low compared to The Netherlands with 44 kg / cap of processed potato consumption. Potato production is generally on a fairly low technical level, with much labor involved, less than 25% of potato production is fully mechanized. Bulk storage of ware potatoes is almost non existing, ware potatoes are mostly stored on the fields. The Argentine potato sector is desperately in need of technology to boost yields and quality and to lower losses.

Table 4.1 Potato Production Argentina Fresh & Industry 2006/2007					
Province	Region	Area (ha)	Yield (t/ha)	Production (t)	Season
Bs.As.	Belgrano	2,200	33	72,600	ML
Bs.As.	Sudeste	25,000	30	700,000	ML
Córdoba	Secano	1,100	17	18,700	ML
Mendoza	Mendoza	6,500	20	130,000	ML
Córdoba	Cint. Verde y Secano	10,200	21	214,200	LC
Córdoba	Villa Dolores	6,500	23	149,500	LC
Santa Fé	Rosario	1,500	18	27,000	LC
Tucumán	Tucumán	7,000	20	140,000	EC
Córdoba	Cint. Verde Y Secano	5,500	20	110,000	ME
Córdoba	Villa Dolores	4,200	22	92,400	ME
Santa Fé	Rosario	2,000	18	36,000	ME
Varias	Varias	5,000	19	95,000	Other
Total			23	1,785,400	
Source: INTA 2008					

Over the past half century, in fact Argentina's potato output has changed very little: the 2007 harvest of 1.9 mln t was only slightly less than that of 1961. In fact, since the early 1960's the national harvest has averaged around 2 mln t, with only occasional peaks (such as in 1998, when it reached 3.4 mln t). Levels of potato consumption, of around 40 kg per capita per year in 2005, have also changed little since 1990.

What has changed markedly is yield. Along with a steady drop in the size of the harvested area, from 200,000 ha in 1961 to around 77,000 in 2007, per hectare yields have more than tripled to almost 30 t in 2005 in selected areas. Argentina exports around 33,000 t of potatoes and 4,000 of potato flour.

#### 4.1. POTATO BALANCE ARGENTINA

Argentina	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Potato area (ha)	112.153	116.169	113.000	80.000	88.000	90.000	75.000	70.000	63.000	68.000	68.000
Potato import (t)	2.142	3.199	5.525	3.431	2.958	2.588	506	752	1.081	-	-
Potato export (t)	16.498	128.974	22.610	39.244	16.950	17.094	11.855	20.712	33.207	-	-

FAOSTAT | © FAO Statistics Division 2008 | 22 November 2008

Table 4.2: Argentine potato balance

Argentina produces around 2 mln t of potatoes per year, 25 % of this is being processed into potato products like French fries and chips. Export is limited to the export of potato products, only around 10% of total export consists of fresh potatoes. Import only takes place in years when a shortage of potatoes occurs like in 2007.

Table 4.3 Potato Balance of Argentina		(t)
Production (2007)		1,900,400
Import fresh (2005)		1,081
Export fresh (2005)		33,207
Processing (2006)		450,000
Export processed fresh base (2006)		270,000
Consumption processed (2006)		180,000
Consumption fresh (2006)		1,419,000
Source: Agrix 2008		

#### 4.2. POTATO PRODUCTION ZONES

The main potato production area in Argentina is the South East of the province of Buenos Aires. This is where the largest farms are located and where production is highest. The crop is considered medium late, with planting in November and harvest in April/May. Two potato production systems are dominating: mechanized production of processing potatoes and semi-mechanized production of fresh potatoes.

Potato cultivation is feasible in most of the country, but Buenos Aires and Cordoba together account for about 73% of area cultivated and 83% of the production<sup>7</sup>.

<sup>7</sup> Relevamiento del Sector Papero en la Republica Argentina, Bs.As. 2006





#### - Southeast of Buenos Aires Province

Potatoes are cultivated in Balcarce, General Alvarado, Loberia, General Pueyrredon, Otamendi and Tandil and on a lesser scale in General Madarriaga, Necochea and Mar Chiquita. Production in this zone is the most important of the country as it contributes to 65% of total production. The crop is both rain fed and irrigated. Some of the largest potato growers of Argentina are located in this area.

#### - Córdoba.

This province accounts for about 43% of the cultivated area occurring in three defined zones:

- the west zone departments of San Alberto and San Javier, irrigated by the Los Sauces river system, some superficial and less important irrigation systems and drillings from the south;
- the center-northeast zone departments of Capital, Colon, Rio, Primero, Totoral, Segundo, Santa Maria, General San Martin, Punilla, Cruz de Eje and Ischilin (including the green belt of Cordova city) using water from the Primero, Segundo and Tercero rivers and some drillings;
- the southern zone departments of Rio Cuarto.

← Figure 4.1: Potato production zones Argentina

#### - Mendoza.

Areas of General Alvear, San Rafael, San Carlos, Tunuyan, Tupungato, Lujan, Junin, Las Heras, Guaymallen, Maipu,

Rivadavia, Santa Rosa and San Martin. These are exclusively irrigated areas. Mendoza's production is almost entirely for local markets.

#### - Tucumán.

Early potato production is located in the departments of Chicligasta, Rio Chico, Famailla and Monteros. Late potato is produced in Trancas, Rio Colorado and the areas of La Invernada and Rumi Punco of the Department of Graneros. Recently, the area of Tafi del Valle is regarded to be a future seed production zone.

#### - South of Santa Fe and North of Buenos Aires.

Potato cultivation is situated mainly in the Departments of Rosario, Villa Constitucion, San Lorenzo and Iriondo in the Province of Santa Fe, and in the "Partidos" of San Nicolas, Ramallo, Baradero, Zarate and Campana in the Province of Buenos Aires. This zone

supplies markets in Rosario, Santa Fe and the Northeastern cities of Argentina with late crops.

Potatoes Total Argentina Harvest 06/07	Planted Area (ha)	Harvested Area (ha)	Yield (t/ha)	Production (t)
Early potatoes	8.840	8.190	25,2	206.592
Semi early potatoes	15.969	15.769	22,7	358.626
Semi late potatoes	34.927	34.657	27,3	954.683
Late potatoes	17.125	17.025	18,8	319.600
<b>Total Argentina</b>	<b>76.461</b>	<b>75.641</b>	<b>24,3</b>	<b>1.839.501</b>
<b>Harvest 05/06</b>				
Early potatoes	6.920	6.920	24,4	169.056
Semi early potatoes	24.360	24.360	23,6	575.723
Semi late potatoes	32.417	32.417	40,5	1.312.786
Late potatoes	27.025	27.025	22,9	618.890
<b>Total Argentina</b>	<b>90.722</b>	<b>90.722</b>	<b>29,5</b>	<b>2.676.455</b>
<b>Harvest 04/05</b>				
Early potatoes	6.700	6.700	20	134.000
Semi early potatoes	23.545	23.545	22,6	532.151
Semi late potatoes	38.379	38.379	38,2	1.467.702
Late potatoes	17.490	17.490	20,9	365.741
<b>Total Argentina</b>	<b>86.114</b>	<b>86.114</b>	<b>29</b>	<b>2.499.594</b>
<i>(Data includes ware, processing and seed potatoes)</i>				
<i>(Source: INAS, Argenpapa)</i>				

Table 4.4: Potato production Argentina 2004/2006

### 4.3. CROPPING CALENDAR

Potato production in Argentina can be classified according to harvest time: early, medium-early, medium-late and late.

- **Early crop (EC):** The season is between June and October, grown in the northwest, with Tucumán being the main production zone. This crop represents 7% of the total potato area of the country, but production increased threefold from the mid 1970's through the mid 1980's, due to the development of new technology and good climatic conditions.
- **Medium early crop (ME):** The growing period is from August to November in the central province of Cordova representing about 15% of the total cultivation area'
- **Medium late crop (ML):** The growing period is from November to March southeast of Buenos Aires Province, as noted above the most important production area.
- **Late crop (LC):** The growing period is from February to May, situated in the central eastern part of the country, and covers about 10% of the total production area.

See annex 1 for a detailed overview of production areas according to cropping calendar.

### 4.4. CULTIVATION PRACTICES

Large potato growers tend to rent all of the land; the equipment and people involved act like a traveling circus, every year to an other location that can be at a distance of more than 100 km of the previous one. There is no central homestead to built a potato store or stall the equipment during off season.



Most potatoes are planted as cut seed; not whole tubers. In the past few years it has become normal practice to treat seed with fungicides; planting is partly mechanized.

Weed control is mostly done by hand and by the increasing use of herbicides.

Irrigation has begun to become common practice, though only some farmers use it. The high increase in potato production within the last fifteen years is mostly due to the use of irrigation and fertilizers.

Large scale farmers with more than 50 hectares of potatoes usually grow potatoes for one or two years on the same piece of land and then rotate plots with wheat, sunflower, oat or five years of pasture for beef cattle. Smaller farmers typically use only cereals or oil crops for rotation and in most cases grow potato on the same field for several years.

Fresh potatoes are harvested mainly semi-mechanized by using windrowers: machines that lift the potatoes out of the soil and leave them behind to be picked up manually. Less than 10% of the potato harvest in Argentina is fully mechanized. In the Balcarce - Tandil region this percentage is slightly higher.

After the potatoes are lifted they are picked up and put in bags by hand.



Many people are needed to pick up the potatoes and put them in large 32 kg bags. After this work is done, trucks arrive to take the crop to the market.

Potatoes are frequently stored on the field in large piles of 1.5 m high, for a maximum of 12 weeks. This practice seems cheap but results in very high losses of up to 30%, which makes it about the most expensive storage system that exists.

The harvest of fresh potatoes contrasts with the harvest of processing potatoes. As stated earlier, these are two completely different production systems.

Photo 4.1: Semi mechanized harvest of fresh potatoes

Processing potatoes are harvested mechanically with large imported harvesters: AVR and Grimme are dominating brands. The harvest hopper is emptied directly into a truck.

## 5. POTATO PRODUCTION IN THE SOUTH EAST BS.AS. REGION



Photo 5.1: Argentine farmer in a field of Innovater

The South East of the province of Bs.As, more specific the Tandil - Balcarce region, is the most modern and productive potato area in Argentina. Potato planting in the Tandil region takes place in October. Most potatoes are planted in ridges, by hand or planting machine, and larger ridges are formed afterwards. Some farmers use mechanized potato planters; local made, made in Brazil or imported from Europe (Grimme, Hassia). Most of the seed is cut. Harvest takes place in April/May. Average yield for processing potatoes (mostly of variety Innovater, French

fries) is 40 t/ha, some farmers reach an average yield of 52 t/ha. Potatoes have to be irrigated in this region every five days.

Photo 5.2: Argentine farmer potato planting →

A typical good farmer will harvest his processing potatoes by machine and his ware potatoes by hand. Mechanized harvesting takes 4 people, by hand it is a group of 20 people that does the harvesting and collection. In this case potatoes are lifted with a windrower.



← Photo 5.3: Argentine farmer spraying equipment



Hand labor is getting more difficult to arrange. Less people are available or willing to work on the field.

One reason for picking up ware potatoes by hand is that potatoes are selected and graded at the same time on the field, put in 40 kg bags and leave directly for the market. Rejected potatoes and tare remain on the field, which is quite efficient as long as labor is cheap and available.

### 5.1. HANDLING, STORAGE AND LOGISTICS OF POTATOES

Field production of processing and ware potatoes is the same; the level of mechanization of production in the field does not differ. The difference is in the harvesting, handling and storage of potatoes. Fresh potatoes are not stored at all or stored on the field only for a very short period of time; processing potatoes are not stored, stored on the field (by obligation towards the processor) or stored in storage facilities.

For the purpose of collection data for this report, several sources were used. Discussions took place with processors, with groups of farmers and data was used as provided by INTA Balcarce.

Processors collected some data on “small scale” potato storage. These data, presented in the tables below, are related to a farm based potato store of 1,500 t capacity. The investment level for a cold store, equipment and buildings included, to be USD 180 /t. The average storage time would be 5.5 months.

**Table 5.1 Storage characteristics**

Volume t	1,500
Months of storage mth	5.5
Investment store USD/t	180
Potato price March ARP/t	364
Potato price March USD/t	114
Weight loss %	6
Quality loss %	5
Damaged %	2
Potato price September ARP/t	540
Potato price September USD/t	166
Bonus USD /t	10
Final price USD/t	176

Source: Agrix , January 2008

Timeliness of potato sales is represented by the price difference, paid to the farmer, of ARP 364 /t (USD 114 /t) paid in March when harvest starts and ARP 540 /t (USD 166 /t) paid in September. This would result in a timeliness premium of ARP 176 /t (USD 55 /t) or ARP 32 /t/month (USD 10).

Energy costs are already considerable when stored with outside air cooling equipment. Depending on the month these costs range from USD 0.15 to USD 0.24 /t/month or USD 3,600 to USD 5,760 /month for a storage of 24,000 t, for storage until September this would be USD 30,240.

**Table 5.2 Energy costs potato stores**

(x 1,000)	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Tandil	3.6	3.8	4.2	4.6	2.8	1.2	0.9	1.0	1.0	5.9	5.9	4.2
Otamendi	8.4	8.4	9.0	9.2	3.0	2.2	1.2	1.2	1.5	9.8	12.6	9.4
Total	12.1	12.2	13.2	13.7	5.8	3.4	2.2	2.2	2.5	15.8	18.5	13.6
ARP /t	0.50	0.51	0.55	0.57						0.66	0.77	0.57
USD /t	0.15	0.16	0.17	0.18						0.21	0.24	0.18
USD /t (av)	0.18											

Source: Agrix, Balcarce, January 2008 (Tandil is 8,000 t, Otamendi is 16,000 t)

Another high cost factor is the treatment of potatoes against sprouting. Four treatments, needed for storage until September, do cost USD 4.24 /t or USD 101,760 in total for a 24,000 t storage facility.

At the time of writing this report some processors would pay ARP 440 /t for Atlantic at harvest time, which includes transport costs. Others pay ARP 340 /t Innovator and transport cost would have to paid by the farmer. Atlantic yields less then Innovator, which partly compensates for the price difference.

Transport costs from field to processor are ARP 40 /t. Some processors oblige farmers to store 12% of production from harvest until June. Storage usually is done in stacks on the field which causes losses up to 20%.

**Table 5.3 Anti-sprouting treatment**

	Dose (l/t)	USD /l	USD /t
April	0.05	42	2.10
June	0.025	42	1.05
August	0.013	42	0.55
September	0.013	42	0.55
Total costs			4.24

Source: Agrix, Balcarce, January 2008

Most processors will receive potatoes with a maximum temp of 19° C; in a wet year with high temperatures this has cause trouble. Farmers suffered high losses in 2007 because of to high

temperature. Stored potatoes will receive a higher price, depending on the quality. PepsiCo will not oblige farmers to store, but pays a higher price for late delivery.

**Table 5.4 Storage figures**

Potato store intake 1,500 t		Potato store unload 1,500 t	
Truck's / day	12	Truck's / day	12
T/truck	28	T/truck	28
T/day	336	T/day	336
Working hours	16	Working hours	16
Fte	4	Fte	4
ARP /hr	7.5	ARP /hr	7.5
Labor tax ARP/hr	3.75	Labor tax ARP/hr	3.75
Labor cost ARP	720	Labor cost ARP	720
Labor cost ARP/t	2.14	Labor cost ARP/t	2.14
Supervision	2,700		
ARP /mth	1,350		
Labor tax /mth	4,050		
Mth work	8		
Labor cost ARP/yr	32,400		
Labor cost ARP/t	3.24		
Total labor ARP /t	7.53		
Total labor USD /t	2.39		
Source: Agrix, January 2008			

For the purpose of preparing this report, a meeting was arranged on with some large farmers. The table below presents an overview of the characteristics of these producers. The farmers represent a group of preferred suppliers to a large processor.

Table 5.5 Farm profiles	Area	Variety	Storage	Client
1	80 ha			50% McCain 50% Free
2	500 ha	Desirée Marquis Shepody Innovator Kennebec	Stores potatoes, facilitated by McCain, store May to September, USD 38 /t, 3,200 t rented, air cooled	100% McCain
3	50 ha			100% McCain
4	170 ha	Desirée		100% Fresh
5	220 ha			75% industry
6				25% Fresh
7	150 ha	Spunta Atlantic Innovator		45% Fresh 55% Industry

The group of farmers presented above are some of the best potato growers of Argentina. All of them produce, to a certain extend, processing potatoes. The potato area ranges from 80 to 500 ha per producer. All of them rent the land and move their equipment from one location to another each year.

## 5.2. CONSTRAINTS ON POTATO PRODUCTION

- Lack of storage facilities for seed potatoes
- Huge demand for storage capacity in general
- From March through September potato stores can be cooled by outside air, from September to December forced cooling should be applied but is hardly available
- 4 New cold stores will be inaugurated in May
- The group received a quotation for a 3,000 t air cooled cold store for USD 200 /t
- A long term credit of at least 10yr is needed to finance a potato store
- From December until March the stores will be empty
- Fixed costs are relatively high
- Foundation is expensive
- Yield 50 to 55 t/ha

Some remarks on potato production in the Tandil region as mentioned by a group of farmers are listed in the box left.

One of the most important issues related to potato production is the availability of good, adapted and new varieties for ware and processing potato production.

Although Argentina signed the UPOV agreement on variety property rights protection, the lack of actual protection by the state made some large seed companies decide to stop the distribution of their seeds in Argentina in early 2004<sup>8</sup>.

Some very clear messages have emerged from a recent UPOV study, with perhaps the most important being the link between UPOV and economic development. A key conclusion is that the UPOV system of plant variety protection provides an effective incentive for plant breeding in many different situations and in various

sectors, resulting in the development of new and improved varieties, which are of benefit to growers and consumers.

In Argentina the plant variety protection (PVP) system became fully compatible with the 1978 Act of UPOV in 1991. Since then the average annual number of titles granted to breeders has trebled.

A little over half of the member states have acceded to the 1991 Act. This Act reflects developments in plant breeding and biotechnology and experience in plant variety protection. It is therefore important that countries adopt legislation in accordance with this latest act. The same goes for the scope of protection. The UPOV report on the impact of plant variety protection demonstrated that, in order to harvest the full benefits the system is able to generate, protection should be offered for all genera and species. One of the important advantages of the UPOV system is that this target is achievable for individual members thanks to international cooperation in variety testing based on harmonized and accepted UPOV principles. Argentina did so far not accede to the 1991 Act of UPOV.

Nevertheless, in spite of the above, Dutch seed potato companies like HZPC, Agrico, Van Rijn-KWS and also Germicopa (not Dutch) are active on the Argentine market.

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<sup>8</sup> Gallo, A., Kesan, J.P., Property rights Legislation in Argentina, 2006



From the SWOT analyses below it is clear that Argentina, and especially the South East Bs.As. province, has a great potential to expand production. Although production takes place on rented land there seems to be sufficient good quality land available in the region.

<i><b>Strengths</b></i>	<i><b>Weaknesses</b></i>
Good soils	Limited number of potato varieties available
Good climate conditions	Much labor involved
Water available	High post harvest losses
Large fields	Low storage capacity
Availability of land	Production on rented land
Supporting research by INTA	No central farm location
Local variety development	Expensive irrigation always needed
UPOV <sup>9</sup> member since 1994	Bag based potato chain
<i><b>Opportunities</b></i>	<i><b>Threads</b></i>
Export to surrounding countries	Hesitation of farmers to invest
Expanding processing industry	Risk aversion by farmers
Increasing demand processed potatoes	Only UPOV '78 was signed
Production increase potential	Low to medium level of mechanization
	Increasing land rent
	Unpredictable government intervention
	Dollar based increase of costs
	Lack of labor available
	Inefficient potato chain
	Severe weather conditions climate change
	Severe price fluctuations

Table 5.6: SWOT analyses

Land, climate and knowledge infrastructure related to potatoes are impressive. Argentina has a lower cost price than Brazil and the other Mercosur countries. Also the physical infrastructure is quite well developed. One of the main constraints on potato production is the financial risk. Farmers not only have to deal with climate and markets but also with unpredictable government policies. These policies include fixed sales prices and export duties, taxes on inputs and production taxes. Because of these uncertainties farmers are hesitant to take loans. Like in other segments of Argentine agriculture, the capital employed is usually own capital. This also partly explains general low investment levels in storage and equipment.

### 5.3. POTATO PRODUCTION COSTS

The Agricultural research station INTA<sup>10</sup> calculates production costs of potatoes on a regular base and is one of the data sources for this report. The latest results of these calculations, which are updated each year, are presented below.

INTA uses a 86 ha farm with a net productive area of 80 ha: 50 ha of fresh potatoes (variety Spunta) and 30 ha of French fries potatoes (variety Innovator). The land is rented, which is most common in the case of potato production. Some of the production costs are represented by “bags per ha”; fresh potato bags are 35 kg and industrial potato bags are 50kg. Harvest is done by a “windrow harvest system” that lifts the potatoes and leaves them on the field, after which potatoes are being picked up by hand. De final calculation of production cost per kg are calculate with field losses of 10% for fresh potatoes and 20% for French fries potatoes. The INTA calculations are based on a Spunta yield of 31.5 t/ha and an Innovator yield of 40 t/ha.

<sup>9</sup> Union Internationale pour la Protection de Obtentions Vegetales

<sup>10</sup> Costatino, Ing. Agr. Sergio, INTA, Unidad Integrada, FCA Balcarce, October 2008

<b>Table 5.7 Seed potatoes / ha</b>	<b>Kg/ha</b>
Spunta	2,500
Innovator	2,250
Source: Agrix / INTA, Balcarce, 2008	

Sees potatoes are usually cut and treated. Compared to The Netherlands, the quantity of seed potatoes used per ha is comparable. Usually around 14 sprayings against

Phytophthora are applied. Towards the end of the season systemic fungicides are applied. The products used seem to be the same as the ones used in Europe, the same multi-national suppliers of agrochemicals are active in Argentina. A difference with Europe is the application of an Alternaria treatment.

<b>Table 5.8 Fungicides</b>	<b># Applications</b>	<b>Dose</b>
Tuber treatment	1	16 kg/ha
Phytophthora contact	12	2.5 kg/ha
Phytophthora systemic	2	1.25 l/ha
Alternaria	2	0.5 l/ha
Source: Agrix / INTA, Balcarce, 2008		

A wide range of insecticides and herbicides is applied. Some onion producing farms boost an Eurepgap (European Good Agricultural Practice) certification. None of the potato producers has one, obviously because potatoes are not exported to Europe

<b>Table 5.9 Insecticides &amp; herbicides</b>	<b># Applications</b>	<b>Dose</b>
Methamidofós	4	0.4 l/ha
Piretrina	3	100 cc/ha
Aficida	2	90 cc/ha
Liriomyza	2	500 cc/ha
Metribuzin	1	1 l/ha
Graminicida	1	1 l/ha
Desecante	1	3 l/ha
Source: INTA, Balcarce, 2008		

Fertilizers are applied at planting and afterwards by foliage application. Applying Ureum seems to be standard procedure.

<b>Table 5.10 Fertilizers</b>	<b>Dose</b>	<b>Application</b>
18-46-0	300 kg/ha	At seeding
Ureum	250 kg/ha	At hilling
Foliage	150 kg/ha	Sprayer
Source: Agrix / INTA, Balcarce, 2008		

Potatoes are almost 100% irrigated in South East Buenos Aires province. Two systems are dominant: conventional with tubes and hoses and "wheel moves". Some farmers use more advanced irrigation equipment like centre pivots and hose reels: usually 8 applications of 25 mm each so a total of 200 mm /ha. In the calculations below, all irrigation costs are included like maintenance, labor and petrol.



A total around 17 labor hours per ha is needed, this includes time for around 16 agro chemical applications and harvesting.

<b>Table 5.11 Spunta production costs overview</b>		
(rate 3.20)	ARP /ha	USD /ha
Land rent	1,529	
Seed	5,250	
Agro chemicals	1,012	
Fertilizers	866	
Irrigation	1,657	
Labor	982	
Labor other activities	170	
Variable costs	90	
Fixed costs	625	
Interest on working capital	974	
Manager bonus	90	
Bags	900	
Harvest	1,823	
Total production costs	15,967	4,990
Transport and sales	4,950	
Total	20,917	6,537
Yield kg /ha		31,500
Production costs USD /kg		0.16
Source: Agrix / INTA, Balcarce, 2007		

Potato production costs, including land rent, manual harvest, interest on working capital and transport cost (often to be paid by the producer) are USD 6,537 per ha or USD 0.16 /kg at a production level of 31,500 kg/ha for Spunta, destined for the fresh market.

<b>Table 5.12 Innovator production costs overview</b>		
(rate 3.20)	ARP /ha	USD /ha
Land rent	1,529	
Seed	2,295	
Agro chemicals	1,012	
Fertilizers	866	
Irrigation	1,657	
Labor	982	
Labor other activities	170	
Variable costs	130	
Fixed costs	625	
Interest on working capital	741	
Manager bonus	136	
Bags	540	
Harvest	1,823	
Total production costs	12,505	3,909
Transport and sales	2,583	
Total	15,088	4,715
Yield kg /ha		40,000
Production costs USD /kg		0.10
Source: Agrix / INTA, Balcarce, 2008		

Innovator production costs are much lower than Spunta costs. Seed will only cost halve, probably because the seed is supplied by the processor. Innovator is only used by McCain and Farm Frites for French fries production. The variety is licensed to suppliers to these companies. Transport and sales costs are lower because suppliers are usually closer to the final destination: the processing plant. The yield per ha is higher, which is probably due to the fact that processors select the best growers. Production costs are USD 4,715 per ha or USD 0.10 /kg.

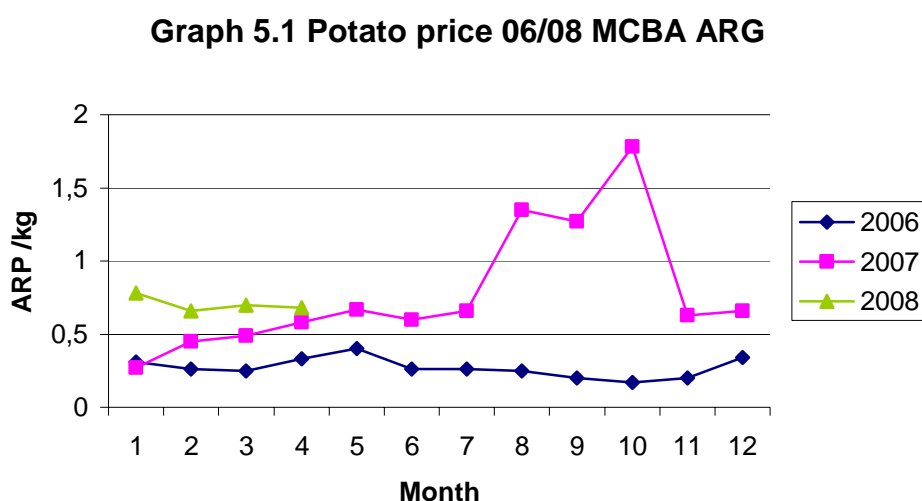
If the INTA figures are compared to the costs as presented by farmers, the figures coincide. Except for the wages which apparently are much higher than for labor in potato stores. Land rent for potato land is around USD 500 and twice as high as land rent for other crops.

Table 5.13 Some cost factors in potato production		2008
Land rent for potatoes		USD 500
Land rent for soybean		USD 250
Economic value land for potatoes		USD 10,000
Economic value land for cattle		USD 5,000
Gasoline		ARP 2.40 /l
Salary tractor drivers	ARP 150 /day + food +duties	
Salary potato collectors ("Changuitos")	ARP 2 /bag (33 kg)	
Investments irrigation	ARP 500 installation pump	
	ARP 18,000 /pump	
Source: Agrix / Agrivalue, February 2008		

Seed and land preparation are the highest cost factors; harvest includes labor for harvest.

Table 5.14 Distribution of potato production costs	(%)
Agrichemicals	10-15
Seed and seed preparation	25-30
Land rent	10-15
Irrigation	10-15
Mechanization	10-15
Harvest	15-20
Labor	5-8
Source: Agrix / Agrivalue, February 2008	

#### 5.4. TIMELINESS OF POTATO SALES



Source: Agrix 2008

In a normal year like 2006, potato prices peak in December/January and in April/May. The year 2007 was very exceptional due to bad weather conditions.

As shown in graph 6.1 potato prices at the Mercado Central de Bs.As. do normally not fluctuate heavily. This is because the market is continuously supplied with fresh potatoes from different production regions. Storing fresh potatoes under these circumstances makes no sense. This does not mean that prices do not fluctuate at a regional level. Own research demonstrated that in the most important production region, south east Bs.As., prices for processing potatoes can go up during the season by almost 50%, depending on the base

price. A processor calculated for the season 2007-2008 with a price of ARP 364 /t in March and ARP 540 /t in September, an increase of 48%. Prices exclude a quality bonus of ARP 30 /t. Suppliers to processors experience a year-to-year average price increase of 7%, which hardly compensates inflation. The quality bonus for production year 2008 increased by 13% compared to 2007.

## 6. SEED POTATO PRODUCTION IN ARGENTINA



Figure 6.1: Seed potato area's

Seed Potato Production South East Bs. As 07/08	
Production Zone	Area (ha)
Azul	313
Balcarce	7.024
General Alvarado	4.883
General Pueyrredón	3.492
Lobería	4.489
Tandil	3.725
Total	23.926

(Source: El Semanal)

Table 6.1: Bs.As. Seed potato

Seed Potato Production Córdoba 07/08	
Production Zone	Area (ha)
Cinturón Verde Córdoba	4.364
Candelaria	871
Villa Dolores	7.189
Monte Cristo y Río Primero	799
Colonia Tirolés y Caroya	6.931
Villa del Totoral	678
Total	20.832

(Source: INTA Castelar)

Table 6.2: Córdoba Seed potato

Three Argentine organizations are active in the institutional field around the development of potato varieties and the production of seed potatoes: Instituto Nacional de Tecnología Agropecuaria (INTA), Instituto Nacional de Semillas (INASE) y Servicio de Sanidad y Calidad Agroalimentaria (SENASA); also private companies are active, especially in rapid multiplication and tissue culture technology.

The private seed potato sector developed activities in the province of Buenos Aires, but also in isolated zones, dedicated exclusively to the production of seed potatoes like Mendoza (Malargüe), Catamarca (Pucará/Las Estancias) and Tucumán (Tafí del Valle). Not only in these zones seed potatoes are being produced but also in other zones that are in good phytosanitary conditions like Barreal (San Juan), El Calafate (Santa Cruz), Valle Inferior del Río Medio del Río Chubut (Chubut) amongst others.

The total area planted with basic seed within the “Zona diferenciada” (the area’s dedicated to seed production) was around 3,800 ha in 2004/05<sup>11</sup> between 1,400 ha in Bs.As. province and 1,600 ha in Mendoza. In that season 25,000 t of seed potatoes were certified and 5,000 were not certified (own use). During 2006/07 the area of basic seed in Bs.As. was 1,730 ha; 15 private companies were active in basic seed production. During the same year, 8 companies produced seed outside the “Zona diferenciada” but within de province of Bs.As. on an area of around 720 ha.

Table 6.3: Certified seed potatoes 2008

MOHA	Kilogramos	15314	612519.03
PAPA VARIEDAD	Plantulas	227	177260
PAPA VARIEDAD	Kilogramos	570315	28253302
PAPA VARIEDAD	Planta	73	14600
PAPA VARIEDAD	Microplantulas	921	184200
PASTO OVILLO	Kilogramos	26192	485827.3
PHALARIS AQUATICA L,	Kilogramos	207	8280

(Source: INASE 2008)

All of the potatoes produced within the “Zona diferenciada” are controlled and sampled by INASE and tested in 5 certified laboratories, of which two are state owned and three are private. INASE certified 28,000 t of seed potatoes in 2007/08 based.

The most important variety for fresh consumption, covering more than 50% of the area, has been for decades the variety Spunta, originating from The Netherlands. New varieties were introduced, especially for processing like Innovator, FL1867, FL1879, Kennebec, Shepody, Atlantic, Asterix, Umatilla Russet, Ranger Russet, Russet Bannock, Russet Burbank, Gem Russet, Chieftain, Desirée, Monalisa, Snowden, Pampeana Inta, Frital Inta, Keluné Inta, Kalen Inta, Markies, Daisy, Ramos, Cherie and others.



(Figure 6.2 Promotion leaflet seed potato producers Bs.As.)

Argentina knows the following sequence of seed classes: Preinicial 0, Inicial - I, Inicial - II, Inicial - III, Fundación (all “categoría Básica”), Registrada and Certificada A y B (the latter two “categoría Certificada”).

The seed potato producers in the province of Bs.As. formed a new organization called APPASBA (Asociación de Productores de Papa Semilla de la Provincia de Buenos Aires).

Some countries have opened their borders for seed potatoes produced in Argentina: Venezuela, República Dominicana, Guatemala and Brazil.

The largest seed potato producing company are “El Deseo” (Walter Hernandez), Drakar and Papasud S.A. Papasud S.A. exports to Brazil and Guatemala. Their main varieties are based on Atlantic, which is used for processing and in some countries for fresh consumption.

Although Argentina signed the UPOV agreement on variety property rights protection, the lack of actual protection by the state made Monsanto decide to stop the distribution of their seeds in Argentina in early 2004<sup>12</sup>. As a result of Monsanto’s protest the government is proposing a tax on farmer’s crops. But this will not ensure that seed producers will receive the full revenue of this tax, the government could also use it for own funding.

<sup>11</sup> Relevamiento de sector papero en la República Argentina, Dolcet, Ottone, 2006

<sup>12</sup> Gallo, A., Kesan, J.P., Property rights Legislation in Argentina, 2006

It seems impossible to determine market share for each company and crop and distribute the tax revenues to the companies entitled to it. For this reason a large Dutch seed potato producer and export, opened an office in Argentina in 2008. The lack of protection currently limits the introduction of new and better potato varieties in Argentina.

Especie: PAPA VARIEDAD [Solanum tuberosum L.]						
[Expte] Cultivar [Tipo] [Inscrip.] [Origen/Vencim.] [Representante Solicitante]						
[R.N.C.] [R.N.P.C.]						
6848	ACHAT	08/08/00	GE1	POLYCHACO SA		
1708	ACHIRANA INTA	20/11/87	ARG	COSTAMAGNA OSCAR A.		INTA E.E.A.BALCARCE
2001	AMERICANA INTA	18/03/91	ARG	INTA E.E.A.BALCARCE		
2390	ARAUCANA INTA	14/05/92	ARG	FANGIO JORGE RAUL		INTA E.E.A.BALCARCE
6526	ASTERIX	26/09/00	NET	CALCATERRA FABIO MARCELO		ALIMENTOS MODERNOS S.A.
2592	ATLANTIC	24/10/95	USA	GABBIN RICARDO OSCAR		
1074	BARAKA	18/08/88	HOL	SCHOREDER JUAN		
3112	BINTJE	10/08/93	HOL			
717	BONAERENSE CAMPEONA	22/08/84	ARG			
718	BONAERENSE LA BALLENERA	22/08/84	ARG			
719	BONAERENSE LA TOTORA	22/08/84	ARG			
2050	BRIGHT	23/10/89	HOL	GARCIA RUBEN JORGE		RUBEN J. GARCIA S.A.
1400	BUENA VISTA INTA	22/08/84	ARG			
4344	CALEN INTA	02/09/96	ARG	CASARO ADOLFO		INTA E.E.A.BALCARCE
2051	CARDINAL	23/06/89	HOL	GARCIA RUBEN JORGE		RUBEN J. GARCIA S.A.
1710	CHACAY INTA	26/05/88	ARG	COSTAMAGNA OSCAR A.		INTA E.E.A.BALCARCE
7155	CHIEFTAIN	02/11/00	USA			
7158	DESIREE	02/11/00	NET			
2052	DIAMANT	23/06/89	HOL	GARCIA RUBEN JORGE		RUBEN J. GARCIA S.A.
2053	EMPIRE	23/06/89	HOL	GARCIA RUBEN JORGE		RUBEN J. GARCIA S.A.
2054	ESCORT	23/06/89	HOL	GARCIA RUBEN JORGE		CEBECO-HANDELSRAAD
3656	FELSINA	20/10/97	NET	ROCATTI, RICARDO GUILLERMO		HETTEMA ZONEN B.V.
2731	FRITAL INTA	12/08/93	ARG	FANGIO JORGE RAUL		INTA E.E.A.BALCARCE
1399	HUINKUL MAG	22/08/84	ARG			
1068	JAERLA	03/07/87	HOL	SCHOREDER JUAN FRIESE MAARRSHAPIL		
4345	KELUNE INTA	02/09/96	ARG	CASARO ADOLFO		INTA E.E.A.BALCARCE
1819	KENNEBEC	03/07/87	USA			
2000	LATINA INTA	18/03/91	ARG	FANGIO JORGE RAUL		INTA E.E.A.BALCARCE
2239	LISETA	20/10/97	HOL	HAISMA JAN PIETER		HETTEMA ZONEN B.V.
1999	MAILEN INTA	22/06/90	ARG	FANGIO JORGE RAUL		INTA E.E.A.BALCARCE
1071	MONALISA	18/08/88	HOL	PASCUALINI ALBERTO		SCHOREDER JUAN
2214	MONDIAL	20/10/97	HOL	HAISMA JAN PIETER		HETTEMA ZONEN B.V.
1111	MORENE	04/11/86	HOL	SCHOREDER JUAN		SCHOREDER JUAN
1709	PAMPEANA INTA	20/11/87	ARG	COSTAMAGNA OSCAR A.		INTA E.E.A.BALCARCE
1707	PRIMICIA INTA	20/11/87	ARG	COSTAMAGNA OSCAR A.		
5436	RANGER RUSSET	22/12/97	USA	INCHAUSTI, MARIANO HORACIO		MC CAIN ARGENTINA S.A.
1970	RUSSET BURBANK	20/05/88	USA			
1402	SANTA RAFAELA INTA	22/08/84	ARG			
1512	SERRANA INTA	25/02/86	ARG	COSTAMAGNA OSCAR A.		INTA E.E.A.BALCARCE
2111	SHEPODY	04/05/94	CAN			ROMBOLA GREGORIO
1403	SIERRA BACHICHA INTA	22/08/84	ARG			
1401	SIERRA LARGA INTA	22/08/84	ARG			
716	SIERRA VOLCAN INTA	22/08/84	ARG			
1078	SPUNTA	03/07/87	HOL	SCHOREDER JUAN		
1706	SUREÑA INTA	20/11/87	ARG	COSTAMAGNA OSCAR A.		INTA E.E.A.BALCARCE
2563	TIMATE	16/11/92	HOL	PAZ JOSE MANUEL		
3414	WHITE ROSE	29/03/94	USA			

Table 6.4 List of approved potato varieties in Argentina

The current official variety list contains 46 potato varieties that can be produced and traded in Argentina; 14 of which are from Dutch origin.

SENASA  
 Dirección Nacional de Protección Vegetal  
 Dirección de Cuarentena Vegetal  
 Paseo Colón 369 P.B. (1063)  
 C. A. de Buenos Aires  
 Argentina  
 Tel.: ++54 (0) 11 4121 5244/5245/5246  
 Fax: ++54 (0) 11 4342 5137



## 7. POTATO MARKETING IN ARGENTINA

Potatoes are bought straight from the farmer by intermediates that pick up the potato bags and transport the potatoes to the market to be sold. Since 15 mln of Argentina's 40 mln inhabitants live in the Bs.As. province, of which 3 mln in the city, the central vegetable market of Bs.As. (Mercado Central de Buenos Aires de Hortalizas<sup>13</sup>, MCBA).

In 2005 MCBA received 450,000 t of potatoes, which makes it the main product for the market. Potatoes are being delivered to MCBA from 7 distinct production regions: Córdoba, Gral Belgrano, Mendoza, San Luis, SE Bs.As., Tucumán and V.Dolores. The table below details the distribution of delivery through the season.

**Table 7.1 Delivery of Potatoes to MCBA, 2005 (%)**

	Córdoba	G.Belgrano	Mendoza	SanLuis	Bs.As.	Tucum	V.Dol.	Total
Jan	6.3	26.8	7.2	0.1	47.0	0.2	12.4	99.7
Feb	0.5	13.3	3.9	0.0	79.2	0.0	3.2	92.4
Mar	0.4	3.0	1.2	0.0	95.2	0.0	0.2	95.2
Apr	0.4	0.0	1.1	0.0	98.5	0.0	0.0	98.5
May	0.3	0.1	2.9	0.0	96.8	0.0	0.0	96.8
Jun	7.1	0.1	3.9	0.2	82.7	0.0	6.0	95.7
Jul	10.8	0.0	1.9	0.4	72.7	0.0	14.1	97.6
Aug	19.6	0.0	1.4	0.6	57.1	0.0	21.2	97.9
Sep	24.4	0.1	0.9	0.0	50.4	0.3	23.6	98.4
Oct	24.5	0.0	1.4	0.5	23.3	26.1	23.0	96.9
Nov	5.4	0.0	0.5	0.6	7.4	63.7	18.7	95.2
Dec	12.8	9.3	3.3	5.6	12.6	13.6	39.5	93.4

Source: Agrix / MCBA

The south east of Bs.As. province is the main provider during the first nine months of the year. During the remaining three months Bs.As. still provides significant quantities of potatoes. Villa Dolores is the second important production region, providing potatoes during eight months and the most important provider in the month of December. Córdoba shows the same pattern but at a lower level. Tucumán is an import supplier during the last four months of the year, being November the most important month.

In contrast to matured markets, the price elasticity of potato consumption in Argentina is relatively high: if price goes up, consumption goes down. Per capita consumption can vary between 30 and 45 kg. Potato can be considered as a product positioned between a staple food and a vegetable. In Latin statistics, potato is listed among the vegetables while in Western Europe it is a product group by itself.

Around 25% of all potatoes produced in Argentina (2 mln t) is being processed (450,000 t). MCBA receives around 25% of all fresh potatoes produced in Argentina (400,000 t), another 25% is being sold through other markets or directly shipped to supermarkets. The remaining 50% is consumed in the interior.

Potato prices can fluctuate quite heavily, as happened during the year 2007. This was due to severe weather conditions but also to government intervention. Producers would receive prices up to ARP 4.00 to 4.70 /kg while consumer price reference (the basket to calculate inflation) was at ARP 0.41 /kg<sup>14</sup>. The borders were opened to import from Bolivia at a price of ARP 1.60 /kg.

<sup>13</sup> Corvo Dolcet, Ing. Agr. Sebastián, Dirección de Agricultura, Bs.As., 2007

<sup>14</sup> Navarro, Arturo, Partido Federal de la Provincia Bs.As., September 2007



## 8. POTATO PROCESSING IN ARGENTINA

### 8.1. MCCAIN ARGENTINA

The main processor of potatoes in Argentina is McCain<sup>15</sup>. McCain started in Argentina in 1995, investing USD 25 mln in a French Fries plant near Balcarce, south-east in the Buenos Aires province. In 1997 and in 1998 two expansions of the initial line were put in production, representing an investment of USD 30 mln. Recently a second production line was inaugurated which took an investment of USD 68 mln. The total capacity of the McCain currently is 180,000 t /yr of deep frozen French fries. The installed capacity is 400,000 t of raw material. The plant employs 400 people. The growth objective is 10% per yr; 30% to 40% of production is destined for McDonalds. Over 60% of the production is being exported; mainly to Brazil but Chile, Paraguay and Uruguay are also important markets.

The maximum daily capacity of the plant, two lines combined, is 1,500 t. This requires 55 trucks of each 28 t to be unloaded per day. Apart from the 55 truck loads that enter directly in the processing plant, another 90 trucks per day can be unloaded for storage. McCain wants to technically improve the reception of potatoes and expand capacity by buying new machines like receiver hoppers and transport belts.

The plant must be operational at least 210 days per yr. This means McCain also receives potatoes from other regions like the North. Early potatoes from Cordoba lack quality for storage but often need to be stored because of too high temperature. McCain has a strong preference for potatoes from the S.E. Bs.As. province, that is one more reason storage capacity should be expanded in this region.



(Photo 8.1: McCain French fries plant Balcarce)

A total of 70 potato producers in the region “Cuenca del Sudeste de Bs.As.”, this is Balcarce, Otamendi, Tandil, Mar del Plata and Necochea, supply potatoes to McCain. Of this group only 10 producers supply 40% of the total amount of potatoes needed. McCain contracts 2,000 ha of a total of 6,000 ha needed; the remainder of 4,000 ha is purchased at spot market. Contracts are based on standard quality field crop with a bonus system on loss and quality of max. ARP 30 /t. McCain pays ARP 340 /t (harvest 2008) and

charges ARP 40 /t for transport.

McCain owns or controls 95% of potato storage facilities: 90,000 t at the plant in Balcarce, 16,000 t in Otamendi and 8,000 t in Tandil. An other store of 8,000 t will be constructed in Tandil.

McCain considers it necessary to be able to store 40% of total potato need; this requires an other 40,000 t of capacity to be installed. As stated before, farmers are required to store 12% of their potato crop; 20% of potatoes submitted at the plant can not be stored because of lack of quality. McCain will expand its hired storage capacity by 13,200 t in 2008. McCain uses both American / Canadian and European technology for storage. The Dutch technology has a preference because of the quantity of air use, which is more than is the case with the Canadian system and therefore better for during a crop and prevent disease from spreading.

McCain considers Tandil a better place to put a new storage facility because of the average outside temperature which is lower than in Balcarce. The stores generally consist of 4 cells of 2,000 t each. Capital expenditures are around USD 200 /t for potato storages; all included.

<sup>15</sup> Agrix, January 17th, 2008

Forced cooling would cost 20% to 30% more. According to McCain, farmers do not invest in storage capacity because they think the alternative, storing on the field, is equally good. They tend to ignore the huge losses in quantity and quality. Besides, farmers don't like investing in something they don't know.

(Photo 8.2: McCain potato store Balcarce)

McCain receives potatoes up to a temperature of 19°C, if temperature is higher the product has to be cooled down in a potato store. As from April potatoes can be received for direct processing. After June 20<sup>th</sup> all potatoes have to be stored before processing.



Some years ago McCain started a large agricultural project in the South in Choele Choele near Vaille Medio. Over 25,000 ha of land was acquired to start potato production. McCain needed less dependence on private producers. But project showed to be difficult, up to now only 300 ha of potatoes are grown within the project. White fly and trips seem to be the main problem, the region is rich of vegetable plantations. Innovator shows very susceptible for trips, other varieties also don't perform well. The advantage of this production region is high content of organic material in the soil and much light because of the number of sun hours. Storage capacity at Choele Choele is 10,000 t plus 8,000 t hired from third parties. Production and harvest is 100% mechanized.

## 8.2. FARM FRITES

Another producer of deep frozen French fries in Argentina is Farm Frites that owns a French fries processing plant near Munro (Bs.As. province). Farm Frites took over the local company Alimentos Modernos in 1996. Reported sales in 2004 were USD 15 mln. In 2005 Farm Frites invested USD 10 mln in the Munro plant to increase total production of French fries from 21,000 to 40,000 t/yr. Farm Frites exports 70% of its production to Mercosur countries, mainly to Brazil. The company claims to have a 40% market share in Argentina and 20% for the Mercosur as a whole. Farm Frites supplies Burger King and supermarket chains like Leader Price, Wal-Mart, Coto, Norte, Jumbo and Carrefour.

Farm Frites intends to invest USD 3 mln in a flake production line. Farm Frites has a storage capacity of 15,000 t near Munro and intends to invest in a new store at Mar del Plata with capacity of 9,260 t divided over 6 cells.

## 8.3. PEPSICO

PepsiCo started production of potato crisps in Argentina 14 years ago under the brand name of Frit-o-Lay. PepsiCo produces potato crisps in two plants<sup>16</sup>: one near Mar del Plata and one near Buenos Aires. The total capacity of the two plants combined is 45,000 t of potatoes /yr. Crisp consumption in Argentina is around 0.4 kg /yr/capita. The product portfolio consists of 70 different products. The Bs.As. plant has a seasoning line. PepsiCo controls 75% of the Argentine market and exports to Uruguay. Lays, Bum, Pehuamar and Kellogg's are the brands sold on the Uruguayan market. Transport is the main cost concern for PepsiCo. Because of the potato shortage in 2007 PepsiCo had to import fresh potatoes for processing from Canada, this was very expensive but the company managed to gain much market share because competitors could not deliver.

<sup>16</sup> Cascardo, Guillermo, PepsiCo, Balcarce, January 17th, 2008

PepsiCo controls 5% of storage capacity in Argentina, the installed storage capacity is 20,000 t, this represents 30% to 40% of the total quantity of potatoes needed. Capacity increase from 5,000 t in 2004. All stores are rented. PepsiCo did not invest in storage. Storage is important for PepsiCo since only the potatoes in the Tandill / Balcarce region meet their requirements. Potatoes from Cordoba lack quality. Also transport costs are high: from Tucuman to Mar del Plata will cost ARP 130 /t. Potatoes can be stored until mid October, some new varieties, like FL1877, can be stored until November. Potato storage with forced cooling should be constructed to expand the production season for the two plants. PepsiCo is responsible for transport of the potatoes from farm to plant, the producer takes care of transport from land to farm. PepsiCo intends to reduce quality loss by controlling logistics. In the near future PepsiCo expects farmers to deliver potatoes just-in-time, at the moment the plants need the raw material.

Only ten farmers supply 100% of potatoes to PepsiCo. Three years ago PepsiCo produced 450 ha of potatoes, today all potatoes are bought from external producers in San Pedro, Tucuman and Mar del Plata.

PepsiCo considers building a 6,000 t storage facility, expected capital expenses are USD 200 /t. The company considers such an investment sound, also for producers since losses could be reduced and a quality bonus can be collected. The largest potato farmer in Argentina invested in a 5,000 t storage with forced cooling. A storage allows the producer to deliver potatoes as from the beginning of March, instead of April, until November, instead of September/October.

#### **8.4. LOS CINCO ESPAÑOLES**

Los Cinco Españoles is another producer of crisps in Argentina that processes around 15,000 t of potatoes and that controls 24% of the market; apart from some small home based producers.

## 9. THE ARGENTINE AND DUTCH POTATO SECTOR COMPARED

Potato is an important crop in The Netherlands. Total area potato is 157,000 ha, of which almost 40,000 ha in seed potatoes; rising by 0.7% each year since 1999. More than one third of the EU-25 seed potato area is concentrated in The Netherlands. Companies and farms in The Netherlands involved in potato production employ 24,000 people. Each year The Netherlands produce around 8 mln mt of potatoes, about half are ware potatoes, approximately 20% seed potatoes and the remaining 30% is grown for starch. Two and a half mln mt of potatoes are destined for processing and about 1 mln mt of potatoes are exported each year. Average potato yield is 51 mt/ha; average potato consumption in The Netherlands is 87 kg / capita of which 51% processed potatoes; the EU average potato consumption is 80 kg / capita.

### 9.1. THE DUTCH POTATO BALANCE

<b>Table 9.1 Potato Production (x 1,000 t)</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Starch potatoes	2,080	1,822	2,270	2,254	1,865
Fresh potatoes loamy soil	1,337	1,007	1,182	951	849
Fresh potatoes clay soil	2,610	2,232	2,623	2,261	2,228
Seed potatoes loamy soil	146	127	11	118	108
Seed potatoes clay soil	1,188	1,280	1,301	1,192	1,190
<b>Total</b>	<b>7,363</b>	<b>6,469</b>	<b>7,388</b>	<b>6,777</b>	<b>6,240</b>

Source: CBS, 2008

The Netherlands has a very well developed potato sector, this includes sub-sectors like: variety breeding, research and bio technology, seed multiplication, international trade for seed and ware potatoes and potato products, storage and handling technology, storage and handling equipment, processing technology, processing equipment and other items.

<b>Table 9.2 Potato Import (x 1,000 t)</b>	<b>01/02</b>	<b>02/03</b>	<b>03/04</b>	<b>05/06</b>	<b>06/07</b>
Fresh and processing potatoes	1,162	1,151	1,265	1,236	1,294
Early potatoes	20	22	37		
Starch potatoes	402	378	292	452	399

Source: HBAG commissie aardappelen, 2008

The Netherlands produce around 6.5 mln t of potatoes, almost half of this quantity is being processed into French fries and crisps.

<b>Table 9.3 Potato Export (x 1,000 t)</b>	<b>03/04</b>	<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>
Fresh and processing potatoes	1,008	986	889	829	529
Seed potatoes	710	661	658	679	

Source: HBAG commissie aardappelen / Pootaardappel contact commissie, 2008

Total seed potato production in The Netherlands is around 1.3 mln t of which around 650,000 t are being exported, which makes it the largest producer and exporter of seed potatoes in the world.

<b>Table 9.4 Seed Potato Export (t)</b>	<b>Harvest 2006</b>
EU	416,055
Rest of Europe	38,848
America	21,370
Asia	73,081
Africa	130,086
<b>Total</b>	<b>679,440</b>

Source: Pootaardappel Contact Commissie

The Netherlands is also a large importer of potatoes, mainly early potatoes to be packed and exported again. Also processing potatoes are imported from bordering countries.

<b>Table 9.5 Potato Balance</b>	<b>Harvest 2006</b>
Production fresh and processing	2,714
Import fresh and processing	1,294
Export fresh and processing	829
Consumption of fresh and processing NL	3,179
Production seed potatoes	1,298
Export seed potatoes	679
Use NL of seed potatoes	619
Source: Agrix / Agrivalue, 2008	

Of the total quantity of 3,200 t of potatoes that are being processed, around 2,600 t, or 83% is being transformed in to pre-fried French fries, the remainder is processed into crisps and other potato products.

<b>Table 9.6 Potato Processing</b>	<b>2006</b>	<b>2007</b>
Total potatoes processed in NL (x 1,000 t fresh)	3,114	3,235
Pre-fried (x 1,000 t product)	1,294	1,323
Other products (x 1,000 t product)	366	390
Source: Potato Info Centre, Feb 7 <sup>th</sup> 2008		

<b>Table 9.7 Potato Processing (x 1,000 t product)</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Pre-fried	1,350	1,330	1,420	1,295	1,324
Fried snacks	35	32	22		
Other products	213	224	233	356	391
Dried products	101	95	92		
Total	1,707	1,681	1,767	1,651	1,714
Source: HPA, 2008					

## 9.2. POTATO AREA AND PRODUCTION ZONES

The total potato area in The Netherlands is quite stable: around 160,000 ha. The expectations are that the area might expand due to EU policies and price development on the international commodity markets. Potato is a marginal crop in several regions of Europe, farmers in these regions might shift to other crops like corn and wheat because of a structural higher price level for these products. This might create more space in the market for specialized potato growers in the Netherlands and Germany.

<b>Table 9.8 Potato area NL (ha)</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Seed potatoes on clay soil	35,420	35,699	35,720	33,962	33,409
Fresh potatoes on clay soil	48,485	50,275	46,406	50,818	52,041
Fresh potatoes on loamy soil	21,964	22,042	19,227	18,290	20,423
Seed potatoes on loamy soil	3,855	3,594	3,516	3,171	3,320
Starch potatoes	48,794	51,211	50,688	49,585	47,980
Total	158,518	162,821	155,557	155,826	157,173
Source: CBS, 2008					

The most important production zones for fresh and processing potatoes are the South West province of Zeeland, the central polders Flevoland and the North East area of Groningen.

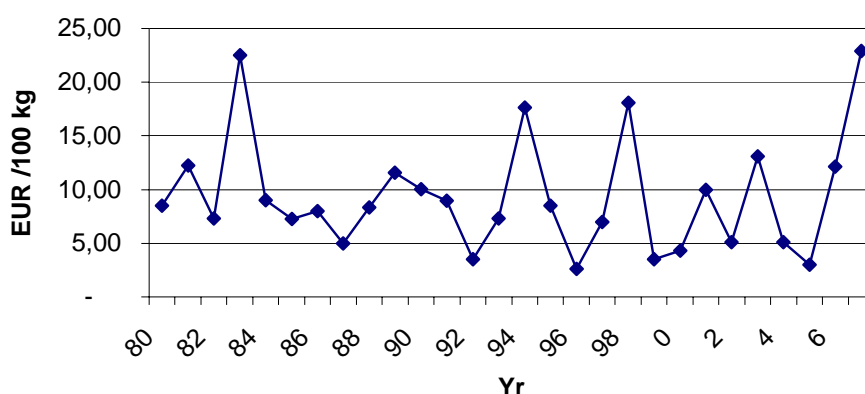
### 9.3. POTATO MARKETING AND STRUCTURE

Table 9.9 Potato price (farm gate, €/t)	Feb 11 <sup>th</sup> 2008	Nov 5 <sup>th</sup> 2007
Industry (>40 mm)	87.50	92.00
Fresh (firm texture, 40-50mm)	135.00	175.00
Fresh (fairly firm texture, 40-50mm)	155.00	180.00
Fresh (crumbly, 40-50mm)	145.00	170.00
Export (>45mm)	110.00	150.00
Feed	25.00	40.00

Source: Nederlandse Aardappelorganisaties, February 2<sup>nd</sup> 2008

From the total fresh and processing potato harvest almost 75% is sold on contract or pool price. A pool means potatoes from different producers are sold during the whole season and the producer receives an average price. Only 25% of potatoes is traded on the spot market. Salad potatoes, firm structure, usually receive the lowest price within the ware potato segment. Medium firm potatoes, that have several applications for home cooking usually receive the best price. Table 10.9 shows price level at November 2007 and February 2008: prices are very low. In March prices went down to € 50 /t.

**Graph 9.1 Potato price farmgate yr 80/07 NL**



Source: Agrix / PPO, 2008

As depicted by graph 9.1 potato price fluctuated heavily during the last 15 yrs. It seems that price fluctuations even increased after 1992; every two or three years a good year appears. Potato is a free crop in Europe, there is no subsidy on potato production. Given the consumption inflexibility of the potato price, which means consumption is steady regardless potato price, prices fluctuate heavily with weather conditions.



## 9.4. POTATO PRODUCTION COSTS

<b>Table 9.10 Potato Operating Expenses (€/ha)</b>	<b>Q</b>	<b>Unit</b>	<b>Price €/U</b>	<b>Expense €</b>
Seed potatoes	2,700	Kg	0.25	674
Fertilizer N	255	Kg N	0.55	141
Fertilizer P2O5	120	Kg P2O5	0.52	63
Fertilizer K2O	210	Kg K2O	0.31	65
Herbicide Metribuzine (70%)	1.00	Kg	69.90	70
Herbicide Diquat Dibromide (200)	4.00	L	16.48	66
Fluazinam (500)	4.00	L	62.92	252
Cymoxanil (4.5%) - Mancozeb (68%)	10.00	Kg	8.48	85
Dimethoat (400)	1.00	L	5.23	5
Deltamethrin (25)	0.60	L	37.43	22
Chloorprofam (300)	1.76	L	10.66	19
Fuel	237	L	0.35	84
Energy costs storage	59	T	2.36	138
Unloading storage	56,800	Kg	0.001	70
Calculated interest			32.97	66
Insurance	5413	€	36.32	16
Duty production board	1	ha	76.69	31
N- Mineral test	0.5	pcs		18
Nematode test	0.5	pcs		38
Total of direct operating costs				1,923
Costs per 100 kg of produce				3.38
Yield	56,800	kg	0.10	5,413

Source: Agrix / PPO, dr.ir. A. Veerman, 2008

Table 9.10 details the production cost of ware potatoes in the Central Production area of The Netherlands and is based on own mechanization: not included in the operating costs. It also excludes the rent of land (which can be estimated at € 800 /ha) or costs involved with the ownership of land and costs of labor. The calculate production cost are € 0,04 per kg. An other table, presented below, summarizes potato production costs and includes the costs for mechanization like planting, spraying and harvesting.

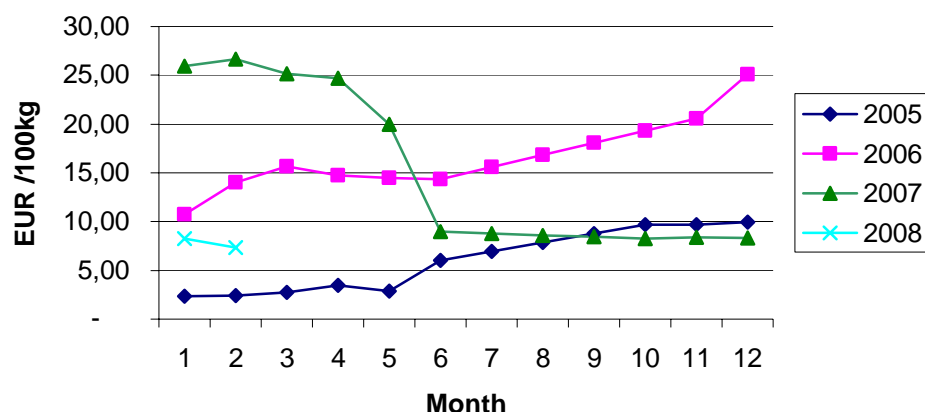
<b>Table 9.11 Potato production costs (€ per 100 kg produced, yield 50 t/ha)</b>	<b>€/100 kg produced</b>
Seed potatoes	1.23
Fertilizer	0.55
Herbicides	0.32
Insecticides and fungicides	0.78
Energy and handling costs	0.54
Other operating expenses	0.34
Planting, spraying & harvest	2.34
Total €/100 kg produced	6.10

Source: Agrix / PPO, dr.ir. A. Veerman, 2008

Production costs of ware potatoes including mechanization, labor and other costs is calculated to be € 0,06 /kg. The price of land rent would be around € 1.60 per 100kg produce, so the total of production cost including land rent is around € 0.08 /kg.

## 9.5. TIMELINES OF POTATO SALES

**Graph 9.2 Potato price farmgate 05/08 NL**



Source: Agrix / Lei 2008

Harvest 2006, which was partly sold in 2007, was a very good potato year. Harvest year 2004, partly sold in 2005, was a very bad year in which many farmers were forced to bring their potatoes back to the field and lost a lot of money. If there is a potato shortage, or over supply, this will show by the end of the year or the beginning of next year, this is when prices start going up or down by more than storage compensation. Timeliness for potato sales in The Netherlands is almost completely speculative if potatoes are sold on the spot market. This of course is not the case for 75% of potatoes that are sold on contract: price is fixed (more or less) and so is the compensation for storage costs and losses.

## 9.6. DUTCH AND ARGENTINE POTATO SECTORS COMPARED

The total output of the Dutch potato sector is about three times that of the Argentine with respectively 6.2 mln t and 1.9 mln t. The total potato area is 157,000 ha in the Netherlands and 77,600 ha in Argentina. Around 10,000 farmers in The Netherlands grow potatoes, which makes the average potato area per farmer 16 ha. Based on the group of farmers interviewed for this report, the average area of potatoes per farm is 250 ha. Average yield in NL is 51 t/ha, some obtain 90 t/ha, and 23 t/ha in Argentina, although the top-producers also obtain yields of over 50 t/ha. The quantity of potatoes processed is 3.2 mln t in The Netherlands and 450,000 t in Argentina. The Dutch consume 87 kg of potatoes, of which 51% processed, The Argentines consume 40 kg / capita of which less than 10% processed.

## 9.7. PRODUCTION PRACTICES COMPARED

Production of potatoes in The Netherlands is fully mechanized. This is due to high labor costs and it has been this way for 40 years. Dutch farmers hardly use any outside personnel, usually a farmer joins three neighbors to form a group of four that is sufficient to do the harvesting. Very often these farmers buy the harvesting and handling equipment together.

In Argentina potato planting is either by hand or by machine, the processing potatoes are harvested semi-mechanized or mechanized. The fresh market potatoes are harvested semi-mechanized. A group of 20 people picks up and selects the potatoes and puts them in bags which are directly shipped to the market. It takes 5 hours to pick up a ha of potatoes.

A cultural difference is also that Dutch potato growers grow potatoes on their own farms in a one to four or five rotation with cereals, onions, sugar beet and other crops. Argentine potato farmers generally rent the land and are specialized in one crop, although some also grow other crops on rented land (like Muñoz). Dutch farmers represent the total work force on their farms, they drive the tractor and do all the other jobs on the farm. Argentine farmers have more a management job, they drive around in a pick-up truck, check their workers, bring the food and attend meetings.

## 9.8. YIELD AND QUALITY COMPARED

Table 9.11 Potato losses (%)	The Netherlands <sup>17</sup>	Argentina <sup>18</sup>
Harvest loss mechanized	5	6
Harvest loss semi-mechanized		12
Weight loss /month potato storage	0.5	1
Quality loss potato storage	3	5
Damaged potato storage	2	2
Total loss field storage		15-25

The main difference between potato yield /ha in The Netherlands and Argentina is the spread of yield level between farmers. In The Netherlands potato yield mainly depends on weather and the quality of the soil, considering the same variety for the same purpose. There is of course a difference between farmers on technical and managerial qualifications but this is less compared to Argentina. The average yield in Argentina is 23 t/ha, but a good farmer would yield 50 t/ha under the same circumstances.

## 9.9. MARKETING AND SALES COMPARED

In Argentina only around 10% of the processing potatoes is stored, mostly on the field as processing potato farmers are usually obliged to store 12% of production for one to two months. Total installed storage capacity in Argentina is around 140,000 t, which means that only 7% of total production could be stored for a longer period of time. McCain, for example, contracts one third of the potatoes the company needs, which means two thirds are free. The percentage of fresh potatoes sold on a contract is even less, an estimated 10%. The spot market takes 90% of Argentine potatoes.

## 9.10. PRODUCTION COSTS COMPARED

Potato production costs in The Netherlands, see tables 8.10 and 8.11, are € 1,923 /ha excluding land rent, labor (by the owner / farmer) and harvesting costs or € 3,050 including labor and harvesting costs or € 3,850 including land rent as well. At a yield of 50 t/ha, this results in respectively € 0.04, € 0.06 and € 0.08 /kg. At a exchange rate of USD 1.35 /€ integral cost price of potatoes, excluding storage and transport from the farm, is USD 0.10 /kg.

Potato production costs in Argentina range between USD 3,909 and USD 4,990 /ha or USD 0.10 and USD 0.16 /kg (see tables 5.10 and 5.11). The integral cost price is calculated based on a yield of respectively 40 t/ha (Innovator) and 32 t/ha (Spunta). The average production cost would be USD 0.13 /kg. This makes Argentina 30% more expensive to produce potatoes than The Netherlands, although it all depends on the yield /ha. Calculated per ha Argentina has average production costs of USD 4,450 /ha and The Netherlands USD 5,197 /ha (at an exchange rate of 1.35) which makes Argentina 17% cheaper. A higher exchange rate makes The Netherlands even more expensive.

<sup>17</sup> Jong, Ing. J.A. de, De Teelt van Aardappelen, Drachten, 1985

<sup>18</sup> Agrix /McCain, 2008

### 9.11. SALES TIMELINESS COMPARED

In general Argentine potato prices do not fluctuate heavily. The only prices published are the prices paid at the Mercado Central de Bs.As (see graph 6.1). This market is being supplied by several potato regions which produce fresh potatoes, mainly of variety Spunta, all year round. If bad weather conditions occur in the region that at that time of the year should supply the market, prices can increase substantial as happened in September October of the year 2007. At that time Córdoba, Bs.As. and V. Dolores are the main supplying regions. Since no fresh potatoes are stored, and therefore no buffer exists, prices tripled within a month. Processing potatoes are contracted and prices are not public. The price difference between time of harvest (April/May in the Bs.As. region) and latest time of delivery (8 months later) is about USD 10 /t/month.

Storage costs in Argentina and The Netherlands are comparable.

## 9.12. DOMINATING PRODUCTION SYSTEMS IN ARGENTINA

Two potato production systems are dominant in the Bs.As. region, as described in the chapters before.

### 1) Production of processing potatoes.

Characteristics of production processing potatoes
<ul style="list-style-type: none"><li>- Contracted by McCain or PepsiCo</li><li>- Mainly based in South East Bs.As. province</li><li>- Large scale, rented land</li><li>- Relative high rate of mechanization, both in production and handling</li><li>- Relative high production levels</li><li>- Insufficient storage facilities available</li><li>- Some storage on field with high losses</li><li>- Strong pressure by industry to store in modern stores</li><li>- Quality losses considerable</li></ul>

### 2) Production of fresh potatoes

Characteristics of production fresh potatoes
<ul style="list-style-type: none"><li>- Potatoes sold on spot market, mainly through intermediates</li><li>- Production regions spread over the country, year round production</li><li>- Smaller scale, some rented land</li><li>- Relative low rate of mechanization</li><li>- Relative low production levels</li><li>- Some short time storage on field</li><li>- Relative high harvest and post harvest losses</li></ul>

Production system 1, production and handling of processing potatoes, should be improved by introducing storage facilities.

Production system 2 can be improved by introducing better wind-row harvesters, mechanical pick up or combi equipment to clean and grade potatoes at the field.

As concluded in the chapters before, storing potatoes in Argentina makes sense in the case of processing potatoes in the region South West province Bs.As., because that is where the processing industry is located which requires farmers to store their produce. Also for seed potatoes, to break dormancy, and to keep in good condition for the next production cycle, storage is needed.

Storing potatoes is strongly promoted by the large processors in Bs.As. province. McCain, PepsiCo, Farm Frites and some others prefer potatoes from this region because of the processing quality. The processors urge farmers to invest in storage facilities in which case the processor doesn't need to ship potatoes from other regions of less quality. Storing potatoes introduces new aspects to potato production, storing can improve but also jeopardize the quality of a potato crop.

Storage also includes the handling needed to transport the potatoes from the field, pre-clean the potatoes and to put the into the potato store.

## 10. IMPORT REGULATIONS

Argentina is an open market with few import restrictions. Argentina's liberal trade regime, which began with reforms in 1989, has resulted in the lowering of tariff rates, the removal of specific duties, the elimination of a complicated structure of non-tariff barriers, and the simplification of document requirements.

### 10.1. CUSTOMS BROKERS

Imports can only be cleared through Customs by registered importers. Importers must use the services of a licensed customs broker to carry out the documentation and filing procedures.

### 10.2. TARIFFS

Argentina uses the Harmonized Commodity Description and Coding Systems to classify goods and assign tariffs. Tariffs are applied to CIF (cost, insurance, and freight) value of imports.

Basic tariff rates are :

- zero tariff on goods that are not produced locally, on newsprint and on certain petroleum products; 2.5-10% on raw materials, on intermediate industrial materials and on primary products;
- 10% on informatics and telecommunications goods and on capital goods;
- 15-20% on consumer durable and non-durable goods;
- 30% on finished automobiles.

A customs broker should be consulted for exceptions to these basic tariff rates.

Additional taxes are applied to some import sectors, for example:

- 0.50% statistical tax on the CIF value, except for capital goods, informatics, and telecommunications products;
- 21% value-added tax (VAT) on the CIF value plus tariff and statistical tax (note: VAT is applied to all products whether imported or produced in Argentina)
- 10% advanced VAT on CIF plus tariff and statistical tax on all imports (deductible from gross income tax); the advanced VAT is to be paid only if goods are to be sold on the local market;
- 3% anticipated profit tax on all consumer goods, provided that they are sold on the local market;
- excise taxes may also be levied on the following products: cigarettes (66%); whiskey (50%); other hard liquor (30%); beer (4%); soft drinks (24%); tires (27%); lubricants (23-25%); and electronic products (10-24%).

Drawbacks are available if the imported goods are used as an input and are substantially transformed in producing goods that will be re-exported. Tariffs, the 0.50% statistical tax and the 21% VAT are then rebated.

Prepared by a customs broker, the proof of paid taxes along with the Unitary Certificate must be provided before Customs releases any good.

### 10.3. IMPORT LICENSES

Licenses are no longer required except for imports of automobiles and special vehicles (ambulances, motor fire engines, etc.).

Basic Documentation Requirements:



- a. Commercial invoice (containing a sworn declaration)
- b. Bill of Lading
- c. Packing list

For items subject to health, security, environmental and other controls, the exporter should include licensing (prior authorization), sanitary or phytosanitary inspection, preshipment inspection or free-sale certificate<sup>19</sup>.

#### 10.4. CERTIFICATE OF ORIGIN

A certificate of origin may be required for imports that benefit from preferential tariff treatment or that are subject to antidumping or countervailing duties or safeguards (textiles, footwear, clothing).

Such a certificate may also be required for statistical purposes.

The certificate of origin should be presented in four copies (an original and three copies), together with other requisite documents. It should contain:

- Manufacturer or exporter (name, address, country, telephone number, fax number);
- Description (name) of the goods for which origin is certified;
- Port or place of shipment;
- Transport (vessel, air cargo, etc.);
- Quantity and measurement units;
- Importer in the Argentine Republic;
- Certifying entity (name, address, country, telephone number, fax number); in the case of a public entity, name of the principal public entity it belongs to; in the case of a private entity, date of authorization to extend certificates of origin and name of the authorizing public entity;
- Signature, clarification of signature and seal (stamp) of the certifying person;
- Place and date of issuance and date of the corresponding certification.

The certificate of origin will be legalized by the Argentine Consulate in the country of origin of the goods. The certificate of origin will have SIX (6) months validity from certification date. It should be issued either in Spanish or English.

Certificates issued by manufacturers or exporters will not be accepted.

#### 10.5. PRE-SHIPMENT INSPECTION

As of April 1999, automobiles with an FOB value higher than USD 800 and consumer products must pass a "pre-shipment inspection." All affected items are published in a special list, which can be obtained from any customs broker.

The National Executive Power has qualified six companies to carry out these inspections: SGS, BIVAC, Intertek Testing Services, Inspectorate PLC, Socotec International Inspection S.A., UTE C.U. Holding (CUH) BU and Surveyseed Services S.A..

The importer is free to choose any of them to inspect the goods in the country of origin<sup>20</sup>.

The importer should:

complete a Pre-shipment inspection form (SIP) to be presented at least 15 days before the inspection. The verification of price, quantity, quality, nomenclature number and seals on containers is the minimum requirement<sup>21</sup>.

Validate the Letters of Credit once the inspection company issues an "Agreement Advice".

Check with SGS, EAD Administrative office in the country of inspection of the goods, prior to shipment of the goods, for further information or clarification.

<sup>19</sup> All certificates issued abroad must be authenticated or legalized by the Argentine Consulate.

<sup>20</sup> The pre-shipment inspection does not replace the inspection normally carried out by Customs

<sup>21</sup> The inspection of goods that are to be delivered in a free-trade zone can be done either in their port of origin or upon their arrival

The inspection company will also advise its local counterpart to issue the "Inspection Certificate" that will be used by the importer to clear the goods. Inspection companies normally carry out the inspection within 5 to 7 days. The cost of this inspection is covered by Customs. Nevertheless, exporters may be invoiced in the event of abortive inspection visits.

Sealing merchandise at the port of departure: in cases where merchandise is not shipped in containers or is not sealable, inspection companies will still be required to identify the merchandise.

#### **10.6. PERMITS**

Certain controlled items such as explosives, arms and ammunition, as well as some chemical and food products require an import permit.

#### **10.7. QUOTAS**

Permanent quotas exist on automobiles, while temporary quotas exist on pulp, paper, and few other items. The government uses temporary quotas to protect certain industries or sectors for a pre-determined period of time.

#### **10.8. SALES SAMPLES**

Sales samples can be brought into Argentina free of duty if they have no commercial value. Otherwise, temporary admission must be requested prior to entering the country. A bond may be required in the amount of the duty in which case, it will be refunded when samples are taken back out of Argentina.

Mailing samples: Samples should be mailed through air parcel post and should weigh less than 20 kilos. They should fit in a box not larger than 0.40 m x 0.60 m x 0.15 m. Samples are considered such, when it is only one unit and its value is not higher than USD 100. The box should not be stuffed with paper and the Customs declaration should read: "Muestra a efectos de promoción. Valor: USD 100". They should be mailed directly to the interested recipient parties (person to person). If a sample is agro/food, pharmaceutical related or an internal prosthetic, a phytosanitary / health certificate is required. This is a long procedure, for which timing should be considered.

The regulations regarding samples are now strictly enforced and samples with a value in excess of the USD100 dollar value risk being destroyed. If a sample requires prior intervention or authorization, it is recommended that one receive a note from the appropriate authoritative before sending<sup>22</sup>.

#### **10.9. SANITARY CERTIFICATES**

These certificates are required for many food-related goods such as livestock, plants and plant products, grains, seeds, and salted and dried fish.

#### **10.10. LABELING**

All imported products must have a label indicating contents, measurement, and country of origin. Special rules affect certain products. The importer should be consulted for specific instructions.

#### **10.11. PACKING LISTS**

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<sup>22</sup> The Embassy does not receive or clear any packages either from Customs or directly delivered to its premises.

Imported merchandise must be accompanied by a packing list in Spanish.

#### **10.12. RESTRICTIONS**

There are no import restrictions except for certain used capital goods and equipment. However, prior government approval is required for the following goods: cottonseed and seed potatoes, fresh fruit and vegetables, dried or preserved fruit and nuts, barreled apples, live poultry, dressed fowls and eggs, salted and dried fish, insecticides and veterinary products, foodstuffs and pharmaceuticals, explosives arms, and ammunition, plants and plant materials, tobacco, and artificial sweeteners.

#### **10.13. COMMERCIAL INVOICES**

An original plus 3 copies are required, all signed manually by an authorized member of the firm. The invoice must be in Spanish and should include the following information: name and address of exporter, consignee, and agent; port or place from which the merchandise was exported; mode of transportation; date of departure; carrier's flag; port or place of entry in Argentina; origin of goods; full description of packages and merchandise (including composition, quantity and metric weight); unit price; and costs of freight and insurance (in the case of CIF).

#### **10.14. BILL OF LADING**

The bill of lading must be issued in two negotiable copies: one required for the dispatch of goods, and the other for the payment of shipping company charges. The bill of lading should include the following information: name of ship and its captain; port of registry; port of loading and unloading; name of shipper, consignee (unless "to bearer" or "to order"); specific description of merchandise; place, method and date of payment; and manual signature of captain and shipper.

According to regulations, an Argentine bank is considered owner of imported merchandise if the bill of lading is made out to it. To avoid problems, the bill of lading should be made out "to order".

#### **10.15. PAYMENTS**

Letters of credit are the usual method of payment, although other forms of payment may be negotiated.

#### **10.16. PORTS OF ENTRY**

Buenos Aires is the main port of entry and the hub of all transportation networks. Inland transport, via roads and rail, to the final destination is most easily arranged from Buenos Aires. Other ports of entry are Quequén, Rosario, Bahía Blanca, La Plata, and Comodoro Rivadavia. Ezeiza Airport is the international airport with others being: Jorge Newbery (Aeroparque), Buenos Aires' domestic airport; Córdoba; El Plumerillo; Jujuy; Resistencia; Río Gallegos; San Carlos de Bariloche; Corrientes; and Salta.

#### **10.17. FREE TRADE ZONES**

Tierra del Fuego has a special customs area that allows duty free imports of capital goods and of goods that would be assembled in local plants for eventual sale in Argentina. Duties are levied when the goods leave this zone and enter into the provinces. At present, there is another zone, La Plata, in the province of Buenos Aires, where goods are imported without paying duties for 5 years. When goods are retired, duties are levied for the quantity retired. It is not mandatory to retire the whole shipment.

## 11. SALES AND DISTRIBUTION

Channel selection should be based on the nature of the product and the company's knowledge of the Argentine market. Generally, firms new to this market find it more effective to sell through a distributor.

Argentine distribution channels have gained more efficiency through concentration and streamlining during the past decade, in view of the increased competition and changes in the consumer buying process that require goods to be delivered at lower prices and in a timely manner. However, changes in the macroeconomic and social environment are forcing these channels to become extremely flexible and to adapt to a changing and uncertain market situation.

Large firms generally buy directly from overseas suppliers, with smaller firms preferring to buy through intermediaries. Industrial equipment is sold by sales agents or through trade fairs, while consumer goods are increasingly sold through large outlets such as supermarkets.

### 11.1. USE OF AGENTS AND DISTRIBUTORS

Dutch companies typically market their products through an Argentine agent/representative or a distributor.

Distributors purchase goods directly from the manufacturer with the aim of reselling them. Consequently, they assume the risk of sales to third parties. Unlike distributors, an agent or representative (equivalent to the Dutch sales agent) acts on behalf of its principal and promotes the principal's business without actually taking title. Agents typically earn a commission or fee on sales. In contrast, distributors earn their margins on the difference between the price at which they purchase the goods for resale and the price at which they sell these goods in the market.

Working with a distributor has several advantages. Distributors can provide strategic support for positioning your brand in the market through advertising and promotion; they understand the local culture and can assist with after-sales service. This value-added service is increasingly important for customers and contributes to a positive image of the Dutch firm doing business abroad. Some importers and distributors complain that Dutch companies are sometimes inflexible on financing options for imports and providing promotion support in the local market.

When deciding the optimal form of representation to use, Dutch companies should consider their control over price, channel distribution network, policy, operational expenses, after-sales service, and potential liability under Argentine labor law.

Variables Form of Representation	Price Control	Channel	Policy	Operational Expenses	After-sales Service
Representative	Yes	Yes	Short Term	No	No/Yes
Distributor	No	Yes	S/M Term	No	No/Yes
Branch/Subsidiary	Yes	Yes	Long Term	Yes	Yes

Table 11.1: Channel selection

The Civil and Commercial Codes govern principal-agent relations. No special legislation has been enacted to regulate the cancellation of agency/distribution agreements, although cancellation of an agency agreement does imply costs under Argentine labor law.

The contract entered with agents/distributors should specify rights and responsibilities, the exclusive or non-exclusive nature of the relationship, geographical scope, description of the product or services included, and compensation.

Contracts do not require a specific format and can be executed verbally. However, given the complexity of the legal and commercial relations, contracts are generally given in writing through the exchange of reversal letters or through a basic instrument.

If the distributor is granted exclusive representation in an area, this right must be explicitly noted. Areas may be assigned according to geography, sectors of activity (public or private sectors), transaction volumes (large companies, retailers, etc.), and transaction modes (cash segment, home sale, etc.)

When the representative is an individual, the agency may be regulated by Law 11,544 of 1929, as amended. In particular, Law 14,546 of 1958 extends Labor Law benefits to business agents. In this case, the agent becomes an employee when any of the following requirements is fulfilled:

- When he/she sells in the name of his/her employer
- When he/she sells at the prices and sales conditions established by the ones he/she represents (terms of sale defined by principal)
- When he/she receives a salary, travel allowances, fees, or any other kind of compensation
- When he/she usually and personally carries out his/her activity as a traveling salesperson
- When he/she renders his/her services within a determined geographic area
- When the risk of his/her operations is levied on the employer.

The parties may not elect foreign laws to govern the agreement. If a contract is executed abroad to avoid Argentine law, Argentine courts will not enforce it.

The Civil and Commercial Codes permit a principal to cancel an agency agreement at his or her discretion. However, the terminating party may be liable for damages resulting from a wrongful cancellation. All agreements, whether for a definite or indefinite term, should include a notice of cancellation clause.

Labor laws similarly require the service of a cancellation notice sometime before the actual cancellation date; otherwise, the principal may be liable to the employee for earnings that would have accrued during the notification period. In all cancellation cases, except those based on a just cause, the agent is entitled to one month's compensation for each year of service, payable in a lump sum.

In addition, when a contract is terminated after one year, the agent or the distributor is entitled to compensation for the lost customers, which will amount to 25 percent of the amount corresponding to a wrongful dismissal.

Distributors of Dutch exporters may have experienced problems in transferring funds for imports, particularly during the first months of 2002. However, financial transactions have gradually returned to normal, allowing advance import payments and transfer of foreign exchange.

Many Dutch companies that have been successful exporting to Argentina during the difficult economic crisis have done well because they took the time to develop a close relationship with a representative, agent, distributor, or other business partner. Relationships are key. Dutch companies should look at the long term picture and keep in mind that current difficulties should be viewed in the context of circumstances beyond a partner's control.

## 11.2. THE RETAIL NETWORK

There are two types of traditional sales channels in Argentina. One is through large-scale retailers with a defined but limited share of the market. The other is through the many specialized retailers that seek to protect their niches.

The food retail market is loosely separated into three categories: traditional "mom and pop" stores scattered throughout local neighborhoods, self-service mini markets and drugstores, and the supermarkets and hypermarkets.

The retailing market is dominated mainly by supermarkets and hypermarkets (i.e. very large stores that carry products found in a supermarket as well as merchandise commonly found in a department store). The recent emergence of discount stores, characterized by smaller retail space, a limited product selection and very low prices has gained popularity since 1999 in part due to the economic recession.

Consumers prefer hypermarkets and supermarkets for practicality and convenience, particularly for monthly or weekly purchases, since hypermarkets provide a selection of between 50,000 to 100,000 items under one roof and supermarkets between 5000 and 15,000 items. In an effort to become more competitive, these stores are providing additional services such as film developing, dry-cleaning, and an array of new products such as toys, apparel, school supplies, and holiday decorations.



## 12. FINANCING SOURCES

As of July 2006, out of a total of 71 banks operating in the country, there were 13 public banks: three are national (Banco Nación, Banco de Inversión y Comercio Exterior y Nuevo Banco Bisel), eight are provincial (Córdoba, Corrientes, La Pampa, Neuquén, Buenos Aires, Chubut, Tierra del Fuego and Chaco) and two are municipal (Buenos Aires and Rosario). Public banks have a major stake of the financial system in a number of countries, and Argentina is no exception. According to official data, public banks agglutinated a third of total deposits in 1997 and increased their share to 45% in 2005, with somewhat lower participations in total assets and loans.

### 12.1. BANKS

Three national public banks display a preponderant weight: Banco de la Nación Argentina (Banco Nación), Banco de la Provincia de Buenos Aires (Banco Provincia) and Banco de la Ciudad de Buenos Aires (Banco Ciudad), which belong to the respective government jurisdictions. Banco Nación has historically led the statistics as the biggest bank in the country, Banco Provincia is the second one by volume of deposits, and Banco Ciudad has recently made to the top 10.

#### 12.1.1. *Lineas con bonificacion tasa de la SSPyMEyDR*

A group of 12 banks has joined to set up a fund for regional development, for each region ARP 1.2 million is available at a fixed rate for 24 or 60 months. The total outstanding amount at this moment is ARP 30 mln between the banks: BICE, Rio de la Plata, Macro Bansud, Creedicoop Cooperativa Limitada, Galicia, Nación Argentina and Bank Boston. Each of these banks can be contacted for funding.

#### 12.1.2. *Garantizar*

Garantizar is an Argentine institution that supplies security to obtain loans for small and medium sized Argentine companies. Garantizar cooperates intensively with Banco de la Ciudad. Processing time is +/- 45 days. Garantizar guarantees for a maximum term of 10 years and a maximum amount of ARP 1,250,000. In the loan letters must be explicitly stated to which investment items the guarantee refers. Also a special agricultural credit facility can be guaranteed for which ARP 45 million is available. Conditions are soft: interest rate around Libor + 3%, max guarantee ARP 300,000 per farm. In the case of a storage facility it might be interesting to have several producers participate and each one apply for a loan.

#### 12.1.3. *Banco de Inversion y Comercio Exterior (BICE)*

BICE (Banco de Inversión y Comercio Exterior) is a second-floor bank created in 1991 with the mission of financing productive investments and international trade transactions. It is not allowed to receive deposits from the public. Its shareholders are Banco Nación (98%) and Ministry of Economy (2%). As of December 2005, its private sector portfolio amounts to \$237.7 million.

#### 12.1.4. *Banco de la Nacion*

Banco de la Nación Argentina is a state-owned bank in Argentina, and the largest in the country's banking sector. It employs about 16,000 people in Argentina and more than 200 abroad.

The bank ranks 278th in the world in terms of tier one capital (US\$ 1,623 millions) and 912th in terms of Return on Assets (0.12%), according to The Banker 2006 global survey of top 1000 world banks, a Financial Times publication..

The bank provides industrial, agricultural, and export loans with a traditional emphasis on small- and medium- businesses.

Banco de la Nacion requires a business plan that details the investments and also provides a series of best/worst case scenarios. According to Banco La Nacion there is hardly any external finance present in the sector. Banks require high guarantees, often more than 150%. Therefore large scale farms tend to grow autonomous.

#### *12.1.5. Cadena de Valor*

Special financing instruments exist for “value chains”. A business plan that includes two parties: producer and processing / handling company, has to be presented to an SGR (Sociedades de Garantías Recíprocas) to obtain approval. Based on this BICE will supply a credit.

#### *12.1.6. Banco Provincia*

Funding up to ARP 1 mln, 75% of total investment can be financed, interest rates for 1, 2, 3 or 4 years are respectively 5%, 6.5%, 7.5% or 8%. Additional guarantee can be obtained through the Fondo de Garantías Buenos Aires (FO.GA.BA).

#### *12.1.7. MYPES II*

MYPES II or Programa Global de Créditos already has USD 200 mln invested in export finance, equity and working capital. BID submitted USD 100 mln to the fund. Companies eligible have a turnover of max USD 3.5 mln. Working capital can be financed up to 12 months and equity up to 7 years with a 3 year grace period. Interest rates will be between 7% and 12%

### **12.2. GOVERNMENTAL FINANCING INSTRUMENTS**

National and provincial governments have in place specific subsidy programs aimed to help SME's raise finance. At the national level, the main initiative is the Régimen de Bonificación de Tasas de Interés, whereby the government auctions among commercial banks a subsidy of up to 8 percentage points on loans to the private sector -the banks offering the lowest loan interest rates receive higher quotas. About 160,000 loans for a total USD1,100 mln (about USD 360 mln) have been granted under this regime since August 2003.

In the case of Banco Nación, the subsidy is administered by FOMICRO (Fondo Nacional para la creación y consolidación de Microemprendimientos). FOMICRO was created by Banco Nación in 2004, and works as a second-floor program by delegating the actual operation on almost 400 ONGs, which retain 5% of the loans to cover their expenses conditional on full repayment by the ultimate borrower.

FONAPYME (Fondo Nacional de Desarrollo para la MIPyME) is also run by Banco Nación, with the mission of providing credit to SMEs. The interest rate is variable and equal to half the average rate charged by the bank on its normal loans. Since 2004, 350 projects were financed for ARP 34.8 mln.

FONCAP (Fondo de Capital Social) is a corporation in the orbit of the Ministry of Social Development (with the government holding 49% of capital but with control over the Board,

and 51% integrated by Acción Internacional and Fundación Emprender). Like FOMICRO, its goal is to manage public funds that are allocated through microfinance institutions.

FOGAPYME (Fondo de Garantías Pyme) is a reinsurance ARP100 mln fund for private and public guarantee programs, and is entitled to provide direct insurance to firms in regions not covered by such kind of schemes. To date, it has carried out no operations.

Fuerza Pyme is a program launched in 2004 by Banco Provincia which, through a subsidy from the provincial Ministry of Production, lends to SMEs at a annual interest rate of 7%. Loans for ARP 450 mln were granted so far to 6,000 SMEs. FOGABA (Fondo de Garantías Buenos Aires), created in 1995, is a corporation with provincial majority (but with private shareholders), which extends loan guarantees for firms whose assets are not directly acceptable by the bank as collateral -however the firm must pledge some form of collateral to FOGABA.

BICE (Banco de Inversión y Comercio Exterior) is a second-floor bank created in 1991 with the mission of financing productive investments and international trade transactions. It is not allowed to receive deposits from the public. Its shareholders are Banco Nación (98%) and Ministry of Economy (2%). As of December 2005, its private sector portfolio amounts to ARP 237.7 mln.

#### *12.2.1. PROSAP*

PROSAP<sup>23</sup> (Promoción de Innovaciones en Encadenamientos Productivos), executed by the Secretaria de Agricultura. This fund started in 2006 with an amount of ARP 15 mln. The program is open to producers with projects that make Argentine production more competitive. The max loan amount is ARP 150,000 per company.

#### *12.2.2. PRE*

PRE (Programma de apoyo a la Reconversión Empresarial) is executed by the Subsecretaria de la Pequeña y Mediana Empresa and funded by BID (Banco Interamericano de Desarrollo). The objective of the program is to make support available to small and medium sized companies.

#### *12.2.3. Programa de Apoyo a la primera exportación<sup>24</sup>*

Makes available technical assistance through the Universidad Argentina de la Empresa (UADE). Focus is to help companies set up new businesses dedicated to export

#### *12.2.4. Promoción de Inversiones en Bienes de Capital y Obras de Infraestructura<sup>25</sup>*

This instrument contains a package of tax incentives and fiscal regulations to promote investments by private companies.

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<sup>23</sup> [www.prosap.gov.ar/anr](http://www.prosap.gov.ar/anr)

<sup>24</sup> [primexpo@sepyme.gov.ar](mailto:primexpo@sepyme.gov.ar)

<sup>25</sup> [www.industria.gov.ar/lpi/](http://www.industria.gov.ar/lpi/)

## 12.3. NON BANK FINANCE

### 12.3.1. FOMICRO

FOMICRO<sup>26</sup> is the Fondo Nacional para la creacion y consolidacion de microemprendimientos. The maximum funding is ARP 150,000.

### 12.3.2. FONTAR

FONTAR, Créditos a Empresas is managed by Credicoop, max funding is ARP 1 mln and up to 80% of the total project costs. The applicant has to demonstrate that the IRR of the project is at least 12%. Guarantees of 150% have to be placed to be eligible for funding.

## 12.4. OTHER FINANCIAL INSTITUTIONS

### 12.4.1. Rabobank International / Rabobank Nederland

Rabobank focuses on the food, beverage and agribusiness sectors offering specialized products and services from 102 offices in 26 different countries and is involved in finance of primary production and commodity trading.

Rabobank International in Buenos Aires offers:

- 1) Trade Finance: Trade-related loans, guarantees, and L/C's, Export finance, Pre-export finance, Post-export finance
- 2) Corporate Finance: Strategic planning, Project finance, Syndications, Mergers and Acquisitions (M&A), Corporate advisory services, Financial engineering, Off-balance sheet finance

### 12.4.2. Inter-American Development Bank (IADB)

The Inter-American Development Bank, the oldest and largest regional bank in the world, is the main source of multilateral financing for economic, social and institutional development in Latin America and the Caribbean. Its loans and grants help finance development projects and support strategies to reduce poverty, expand growth, increase trade and investment, promote regional integration, and foster private sector development and modernization of the State.

The IDB Group is composed of the IDB, the Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF). The IIC focuses on support for small and medium-sized businesses, while the MIF promotes private sector growth through grants and investments.

By the end of 2007, the Bank had approved over \$156 billion in loans and guarantees to finance projects with investments totaling \$353 billion, as well as \$2.4 billion in grants and contingent-recovery technical cooperation financing..

### 12.4.3. The Netherlands Development Finance Company (FMO)

The Netherlands Development Finance Company (FMO) is the international development bank of the Netherlands. FMO invests risk capital in companies and financial institutions in

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<sup>26</sup> [www.bna.com.ar](http://www.bna.com.ar)

developing countries. FMO's investment portfolio is EUR 2.7 bln and FMO is one of the largest bilateral development banks worldwide.

FMO provides financing for private companies and financial institutions in some 40 developing countries and emerging markets. Of FMO's investment portfolio 29 per cent is invested in Latin America. FMO invests in the private sector in spite of uncertainties caused by the political situation in several Latin-American countries. FMO stimulates other (developing-) banks to continue investing in the private sector to develop this sector further.

Thanks in part to its relationship with the Dutch government, FMO is able to take risks which commercial financiers are not - or not yet - prepared to take. FMO's mission: to create flourishing enterprises, which can serve as engines of sustainable growth in their countries.

#### *12.4.4. International Finance Corporation (IFC)*

The International Finance Corporation is a subsidiary of World Bank Group.

Financial Products: Equity, Loans, Capital Mobilization, Guarantees, Co-financing  
Priority Sectors: Financial Services, Infrastructure, IT, Agriculture

IFC risks its own capital by buying shares in project companies, other project entities, financial institutions, and portfolio or private equity funds. IFC generally subscribes to between 5 and 20 percent of a project's equity. They will not normally hold more than a 35 percent stake or be the largest shareholder in a project. IFC is a long-term investor in their projects. When it comes time to sell, IFC prefers to exit by selling shares either in a trade sale or, if liquidity permits, in a capital market following a public offering.

With quasi-equity instruments IFC invests through products that have both debt and equity characteristics. Some instruments, like subordinated loans and convertible debt, impose fixed-repayment schedules. Others, such as preferred stock and income notes, do not require such rigid repayment arrangements.

IFC finances projects and companies through its A-loans, which are for IFC's own account. IFC cannot accept government guarantees. Maturities of A-loans generally range between 7 and 12 years at origination, but some loans have been extended to as long as 20 years. While most IFC loans are provided in major currencies, they are expanding their capacity to offer local currency loans.

IFC carries out comprehensive due diligence before investing in any project. Because of IFC's extensive lending experience in developing countries, they are uniquely qualified to evaluate the risks associated with projects. IFC is willing to extend loans that are repaid only from the cash flow of the project, with only limited recourse or without recourse to the sponsors. IFC also makes loans to intermediary banks, leasing companies, and other financial institutions through credit lines that result in further on-lending. These credit lines are often targeted to small businesses.

### **12.5. LEASING**

Leasing of equipment is also an option for many companies. Leasing companies in Argentina are: Provincia Leasing S.A., Banco Galicia Leasing, Nación Leasing S.A., Banco Credicoop, Nuevo Banco de Santa Fe Leasing, HSBC, Banco Macro-Bansud, Banco Suquia, Banco Bice.

## 12.6. EXPORT CREDIT INSURANCE

Atradius, the Dutch export insurance institution, hardly deploys any activities on Argentina. It is only the political risk that can be insured. An invariable security requirement, irrevocable L/C effective from beginning risk Atradius is required .

Euler-Hermes, the German export insurance company qualifies Argentina with one but lowest ranking rate C. The bank states: “a deep structural weaknesses and/or strong policy measures required and/or external liquidity risk is high, serious weaknesses in business environment and/or serious weaknesses in political framework with higher risk of political instability and little capacity to respond to economic crisis”.

## 12.7. SUPPORT FOR GETTING FINANCE

### 12.7.1. *Agrix Trade & Consultancy*

Agrix Trade & Consultancy, established in Deventer the Netherlands, is a company that has its roots in the former Cebeco Group. Agrix is active in trade and consultancy related to agrifood. The company performs feasibility studies, sector studies, international business development, partner search and company assessment. Agrix generally supports management of agrifood companies in the process of setting up a new company abroad. Agrix maintains an extensive network of contacts with firms, institutions and research stations involved in agriculture, both national and international.

Agrix has been involved in potato production for decades. Mr. Graumans, managing director, used to work in the Dutch potato sector for many years: introducing Dutch seed potatoes and technology in Latin America through NIVAP. He also worked with Cebeco International Projects and sold large integrated potato projects in Russia and Latin America.

Theo van Doesburgstraat 6  
7425 EP Deventer  
The Netherlands  
Tel: +31 570 853414  
Fax: +31 84 7171076  
Mail: [info@agrix.eu](mailto:info@agrix.eu)  
For further information consult website: [www.agrix.eu](http://www.agrix.eu)

### 12.7.2. *Agrivalue SA*

Agrivalue is an internationally operating business consulting firm specialized in agri-food issues. The founders of Agrivalue have been dedicated to the development of international business for more than 10 years, covering the entire chain from primary production to further processing and distribution.

The company's purpose is the assessment of agri-food companies that want to set up a new branch abroad in Latin America or in Europe, either through greenfield operations or through merger or acquisition.

Located in Buenos Aires Argentina, Agrivalue has strong ties to the European Union in general and the Netherlands in particular.

Agrivalue has been involved in Dutch-Argentine business development projects, amongst others, related to integrated pig production, plant biotechnology and dairy commodity trading. For further information please visit: [www.agrivalue.biz](http://www.agrivalue.biz)

Agrivalue SA  
V ctor Mart nez 228 4  “C”  
(1406) Capital Federal  
Argentina



### 13. ANNEX 1 DETAILED OVERVIEW POTATO PRODUCTION ZONES

#### - Early crop (EC)

<b>EARLY POTATOES</b> <b>Harvest 05/06</b> <b>Province</b>	<b>Planted</b> <b>Area (ha)</b>	<b>Harvested</b> <b>Area (ha)</b>	<b>Yield</b> <b>(t/ha)</b>	<b>Production</b> <b>(t)</b>
Chicligasta	4.900	4.900	24	117.600
Juan B. Alberdi	390	390	28,8	11.232
La Cocha	450	200	28,8	12.960
Río Chico	2.700	2.700	24	64.800
Tucumán	8.840	8.190	25,2	206.592
<b>Total Argentina</b> (Planting in June /July) (Source: INAS, Argenpapa)	<b>8.840</b>	<b>8.190</b>	<b>25,2</b>	<b>206.592</b>

- Medium early crop (ME)

MEDIUM EARLY POTATOES Harvest 05/06	Planted Area (ha)	Harvested Area (ha)	Yield (t/ha)	Production (t)
<b>Province</b>				
25 de Mayo	250	250	45	11.250
Baradero	60	60	48	2.880
General Belgrano	1.210	1.210	46	55.660
Monte	330	330	43	14.190
Saladillo	460	460	44	20.240
San Nicolás	95	95	50	4.750
San Pedro	110	110	51	5.610
Buenos Aires	2.515	2.515	45,6	114.580
Ambato	110	110	20	2.200
Andalgalá	1664	1664	20	33.280
Antofagasta de la Sierra	6	6	18	108
Belén	65	65	20	1.300
Capayán	1	1	18	18
La Paz	2	2	18	36
Paclín	9	9	20	180
Pomán	2	2	18	36
Santa María	70	70	20	1.400
Santa Rosa	380	380	20	7.600
Catamarca	2309	2309	20	46.158
Calamuchita	55	55	22	1.210
Capital	1.300	1.300	17,5	22.750
Colón	2.700	2.700	19	51.300
Río Cuarto	12	12	22	264
Río Primero	450	450	22,5	10.125
San Alberto	3.000	3.000	22	66.000
San Javier	6.000	6.000	22	132.000
Santa María	2.000	2.000	22,5	45.000
Totoral	450	450	20	9.000
Córdoba	15.967	15.967	21,1	337.649
Cochinoca	4	4	18	72
Dr. M. Belgrano	2	2	20	40
El Carmen	45	45	20	900
Humahuaca	60	60	10	600
Ledesma	2	2	20	40
Palpalá	15	15	20	300
Rinconada	2	2	20	40
San Antonio	4	4	18	72
San Pedro	60	60	20	1.200
Santa Bárbara	20	20	18	360
Tilcara	55	55	15	825
Tumbaya	15	15	20	300
Valle Grande	35	35	15	525
Yavi	6	6	18	108
Jujuy	325	325	16,6	5.382
Guaymallén	10	10	30	300
Lavalle	56	56	30	1.680
Luján de Cuyo	66	66	30	1.980
Maipú	71	71	30	2.130
San Rafael	124	124	30	3.720
Tunuyán	32	32	30	960
Tupungato	507	507	30	15.210
Mendoza	866	866	30	25.980
Cachi	12	12	20	240
Cerrillos	20	20	20	400
Chicoana	7	7	20	140
General Güemes	35	35	20	700
Guachipas	6	6	18	108
Iruya	35	35	20	700
La Caldera	8	8	20	160
La Poma	8	8	18	144
La Viña	4	4	20	80
Molinos	12	12	20	240
Rosario de Lerma	15	15	20	240
San Carlos	2	2	20	40
Santa Victoria	250	250	20	5.000
Salta	414	414	19,8	8.192
Ayacucho	1.061	1.061	21,2	22.493
Chacabuco	46	46	20,1	926
Pedernera	27	27	19,6	528
San Luis	1.134	1.134	21,1	23.947
Constitución st	280	280	15,2	4.256

- Medium late crop (ML)

MEDIUM LATE POTATOES Harvest 05/06 Province	Planted Area (ha)	Harvested Area (ha)	Yield (t/ha)	Production (t)
Adolfo Gonzales Chaves	493	493	44	21.692
Azul	500	500	42	21.000
Bahía Blanca	1	1	20	20
Balcarce	5030	5030	45	226.350
C. de M. Rosales	160	160	28	4.480
Coronel Pringles	131	131	43	5.633
General Alvarado	4890	4890	46	224.940
General Pueyrredón	3870	3870	46	178.020
Laprida	40	40	40	1.600
Lobería	3300	3300	46	151.800
Necochea	250	250	40	10.000
Patagones	16	16	18,2	291
Pila	830	830	40	33.200
San Cayetano	130	130	41	5.330
Tandil	4460	4460	45	200.700
Tornquist	98	98	31	3.038
Tres Arroyos	626	626	42	26.292
Buenos Aires	24.825	24.825	44,9	1.114.386
Gaiman	50	50	20	1.000
Rawson	150	150	20	3.000
Chubut	200	200	20	4.000
Colón	150	150	21	3.150
Ischilín	150	150	20	3.000
Punilla	550	550	25	13.750
Totoral	150	150	12,5	1.875
Córdoba	1.000	1.000	21,8	21.775
Guaymallén	2	2	30	60
Las Heras	294	294	30	8.820
Lavalle	118	118	30	3.540
Luján de Cuyo	134	134	30	4.020
Maipú	47	47	30	1.410
Malargüe	1.582	1.582	26	41.132
San Carlos	823	823	30	24.690
San Martín	27	27	30	810
San Rafael	35	35	30	1.050
Tunuyán	22	22	30	660
Tupungato	2.157	2.157	30	64.710
Mendoza	5.241	5.241	28,8	150.902
Adolfo Alsina	4	4	20	80
Avellaneda	305	305	20	6.100
Gral. Conesa	5	5	20	100
Pichi Mahuida	10	10	20	200
Rio Negro	324	324	20	6.480
Pringles	60	60	21,7	1.303
San Luis	60	60	21,7	1.303
Calingasta	54	54	25	1.350
San Juan	54	54	25	1.350
Constitución	150	150	16	2.400
Rosario	250	250	16	4.000
Santa Fe	400	400	16	6.400
Güer Aike	18	18	17	306
Lago Argentino	8	8	18	144
Santa Cruz	26	26	17,3	450
Tafí del Valle	287	287	20	5.740
Tucumán	287	287	20	5.740
Total Argentina 05/06 (Planting in September - October - November) (Source: INAS, Argenpapa)	32.417	32.417	40,5	1.312.786

- Late crop (LC)

<b>LATE POTATOES</b> <b>Harvest 05/06</b> <b>Province</b>	<b>Planted</b> <b>Area (ha)</b>	<b>Harvested</b> <b>Area (ha)</b>	<b>Yield</b> <b>(t/ha)</b>	<b>Production</b> <b>(t)</b>
Campaña Agrícola 2005/06				
Santa Rosa	600	600	30	18.000
Catamarca	600	600	30	18.000
Capital	400	400	20	8.000
Colón	8.300	8.300	21,5	178.450
Río Primero	900	900	25	22.500
San Alberto	4.000	4.000	26	104.000
San Javier	5.240	5.240	26	136.240
Santa María	4.900	4.900	20	98.000
Totoral	1.225	1.225	20	24.500
Córdoba	24.965	24.965	22,9	571.690
Ayacucho	1.020	1.020	20	20.400
San Luis	1.020	1.020	20	20.400
La Cocha	440	440	20	8.800
Tucuman	440	440	20	8.800
<b>Total Argentina 05/06</b> <i>(Planting in February)</i> <i>(Source: INAS, Argenpapa)</i>	<b>27.025</b>	<b>27.025</b>	<b>22,9</b>	<b>618.890</b>

## 14. ANNEX 2 DETAILED OVERVIEW TRADE NL ↔ ARGENTINA

Import into The Netherlands from Argentina 2007 (X EUR 1 mln)					
SITC-	Description	2004	2005	2006	2007
	<b>TOTAL</b>	<b>668,4</b>	<b>861,8</b>	<b>844,1</b>	<b>968,2</b>
	<b>TOTAL AGRICULTURE</b>	<b>616,1</b>	<b>788,2</b>	<b>769,4</b>	<b>874,8</b>
	0 Food and living animals	423,2	502,4	550,7	662,2
	1 Meat and meat products	63,7	66,8	65,7	79,3
	11 Beef fresh	36,9	38	42,3	52,9
	12 Other meat offals	13,1	18,4	16	15,8
	17 Conservatives	13,7	10,3	6,4	8,1
	4 Grain and grainproducts	15	13,5	19,8	48,3
	44 Corn	11	13,4	17,3	25
	45 Other non milled grains	4	0,1	2,5	21
	5 Vegetables and fruit	75,2	116,3	129,1	167,7
	57 Fruit fresh and dried	68,9	108,8	116,7	153,1
	8 Non milled feed	264,5	299,4	328,7	359,6
	81 Feed	264,5	299,4	328,7	359,6
	11 Beverages	10,6	16,2	17,9	21,3
	112 Alcoholic beverages	10,6	16,2	17,9	21,3
	22 Oil seeds and fruits	79,1	92,7	115,5	125
	222 Oil seeds and fruits	78,5	91,8	114,4	124,3
	4 Edable oils	102,8	176	84,7	65,4
	42 Vegetable oils	100,2	172,8	83,1	64,1
	421 Vegetable oils and fats	100	171,3	82,3	63,5
	<b>TOTAL INDUSTRY</b>	<b>52,3</b>	<b>73,6</b>	<b>74,7</b>	<b>93,5</b>
	12 Tobacco	9	11,2	12,3	13,3
	121 Raw tobacco	9	11,2	12,3	13,3
	28 Metal scrap	5,2	6,6	9,3	16,5
	282 Scrap	5,2	6,5	9	15,5
	3 Mineral fuels	3,8	14,7	5,2	4,7
	34 Natural gas	0	10,1	0	0
	342 Propane and butane	0	10,1	0	0
	5 Chemical products	14,6	17,1	15,4	35,7
	51 Organic chemical products	11,5	14,4	12,8	7,9
	511 Petrochemical products	6,7	13,2	11,3	0,8
	59 Other chemical products	1,6	0,8	0,7	25,1
	598 Other chemical products	1,6	0,8	0,7	25,1
	6 Fabricates	10,5	14,6	20	15,5

(Source: CBS)

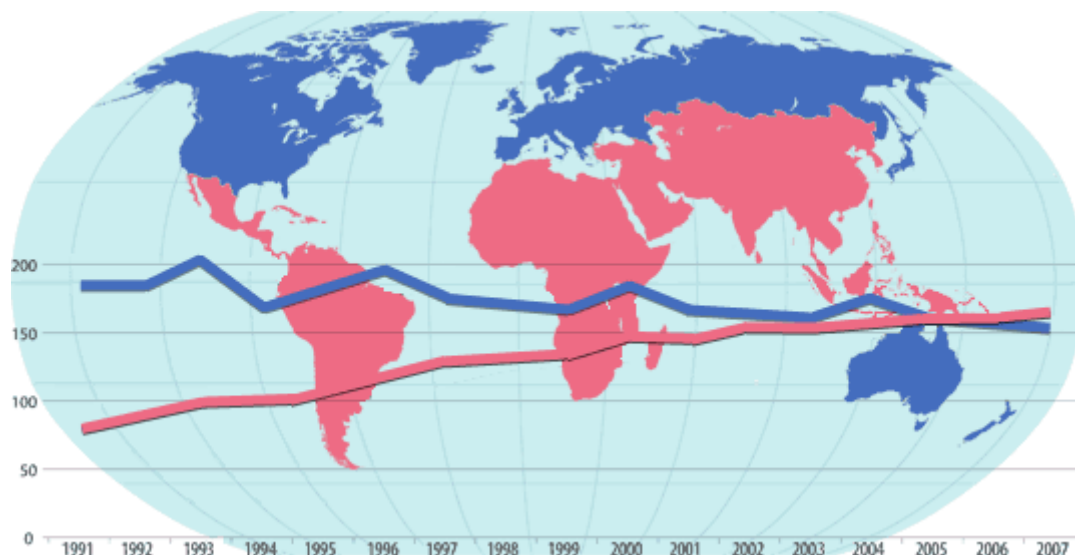
The total export value from The Netherlands to Argentina in 2007 was EUR 349 mln of which only EUR 14.6 mln in agricultural products. The major part of export is in chemical products with a total value of EUR 117 mln. There is no export of seed potatoes from The Netherlands to Argentina.

Export from The Netherlands into Argentina 2007 (X EUR 1 mln)					
SITC-	Description	2004	2005	2006	2007
	<b>TOTAL</b>	<b>203,2</b>	<b>222,9</b>	<b>238,5</b>	<b>349,4</b>
	<b>TOTAL AGRICULTURE</b>	<b>8</b>	<b>9,5</b>	<b>12,5</b>	<b>14,6</b>
	0 Food and living animals	5,2	4,5	7,4	8,5
	9 Prepared food stuffs	2,5	2,7	3,9	3,7
	98 Prepared food stuffs	2,4	2,6	3,8	0
	29 Other raw and biological	2,2	4,5	4,2	4,8
	291 Unprocessed animal	0,8	2,6	2,2	2,1
	<b>TOTAL INDUSTRY</b>	<b>195,2</b>	<b>213,3</b>	<b>226</b>	<b>334,8</b>
	3 Mineral fuels	0,8	11,4	6,4	98,5
	33 Unrefined oil	0,8	11,4	6,4	98,5
	334 Refined oil products	0,8	11,4	6,4	98,5
	5 Chemical products	67	89,3	99,1	116,8
	51 Organic chemical products	14,2	26,4	29,4	36,3
	511 Petrochemical products	1,3	2,8	2,3	1,9
	513 Carbon acids	0	13,4	15	22,2
	514 Nitrogen compounds	0	2,8	0	3,7
	516 Other chemicals	4,1	5,4	5,7	0
	52 Anorganic chemicals	5,7	4,1	5,1	4,9
	523 Metal salts	3,9	3,3	0	0
	54 Pharmaceuticals	20	24,4	26,9	33,5
	541 Pharmaceuticals	6,9	8,3	13	18,5
	542 Pharmaceuticals	13,1	16,1	14	15
	55 Essences oils	1,9	2,5	1,7	1,9
	56 Artificial fertilizer	4,8	10,1	13,3	16
	562 Artificial fertilizer	4,8	10,1	13,3	16
	57 Plastics	5,1	6,3	6,3	5,9
	575 Other plastics	2,5	2,7	3,9	3,9
	59 Other chemicals	12,7	12,8	13,1	14,7
	591 Decontamination productst	4,6	3	0,5	0,7
	592 Starch and inuline	2	1,8	3,3	3,7
	597 Grease and dopes	2,1	2,7	2,6	2,8
	598 Other chemicals	3,9	5,3	6,6	7,5
	6 Fabricates	10,5	13,1	18,3	16,6
	64 Paper and cardboard	3,1	2,7	5,8	4,1
	641 Paper and cardboard	2,8	2	5,2	3,5
	65 Garments	2,2	1,8	3	2,5
	67 Iron and steel	2,8	5,3	3,8	5,4
	675 Flat steel	2,5	4	1,7	3,8
	69 Metals	1,1	1,4	2,8	2,3
	7 Equipment transport	97,1	78,7	76,1	74,3
	71 Generators engines	4,8	3,4	6,2	7,6
	714 Jet engines	2,2	1,2	1,9	1,8
	716 Electrical machines	0,4	0,7	2,5	4,2
	72 Special machines	20,6	6,6	11,7	13,5
	721 Agricultural equipment	0,2	2,2	0,8	1,7
	723 Digging machines	0,3	1	2,9	3,5
	727 Machines	18,1	1,3	6,5	5,2
	74 Other machines	5	5	7,8	7,8
	75 Office equipment	1,6	3,6	1,8	1,7
	759 Spare parts	0,8	2,8	0,9	0,5
	76 Telecom equipment	54,9	45,9	33,6	24
	764 Telecom parts	54,9	45,9	33,6	23,7
	77 Electrical equipment	5,9	10	12,5	18,3
	774 Medical equipment	1,4	3,7	5,7	6,2
	775 Household equipment	2	3,2	3,1	6,9
	78 Transport equipment	2,6	1,7	2	1,3
	8 Fabricates	18,3	18,9	24,3	25,8
	87 Industrial equipment	7,2	9,9	14,2	13,6
	872 Medical equipment	3,7	6,1	10,3	9,8
	874 Measuring equipment	3,3	3,7	3,5	3,5
	89 Other fabricates	10,5	8,5	9,6	11,2

## 15. ANNEX 3 POTATO PRODUCTION IN THE WORLD

### Potato producing countries

- Developed countries
- Developing countries



The world potato sector is undergoing major changes. Until the early 1990's, most potatoes were grown and consumed in Europe, North America and countries of the former Soviet Union. Since then, there has been a dramatic increase in potato production and demand in Asia, Africa and Latin America, where output rose from less than 30 mln mt in the early 1960s to more than 165 mln mt in 2007. FAO data shows that in 2005, for the first time, the developing world's potato production exceeded that of the developed world. China is now the biggest potato producer, and almost a third of all potatoes is harvested in China and India.

Potato production (t), 2007		Potato production per capita (kg), 2006	
1.  China	72 000 000	1.  Belarus	835.6
2.  Russian Fed.	36 784 200	2.  Netherlands	415.1
3.  India	26 280 000	3.  Ukraine	414.8
4.  Ukraine	19 102 300	4.  Denmark	291.1
5.  USA	17 653 920	5.  Latvia	286.0
6.  Germany	11 604 500	6.  Poland	271.5
7.  Poland	11 221 100	7.  Belgium	267.4
8.  Belarus	8 744 000	8.  Lithuania	261.2
9.  Netherlands	7 200 000	9.  Russian Fed.	259.0
10.  France	6 271 000	10.  Kyrgyzstan	219.4
Source: FAOSTAT 2008			



## Potato production in the world



Asia and Europe are the world's major potato producing regions, accounting for more than 80 percent of world production in 2007. While harvests in Africa and Latin America were far smaller, production was at or near record levels. North America was the clear leader in yields, at more than 36 t/ha.

	Harvested area (ha)	Quantity (t)	Yield (t/ha)
<b>Africa</b>	1 502 695	16 323 530	10.86
<b>Asia/Oceania</b>	8 744 049	137 226 926	15.69
<b>Europe</b>	7 492 010	129 395 767	17.27
<b>Latin America</b>	971 935	16 124 302	16.58
<b>North America</b>	614 972	22 625 958	36.79
<b>WORLD</b>	<b>19 325 661</b>	<b>321 696 483</b>	<b>16.64</b>
<i>Source: FAOSTAT</i>			

Within the South American continent it is Peru leading the list of potato producing countries, Brazil ranks second and Argentina fifth.

	2000	2001	2002	2003	2004	2005	2006	2007
<b>Peru</b>	284.671	234.242	270.893	258.003	246.771	264.055	258.600	269.441
<b>Brazil</b>	150.475	153.974	161.124	151.850	142.704	142.219	140.826	143.140
<b>Bolivia</b>	133.600	128.539	129.641	130.524	132.639	134.435	135.577	135.600
<b>Colombia</b>	170.719	172.439	163.841	109.048	107.009	100.321	100.000	110.000
<b>Argentina</b>	80.000	88.000	90.000	75.000	70.000	63.000	68.000	68.000
<b>Chile</b>	59.957	63.110	61.360	56.000	59.560	55.620	63.200	63.910
<b>Ecuador</b>	42.554	45.388	47.444	50.942	57.743	48.654	51.713	52.000
<b>Venezuela</b>	19.854	18.702	19.590	17.007	18.848	24.210	24.325	24.500
<b>Uruguay</b>	8.750	8.269	10.913	10.680	8.627	8.326	8.569	8.600
<b>Paraguay</b>	187	202	196	135	155	170	190	200
<i>FAOSTAT   © FAO Statistics Division 2008   23 November 2008</i>								

## Potato consumption in the world



Asia consumes almost half of the world's potato supply, but its huge population means that consumption per person was a modest 25 kg in 2005. The heartiest potato eaters are Europeans. Per capita consumption is lowest, but increasing, in Africa and Latin America.

	Consumption (t)		Cons. per capita (kg)
1.  China	52 882 000	1.  Belarus	181.02
2.  Russian Fed.	20 442 000	2.  Kyrgyzstan	152.20
3.  India	18 253 000	3.  Russian Fed.	141.98
4.  USA	16 399 000	4.  Ukraine	141.62
5.  United Kingdom	6 842 000	5.  Latvia	136.14
6.  Ukraine	6 659 000	6.  Armenia	131.76
7.  Germany	6 120 000	7.  Lithuania	130.67
8.  Poland	4 893 000	8.  Poland	127.75
9.  France	3 880 000	9.  Rwanda	124.83
10.  Bangladesh	3 746 000	10.  Portugal	118.62
Source: FAOSTAT			

## 16. ANNEX 4 SOME USEFUL CONTACTS

Cámara de Comercio Argentino-Holandesa (CCAH)

Contactpersoon: Coen van Iwaarden

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Delegación de la Comisión Europea en Argentina  
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ProsperAr (promoting investment in Argentina)  
[www.inversiones.gov.ar](http://www.inversiones.gov.ar)

Ministerio de Economía y Producción  
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Gobierno electrónico  
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Cámara Argentina de Comercio  
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Página/12 (left wing paper)

[www.pagina12.com.ar](http://www.pagina12.com.ar)

La Nación (right wing paper)  
[www.lanacion.com.ar](http://www.lanacion.com.ar)

Buenos Aires Herald  
[www.buenosairesherald.com](http://www.buenosairesherald.com)

InfoLEG (Argentine laws)  
<http://infoleg.mecon.gov.ar/>

Banco Central de la República Argentina  
[www.bcra.gov.ar](http://www.bcra.gov.ar)

Administración Federal de Ingresos Públicos (AFIP)  
[www.afip.gov.ar](http://www.afip.gov.ar)

Argentina Compra  
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Bank for International Settlements (BIS)  
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