

## **4    *Cereals policies in Algeria***

### **4.1 - Evolution of consumption and demand**

Cereals have been the main element of food intake in Algeria since antiquity; this consistency in the predominant consumption pattern is to be explained by food traditions and consumption habits. This stability in the traditional consumption pattern has been strengthened by the mechanisms that have been established and the food policies pursued.

One of the major factors of change is the steep rise in the population growth rate (3.2% since the mid 1970s) as the result of the regression in mortality rate in general and of the infantile mortality rate in particular plus the absence of any family planning measures. The population has thus grown from 10 million inhabitants in 1963 to 32 million today. It was not until 1986 that the population growth rate began to slow down (2.7%), a trend which was subsequently confirmed, so that the rate registered in 2004 was 1.75%.

A further major factor of change was the implementation of development plans with emphasis on industry from 1967 onwards. The flow of rural jobseekers to the towns and cities resulted in very rapid growth in the urban population (60% by the end of the 1990s). The swell in urban population and the sustained growth in cash incomes created favourable conditions for a radical change in the eating habits of the population.

The emphasis on industrialisation meant that housing policy was relegated to the background, at least until the beginning of the 1980s. The new “city dwellers” were thus forced to cram themselves into the fringe of towns and villages in makeshift housing or to share cramped living accommodation with relatives who had migrated to the urban areas before them.

The industrialisation policy introduced by the government was based on particularly concentrated investment efforts (30% of GDP) and on fixing wages at the lowest possible level. In order to prevent this form of labour cost control from eliciting labour demands, the State made constant efforts to maintain relative compatibility between the level of wages paid and the prices of the goods in the wage earner’s “basket”, particularly the price of food, for, as was demonstrated in consumption surveys conducted in 1967-1968, 1980 and 1988, food actually accounted for over half of the average annual expenditure of households. Those surveys estimated the share of household budgets devoted to food at 54.1%, 55.7% and 51.3% respectively.

The “traditional” consumption model was thus confirmed in view of the relative stagnation in the incomes of the majority of the working population. This did not mean, however, that the diet remained identical; on the contrary, a certain diversification of consumption was registered with a decrease in the share of cereals in the average food intake. The consumption surveys evaluated that decrease at 250 kg/capita/year in 1967-1968, then at 185.3 kg in 1980 and 175.8 kg in 1988. Furthermore, the proportions of the various cereals consumed also changed and barley virtually disappeared from the diet: 46.2 kg/capita/year in 1967-1968, 4.64 kg/capita/year in 1988 and less than 3 kg/capita/year at the present time. Durum wheat is still the primary cereal consumed, exceeding by far common wheat, which still comes second. Yet despite this diversification of consumption, cereals continue to provide 60% of the calories consumed.

The forecast of wheat demand over the next 10 years can be evaluated on the basis of the trends observed in population growth and in consumption patterns. Three scenarios have thus been constructed.

The first, which can be termed optimistic, forecasts an annual decrease in durum wheat demand of 1.5% combined with a 0.5% progression in the demand for common wheat. This means that growing urbanisation will have the effect of – slowly but surely – reducing wheat consumption in general and increasing the proportion of common wheat consumed compared to durum wheat. This first scenario also forecasts a continuing downward trend in population growth (+1.55%/year). It can thus be estimated that overall demand will amount to 6 744 million tonnes by 2015, i.e. an increase of 13.6% compared to 2003 with a per capita consumption rate of 174.8 kg.

The second scenario, which can be termed pessimistic, forecasts stabilisation of the current population growth rate (1.75%) and a very slight increase in wheat consumption (-0.5%/year for durum wheat and +0.2% for common wheat). Demand can thus be estimated at 7 175 million tonnes by 2015, i.e. an increase of 20.9% compared to 2003 and a per capita consumption rate of 181.6 kg.

The third scenario, which is considered to be midway between the first two, is based on a population growth rate of 1.65% and forecasts a drop in durum wheat consumption at a rate of 1% per year combined with a relatively low increase in the consumption of common wheat (+0.2% per year). This intermediate scenario forecasts an increase in national demand of 17.5%, which would mean a volume of 6 974 million tonnes and a per capita consumption rate of 178.6 kg by 2015.

## **4.2 - The cereal growing and production systems**

Cereals are grown on most farms, even on the smallest and the southernmost farms in the country (oasis farms). The 2001 General Agricultural Census registered 588 621 farms (i.e. 60% of the total number of farms) where cereal growing was the predominant form of husbandry. However, it is quite possible to delimit a geographical region where cereal growing clearly predominates, forming a veritable “wheat belt” surrounding the north of the country.

Three cereal zones can thus be roughly outlined from west to east according to potential yields, which are determined essentially by climatic conditions and in particular by rainfall:

- **A high potential zone** the Algerois and Mitidja coastal plains, the Issers basin, the Soummam and Wadi El Kebir valleys, the Seybouse and Wadi Cherf valleys, the Mahouna massif and the upper Medjerda basin. This zone, which has an average annual rainfall of over 500 mm, has an AAU of only 400 000 ha, less than 20% of which is devoted to cereals with averages of up to 20 quintals per hectare (ql/ha).
- **An average potential zone:** the Tlemcen mountain slopes, the Mleta plain, the upper valley of the Mina and of the Wadi Rhiau, the inland plains of the Mekerra and Ghriss, the Chelif valley, the Medea massif and the Dahra plateau. This zone, which has a rainfall of 400 mm to 500 mm but is subject to a high level of climate risk, has an AAU of 1 600 000 ha, less than half of which is devoted to cereals. Yields can range from 5 to 15 ql/ha, depending on rainfall.
- **A low potential zone:** this zone is composed of a fringe with a semi-arid climate extending more into the high plateaus in the east than in the west, since it skirts the south of the Aurès massif. Rainfall is much more changeable in this zone, the average being less than 350 mm per year, and it is generally unevenly distributed over the season. The AAU of this zone amounts to 4.5 million ha, almost half of which is sown with cereals each year. Cereal yields in this region are often below 8 ql/ha, and farmers frequently abandon their grain-sown parcels to flocks of sheep as soon as the spring rains prove inadequate.

It must be underlined from the outset that this “wheat belt” does not actually cover cereal-growing zones in the sense in which agronomists generally use the term. The configuration of the cereal-growing area is more the result of policies and historical events which are sufficiently known to all. Almost 80% on average of the country’s AAU is devoted to cereals each year. This is a fundamental fact, which by virtue of its consistency features as an invariant of Algerian agriculture. It is certain, at least as far as the last two centuries are concerned, that the predominant crop-growing system throughout the country was based on cereals/fallow crop rotation, generally on a 2-year basis. Thus, in practice, 40% to 50% of the AAU is sown with cereals each year and 30% to 40% is left fallow.

The predominant trend is undoubtedly one of continuing extension of grain-sown areas, the cereals acreage having grown from an average of 2 916 962 ha during the 5-year period from 1962 to 1967 to an average of 3 891 062 ha during the period from 1992 to 1997, i.e. an overall increase of 974 100 ha or of one-third, before dropping to 2 995 210 ha in the period from 1999 to 2004, which was 2.7% more than the initial level. Examined over the long term, the growth rate of these grain-sown areas is virtually regular, since the variation coefficient is very low (7.4%).

The average cereals output for the period from 1965 to 2004 was just over 2 million tonnes (2 095 872 T) with a slight upward trend since the 5-year period from 1965 to 1972. It must be noted that the annual growth rate is less than 0.30%, which is a mediocre performance compared to that of other Mediterranean countries (Morocco or Tunisia, for example). Within this average total output, durum wheat is the leading cereal with a share of 46%, closely followed by barley with a share of no less than 31%. Together these two cereals have consistently accounted for between 72% and 84% of total cereals output.

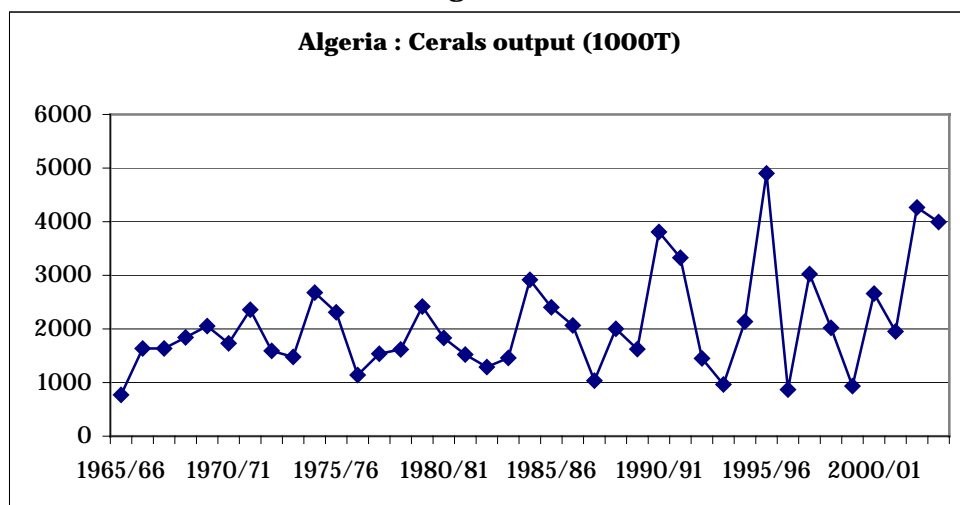
**Table 4.1 – Evolution of cereals output by species (1 000 T)**

Year	WHEAT	BARLEY	OATS	MAIZE	TOTAL
1965-66	630	130	7	3.4	770
1966-67	1 266	340	26	4.2	1 636
1967-68	1 534	538	41	6.7	2 120
1968-69	1 326	466	44	6.2	1 842
1969-70	1 435	571	42	6.4	2 054
1970-71	1 317	372	38	5.1	1 733
1971-72	1 656	644	54	4.7	2 359
1972-73	1 158	374	53	5.3	1 590
1973-74	1 091	331	50	4.3	1 477
1974-75	1 848	743	80	6.7	2 677
1975-76	1 630	589	89	2.8	2 310
1976-77	827	260	50	2.0	1 139
1977-78	1 083	397	56	1.0	1 537
1978-79	1 080	457	80	0.9	1 618
1979-80	1 511	794	110	1.5	2 417
1980-81	1 218	525	86	2.3	1 831
1981-82	977	483	60	1.4	1 522
1982-83	790	447	49	2.8	1 289
1983-84	886	503	64	5.3	1 459
1984-85	1 478	1 330	108	1.3	2 917
1985-86	1 229	1 083	89	1.4	2 402
1986-87	1 175	820	68	2.1	2 065
1987-88	614	390	30	2.0	1 036
1988-89	1 152	790	60	2.4	2 004
1989-90	750	833	41	0.2	1 625
1990-91	1 869	1 810	128	0.5	3 808
1991-92	1 837	1 398	93	0.7	3 329
1992-93	1 017	408	27	0.2	1 452
1993-94	714	234	15	0.2	963
1994-95	1 500	585	53	0.4	2 138
1995-96	2 983	1 800	117	0.4	4 900
1996-97	662	191	17	0.3	869
1997-98	2 280	700	45	0.3	3 025
1998-99	1 470	510	40	0.5	2 021
1999-00	760	163	9	1.6	934
2000-01	2 039	575	44	1.1	2 659
2001-02	1 502	416	33	0.8	1 952
2002-03	2 965	1 222	78	1.0	4 265
2003-04	2 600	1 314	78	1.0	3 993
2004-05	na	na	na	na	3500*

\* Provisional estimate of the Ministry of Agriculture

Data sources: FAOSTAT and Ministry of Agriculture

Figure 4.1



Examination of the 5-year evolution of output levels would also show continuing regression of the share of durum wheat in total output. That share – which was over half of the cereals produced in the 5-year period from 1962 to 1967 (58.3%) – has lost 21 points in less than two decades, dropping to 37% of the total in 1982-1987. In view of the very slow growth in overall cereal production, this regression is combined with a significant decrease in the quantities of durum wheat harvested (almost 900 000 tonnes in the 1962-1967 period compared to 720,000 tonnes from 1982 to 1987). This deterioration is of course due primarily to the reduction of durum wheat acreage, particularly on farms in the private sector. It is to the advantage of barley in particular, whose share in total output rose from 23.6% in 1962-1967 to 45.6% in 1987-1992. This growth in the barley share corresponds in this instance to actual growth in volume, since the average output level – 400 000 tonnes in the 1962-1967 period – was over 1 million tonnes in 1987-1992, i.e. a progression of 187%. However, since the growth rate in yield level has been very low since 1962, this means that the gain in production was due mainly to the extension of the barley-sown acreage.

The liberal reforms carried out in the agricultural sector to begin with (reorganisation of the State agricultural sector in 1987) and then throughout the national economy in the course of the last decade have reversed these trends. The reversal of the trend in the durum wheat production sector is undoubtedly the result of a second major factor: the change in price policy, which was introduced towards the end of the 1980s and resulted in an appreciable increase in guaranteed production prices – an increase which was greater in the case of wheat (both durum and common) than in the case of barley. Durum wheat consequently made a marked comeback, sown acreage increasing from 35.61% of total acreage in the

1987-1992 period to 43.78% in the following 5-year period. This increase was coupled with just as marked an increase in the volumes produced, which grew from 884 197 tonnes in the 1987-1992 period to 1 140 677 tonnes in 1992-1997. Durum wheat thus recovered its position as the leading cereal in terms of both planted acreage and output (49.1% in the 1997-2002 period).

**Table 4.2 – Evolution of cereals output by species from 1962 to 2002 –5-year averages (T)**

<b>Period</b>	<b>Durum wheat</b>	<b>Common wheat</b>	<b>Barley</b>	<b>Total</b>
<b>1962-67</b>	896	278	363	1 537
<b>1967-72</b>	908	546	518	1 972
<b>1972-77</b>	824	487	459	1 770
<b>1977-82</b>	748	427	531	1 705
<b>1982-87</b>	720	391	836	1 948
<b>1987-92</b>	884	360	1 044	2 289
<b>1992-97</b>	1 141	412	756	2 309
<b>1997-02</b>	922	530	426	1 878
<b>Average</b>	880	429	617	1 926
<b>Share (%)</b>	45.71	22.26	32.03	100.00

Data sources: Revue Statistique Agricole, Blue series, Ministry of Agriculture, Algiers.

How is the very low growth rate in the overall cereals output (+ 0.24% per year) – measured in 5-year averages, the only reference which makes sense in a country where the climate is extremely changeable – to be explained when grain-sown acreage is growing at an average annual rate of 0.32%?

Analysis of the statistics shows that each year an average of almost one-quarter of the grain-sown areas (813 254 ha and 23.72% for the three major cereals) is not harvested. The main reason for this strange "habit" is the changeable nature of the climate and – in most cases – more specifically the inadequate rainfall and/or the fact that it is unsuitably distributed over the season in terms of the crucial stages in the crop growth cycle. Statistical analysis also shows that there is a marked upward trend in both grain-sown and unharvested acreage, each 5-year average having been subsequently exceeded during the last four 5-year periods. In the five years from 1992 to 1997, producers even lost almost half of their grain-sown acreage as the result of two successive years of drought (1992-1993 and 1993-1994).

It must be pointed out that the continuing extension of the cereals area has been brought about to a large extent by pushing the boundaries of the cereal-growing area further south on the basis of the cultivation of land situated in the north of the steppe – semi-arid zones where rainfall is more uncertain and generally below 300 mm per year. The risk of damage is thus much greater for crop farmers, and it can be considered that it is only possible to harvest a crop in one year out of five on

average in these zones. The variation coefficient for national barley output is thus very high (+63.95%).

The reason for the continuing extension of grain-sown acreage until the end of the 1990s, despite the considerable risk of no harvest and the lack of progress in yields, was that farmers pursued a strategy which enabled them to limit the effect of climate hazards to a very large extent. Taken as a whole, the small farmer's strategy is based on the desire to reduce the risks which climate uncertainties entail for the survival of the farm, and the result is a permanent refusal to specialise. The crop-growing system farmers adopt always includes the three major cereals (durum wheat, barley, common wheat) – at least when the size of the farm allows. And the refusal to specialise also results in:

- the rejection of any attempt to introduce new varieties, particularly when they are explicitly presented as varieties which produce more grain, unless their ability to resist moisture stress and drought is guaranteed;
- the rejection of any attempt to include new species in crop rotation, whether cereals (triticale, rye, etc.) or fodder species (alfalfa, etc.);
- reluctance to practise chemical weed control in order to diminish weed seed competition, since the risk that the additional cost incurred in this additional operation will not be compensated is considered too great in view of the growing rainfall uncertainty from the early spring onwards;
- permanent hostility to using mineral fertilisers, and more specifically nitrogenous fertilisers, although they are regularly recommended by advisers. This hostility is perfectly reasonable, however, in view of the agro-climatic conditions. Using nitrogenous fertilisers does actually help to increase the production of dry matter; it has a favourable effect on yields of both grain and straw – if the total rainfall is adequate and it is appropriately distributed over the crop-growing season. This close dependence on the effects of nitrogen fertilisation with regard to rainfall makes its application to cereals a very risky bet in the actual weather conditions with which crop growers have to contend.

Their refusal to specialise also results in preference for a combination of crop and animal husbandry, which becomes the rule as soon as one leaves the southern boundaries of the so-called very high potential zones, i.e. in practice on almost 90% of the cereal-growing area. For the presence of animals has several advantages:

- it means that parcels that are considered to be damaged from the point of view of crop production can still be farmed;
- it means that the byproducts of crop growing (stubble and straw) can be developed;
- it provides the opportunity to develop fallow, integrated into the crop rotation system. The virtually total absence of mineral fertilisation forces farmers to let part of the arable acreage lie fallow and to practise crop rotation, generally on a 2-year basis, the implicit aim being to allow the land to benefit from low-cost soil



amendments. Raising a herd provides a means of benefiting from the spontaneous vegetation which grows on the parcel while it lies fallow.

But the establishment of a dual production system (crop and animal husbandry) is a very classical strategy in a country with the climate features of Algeria. What is really new since independence, and more specifically from the mid-1970s onwards, is the precedence that is gradually being given to animal husbandry. Since the production system involves crop and animal husbandry, the predominant strategy aims to maintain and increase the livestock (essentially sheep) rather than to guarantee the stability of or an increase in crop production.

Furthermore, cereal farmers are regarding producing for their own consumption less and less as a rational aim, since they know that they can easily obtain imported goods (cereals or derivatives), which are sold on the market at a lower price than what it would cost them to produce the equivalent on their farms. Where crop production is maintained this is mainly in order to have a reserve in view of fluctuating supply on the market. It is also often the only solution in view of small farmers' limited expertise, which acts as a constraint when it comes to lines of production which could be included in the crop-growing system.

The shift in the production system towards animal husbandry has the effect of considerably reducing the advances granted for growing cereals in general and wheat in particular. It significantly reduces the effort and time spent by small farmers on these crops, and this already explains to a large extent the lack of progress in yields despite the rising level of mechanisation.

In order to win their bet of producing cereals while reducing the length of time during which acreage is used for crops, farmers have to mechanise all crop-growing operations as far as possible. The fact that crop farms are obviously underequipped induces farmers to "streamline" the technical itinerary to varying degrees. This "streamlining" consists of:

- reducing cultivation operations to a strict minimum (which generally means that the seed bed is cloddy and unfavourable for plant emergence);
- continuing to practise broadcast sowing, since farmers do not have mechanical seed drills (with the result that seed density is very random);
- minimising fertiliser broadcasting even when weather and soil conditions are favourable for this method;
- dispensing with all chemical weed control operations even though the postponement – or indeed elimination – of preparatory ploughing has done away with mechanical weed control;
- accepting very late harvesting/threshing, which continues until the end of August – entailing tremendous losses (up to 30%), since the ears have been ripe for some time and tend to shell – plus the need to harvest the crops in as short a time as possible with rented equipment, with the result that farmers tend to neglect to

adjust the cutter bars of the combine harvesters to the height and density of the ears.

The implementation of the National Agricultural and Rural Development Plan, which has been running since 2000, and of the various mechanisms for encouraging farmers to convert crops, particularly in steppe regions, has begun to result in a decrease in the grain-sown acreage in the agro-climatically least favourable zones. As the result of the subsidies for promoting farm investments (agricultural equipment and in particular irrigation equipment), substantial intensification has begun in high potential zones, although the scale of this intensification is still inadequate. The appreciable progress that has been made in yields in the last five years still does not suffice to dispel uncertainties as to whether it will continue in the future in view of the climatic risk. The evaluation of local supply over the next decade will thus have to be based on very cautious hypotheses. In the three scenarios mentioned above, an annual growth rate in output of 2% was thus calculated for the optimistic scenario, 1% for the pessimistic scenario and 1.5% for the midway scenario. It emerges from this calculation that the domestic supply of wheat would be 2 119 million tonnes, 1 883 million tonnes or 1 998 million tonnes respectively by 2015. When one compares these figures with the prospects of development in demand it is observed that the so-called optimistic scenario would be the only one which would ensure a clear improvement in the ratio of local supply to demand, the rate of coverage increasing from 28.15% to 31.4% by 2015. In the pessimistic scenario, by contrast, there would be a marked deterioration in this rate, which would drop to 26.2%, and in the midway scenario there would be no appreciable change compared to the present situation.

### **4.3 - Market integration of cereal growers**

In view of what has been stated above on the spatial distribution of cereal crops and on production systems and farmer strategies, the level of market integration of all cereal growers is very high, since their behaviour is dictated by market signals. Examination of the evolution of the quantities collected by the cereals and dried beans cooperatives actually shows that these quantities are relatively small compared to the domestic cereals output, for which they have accounted for an average of 44% since Algeria's independence. The maximum level was achieved in the 5-year period from 1977 to 1982, when the volume collected amounted to 56% of the average output. However, the cooperatives have never really got anywhere near their declared objective of collecting total output.

**Table 4.3 - Evolution of wheat output and collection**

Period	DURUM WHEAT			COMMON WHEAT		
	Output(1)	Volume collected (2)	(2)/(1)	Output(3)	Volume collected (4)	(4)/(3)
	1000 T	1000 T	%	1000 T	1000 T	%
1962-67	896	411	45.86	278	175	63.03
1967-72	908	405	44.64	546	384	70.37
1972-77	824	353	42.80	487	367	75.41
1977-82	748	387	51.07	427	326	76.51
1982-87	720	292	40.57	391	259	66.17
1987-92	884	508	57.49	360	228	63.33
1992-97	1 141	431	37.75	412	208	50.60
2000-04	1 460	403	27.58	817	359	44.00
Average	948	399	42.07	465	288	62.07

Source of the annual data: OAIC<sup>1</sup>/DSAP<sup>2</sup> Consolidated balance sheets.

**Table 4.4- - Evolution of the output and collection of secondary cereals**

Period	BARLEY			OATS		
	Output	Volume collected	(2)/(1)	Output	Volume collected	(4)/(3)
	1000 T	1000 T	%	1000 T	1000 T	%
1962-67	363	106	29.28	24	2	6.17
1967-72	518	136	26.25	44	19	43.48
1972-77	459	116	25.31	64	24	37.25
1977-82	531	186	34.97	79	40	50.63
1982-87	836	230	27.46	75	30	40.38
1987-92	1 044	199	19.07	69	19	27.03
1992-97	756	71	9.34	53	8	15.03
2000-04	853			58		
Average	670	149	22.25	58	20	34.76

Source of the annual data: OAIC/DSAP Consolidated balance sheets.

The volume of wheat collected alone (both durum and common) amounts on average to over half of total output (52.48%). The share of domestic production that is not collected by the cooperatives is larger in the case of secondary cereals intended for livestock feed (barley and oats) and often accounts for more than two-thirds of the harvest. This tallies perfectly with the farmers' production strategies and is not at all surprising. So what becomes of the 600 000 tonnes of wheat that are not delivered to the cereal cooperatives? About a quarter of this volume is used for building up seed stocks. For it must be pointed out that since there are not

<sup>1</sup> OAIC: Office Algérien Interprofessionnel des Céréales – Algerian interprofessional agency for cereals.

<sup>2</sup> DSAP: Direction des Services d'Appui à la Production – Directorate for production support services.

enough seed multipliers in the country the quantities of certified seed which the cooperatives have been able to supply have always been less than one-third on average of the needs expressed by cereal growers. The remaining two-thirds of this demand has thus only been satisfied by what is known as sorted seed, which has a lower germination rate and offers no guarantee as regards varietal purity. Furthermore, cereal growers' marked preference for local long-stem varieties was not catered for by the cooperatives and the OAIC, which tried to apply the State strategy of endeavouring to replace precisely these local varieties by foreign – short-stem – varieties, which were said to have higher grain yields. It is for these two reasons that cereal growers withheld part of their output with a view to using it as seed, exchanges between farmers being fairly frequent in order to avoid any genetic drift.

Expressed in relation to the rural population, the rest, which is consumed by the producers themselves, probably amounts to less than 35 kg per capita per year. Expressed in relation to the cereal farm population alone, this volume would provide an average intake of less than 130 kg per capita per year, which is well below real needs (over 270 kg), i.e. less than 50% of the needs of the cereal grower and his family. It is intended more as a reserve which is kept with a view to offsetting cyclical shortages of derivatives from the cereals industry, which were more frequent in rural than in the urban areas until the early 1990s.

In the final analysis, the quantities of cereals which are not marketed and are intended for human consumption are relatively marginal, since it is more in the interests of farmers to sell the commodities they produce and to purchase semolina and flour on the market in view of the price differential. Since the producer prices proposed to cereal growers by the cereal cooperatives were prices that were fixed by decree and provided little incentive to stock commodities on the farm, an appropriate price system being employed as practised in many countries with abundant output, it was more in the interest of farmers to deliver the quantities of cereals which they reckoned exceeded their needs immediately after the harvest. The collection of the bulk of domestic production was very soon concentrated between 1 June and 31 August of each year, with the positive result that it was easier for the cooperatives to cope with import storage needs.

And the bulk of cereal products supplied to the population was very soon supplied by industry. There were three factors which facilitated this process: the ban on the free sale of grain on local souks, the abolition of private trading (from 1966 to 1994), and the gradual shutdown of most of the mills that could grind grain purchased by consumers or produced by the cereal growers themselves. Whereas the processing industry only supplied 32.9 kg of semolina and 33.1 kg of flour per capita per year in 1966, it supplied three times as much durum wheat semolina in 1991 (91.6 kg), partly on the basis of imports, and 74% more of flours (57.5 kg), i.e. a total of 149.1 kg of derivatives in 1991 compared to 66 kg in 1966. The volume of self-supplier consumption and the volume sold on the informal market has since

accounted for only a very modest share, which is steadily decreasing (less than 15% today), excluding barley.

The evolution of guaranteed producer prices has gone through several phases which indicate how slowly the authorities have come to realise that the cereals deficit is structural in nature. From 1963 to 1973, for example, the guaranteed prices remained virtually stable – the slight adjustment carried out in 1968 did not even compensate for inflation rate. This stability of the producer prices applied on the domestic market seems to have been dictated by the downward trend of prices on the world market. Yet, in relative terms, domestic prices eventually dropped to below the world prices – from 1968 until 1975 – thus penalising national production.

There was in fact a sharp rise in prices on the world market from 1973 onwards, partially as the result of the fourfold increase in hydrocarbon prices. The rise in the cost of imports and the steady increase in import volume induced the State to resort more and more frequently to prices as an essential, if not the sole, means of encouraging farmers to increase production.

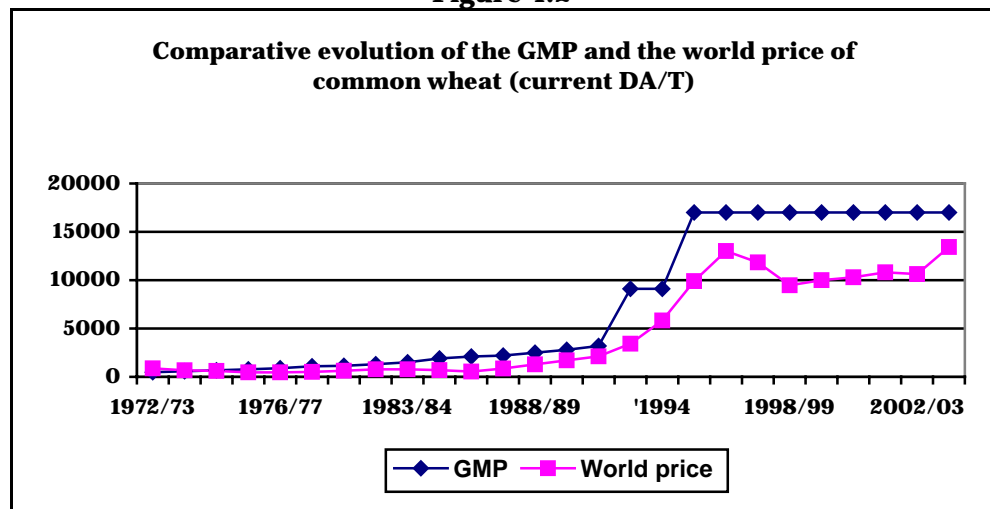
Upward adjustments were thus made, accelerating from 1983 onwards and bringing wheat prices to levels well above those practised on the world market. This policy was maintained even after 1985, despite the fact that world prices collapsed on a long-term basis as the result of the trade war in which several major exporters (US, EEC) were engaging and it became easier to import as the result of the modifications made in the financing terms applied by suppliers. Since the 1992-1993 cereal marketing year, there have been two marked increases in the guaranteed minimum producer price (GMP) for common and durum wheat. With the latter increase, which dates from 1995-1996, a price of 19 000 DA/tonne was fixed for durum wheat and of 17 000 DA/tonne for common wheat.

**Table 4.5 – Evolution of producer prices for the three major cereals from 1963 to 2005 (current DA/T)**

Year	Durum wheat	Common wheat	Barley
1963-1967	500	406,5	322
1968-1971	530	440	317
1973	540	480	317
1974	637,8	585	407
1975	757,8	685	497
1976	860	780	550
1977	1 000	900	600
1978	1 200	1 100	800
1979-1980	1 250	1 150	800
1981-1982	1 400	1 300	800
1983-1984	1 600	1 500	1 000
1985	2 000	1 900	1 400
1986-1987	2 200	2 100	1 550
1988	2 700	2 200	1 700
1989	3 200	2 500	1 900
1990	4 200	2 800	2 300
1991	4 600	3 200	2 300
1992-1993	10 250	9 100	4 700
1994	10 250	9 100	6 000
1995-1998	19 000	17 000	10 000
1999-2005	19 000	17 000	Free

Data source: Algerian Official Journal.

**Figure 4.2**



In view of the successive devaluations of the national currency since the application of the Structural Adjustment Programme, these GMPs were equivalent to US\$257.3 and US\$230.2 per tonne respectively in June 2005.

On the demand side, the mode of operation imposed on the cereals market was defined with reference to a food policy which aimed to keep cereals in the leading position in food intake since it was based on the practice of low and stable consumer prices for all cereal derivatives. From 1975 to 1994, the consumer price of flour and semolina constituted the reference price on the basis of which the prices at which the OAIC sold cereals to the milling plants and semolina factories were defined, whether those cereals were produced locally or imported. Since consumer prices were practically fixed at a very low level, the State had to finance the difference between the price at which cereals were sold to industry and the real prices paid by the OAIC to farmers and foreign suppliers. This mode of operation required heavy production subsidies from the State budget and, at the same time, even heavier consumer subsidies. The economic and social stability sought by the State proved more and more costly in budget terms and in terms of the balance of payments. For provision had to be made for an ever-growing volume of funds in order to pay the producer and consumer subsidies imposed by the system. Although the regulatory mechanisms that had been established allowed the State to regulate prices at all levels of the sector and thus instituted arbitration between cereal growers or industrialists producing in different price conditions and consumers with disparate incomes, that arbitration generally had a negative impact on the accumulation capacities of most producers (farms or industrial firms) providing only a moderate incentive for them to take risks and innovate.

However, the internal and external debt of the State reached an intolerable threshold by the mid-1980s and thus forced the public authorities to drastically revise their policies by applying a Structural Adjustment Programme and numerous economic reforms, all of which aimed to liberalise the market. In view of the eminently strategic nature of the cereals sector in both social and economic terms, the State adopted a cautious attitude in this liberalisation effort. It consisted, in short, of conserving the principle of support for local production by maintaining a GMP, but only for wheat, the prices of barley, maize and oats being determined henceforth solely by market forces. Furthermore, in order to relieve the State budget to some extent, the maintaining of regulated prices for wheat derivatives was backed with a change in the method for determining those prices. Since the production of cereal derivatives (flour and semolina) depended on imported cereals at a rate of up to 70%, the prices of those derivatives were established with reference to the price of wheat on the world market, and thus on the basis of the CIF price, from 20 June 1992 onwards.

In short, the consumer was asked to pay the real price for imported wheat because the consumer subsidy had to be done away with.

The regulated prices of semolina and bread were thus increased progressively in order to cushion the shock caused by the immediate application of this new mechanism. This "soft" approach involved maintaining consumer subsidies by means of the system for financing the difference between the reference price and the price at which grain was sold to milling plants and semolina factories, a system which had already been used previously. However, the progressive rise in the consumer price meant that the subsidy was degressive and thus dropped from 205.01 DA/quintal (DA/ql) of durum wheat in June 1992 to 72.53 DA/ql in June 1995 before being eliminated completely in April 1996. In the case of common wheat, the subsidy dropped from 338 DA/ql to 275.77 DA/ql by the same dates.

**Table 4.6 - Evolution of bread and semolina prices since 1989 (DA)**

	From 1989 to 19/06/92	20/06/92 to 23/03/94	24/03/94 to 15/12/94	15/12/94 to 02/04/95	03/04/95 to 08/07/95	09/07/95 to 02/04/96	Since April 1996
<b>Bread</b> (250 g)	1,00	1,50	2,50	4,00	5,00	6,00	7,50
<b>Semo- lina (kg)</b>	2,30	4,50	7,00	11,00	14,00	16,00	31,00

Source: Algerian Official Journal.

The application of the economic reforms within the framework of the Structural Adjustment Plan and of the rescheduling of the foreign debt led to the progressive dismantling of the price formation system and the organisation of the production, processing and distribution of cereals and their derivatives.

#### **4.4 - The restructuring of imports according to origin**

Whereas domestic supply was only growing at a virtually negligible rate, the deficit in domestic supply compared to demand grew at an alarming rate. The table below compares the evolution of local wheat supplies (total output minus the quantities used as seed) with that of wheat imports for human consumption. In view of the fact that barley has been tending to be eliminated from the human diet, a trend which was clearly proved by the consumption surveys conducted in 1966-1967, 1979-1980 and 1988, we have considered that only an evaluation of wheat supplies would be of interest. It is observed that the cereals intake available to each inhabitant on the basis of local production alone dropped from 86.4 kg in the 1967-1972 period to 42.5 kg in 1992-1997, the lowest level of the period, before rising again to 53.4 kg in the last six years. If one considers that the minimum cereals intake is probably 185 kg/capita/year, the share of domestic production would thus have dropped from 46.7% of needs to 23% in the period from 1992 to 1997 and would then have risen to 28.9% at the end of the period. The deficit compared to



demand would thus be over 71% on average at the present time. Although these are only rough estimates, they are nevertheless sufficiently explicit to indicate the general trends.

**Table 4.7 - Evolution of total and per capita wheat supply according to origin**

Period	Total supply		Per capita supply			Population
	Local wheat	Imported wheat	Local wheat	Imported wheat	Total	
Units	1000 T	1000 T	kg	kg	kg	1000
1962-67	1174.1	0.0	98.5			11 923
1967-72	1181.5	678.2	86.4	49.5	135.7	13 700
1972-77	1047.4	1513.5	67.4	97.4	164.9	15 533
1977-82	950.1	2675.4	50.7	142.8	193.5	18 740
1982-87	928.0	3325.2	43.7	156.4	200.1	21 260
1987-92	1070.3	4238.2	42.9	169.8	212.7	24 960
1992-97	1208.5	4528.9	42.5	159.2	201.7	28 450
1997-03	1634.9	4732.5	53.4	154.5	207.9	30 625

The deficit that was registered was thus systematically made up by imports, which became increasingly massive and increasingly costly. The achievement of the objective of the low uniform price throughout the country soon forced the State to provide growing volumes of subsidies in order to cover the differences between the import price and the consumer price as well as the distribution costs.

In addition, the achievement of the same objective had a somewhat perverse effect on consumption patterns, since it reinforced the preference for noble cereals (durum and common wheat) as opposed to secondary cereals (mainly barley), which were virtually eliminated from the human diet, and, in the noble cereals category, it also reinforced the predominance of durum wheat over common wheat, even though durum wheat was more rare and more expensive on the world market.

Furthermore, State food policy also aimed to increase the share of animal products (meat, milk, eggs) in consumption patterns. This led to the establishment of an animal feed industry (manufacturing poultry feed in particular), which concerned large volumes of secondary cereals (maize), and to guaranteed supplies of barley for rapidly growing numbers of sheep.

**Table 4.8 - Evolution of cereals imports (1000 T)**

<b>Year</b>	<b>Wheat</b>	<b>Barley</b>	<b>Oats</b>	<b>Maize</b>	<b>Total</b>
1966	775	40	9.7	2	827
1967	718	40	4.9	11	774
1968	704	30	0.0	4	738
1969	447	0	0.0	8	455
1970	343	0	0.0	12	355
1971	728	21	0.0	11	759
1972	1 169	71	0.0	37	1 277
1973	798	12	0.0	34	844
1974	1 706	87	0.0	17	1 810
1975	1 577	49	6.4	28	1 661
1976	1 684	67	3.7	95	1 849
1977	1 803	131	0.5	161	2 096
1978	2 410	520	5.1	187	3 122
1979	2 419	342	34.4	168	2 964
1980	3 001	269	8.5	107	3 385
1981	2 318	104	4.6	276	2 702
1982	3 229	465	9.6	373	4 077
1983	3 053	373	11.2	305	3 742
1984	2 940	614	17.3	519	4 091
1985	4 038	535	8.3	664	5 245
1986	3 654	0	0.0	918	4 573
1987	2 941	54	0.0	847	3 841
1988	3 857	572	0.0	913	5 342
1989	6 056	557	78.0	1 448	8 139
1990	3 604	283	134.1	988	5 009
1991	3 637	45	12.3	831	4 525
1992	4 037	110	3.7	991	5 141
1993	4 244	500	5.7	1 155	5 904
1994	5 263	667	25.5	1 378	7 333
1995	5 069	155	0.0	895	6 119
1996	3 200	0	0.0	731	3 931
1997	4 869	220	0.1	845	5 934
1998	3 959	560	0.0	952	5 471
1999	4 383	659	3.9	1 100	6 146
2000	5 373	570	8.9	1 482	7 434
2001	4 561	340	10.2	1 679	6 788
2002	6 028	593	9.1	1 878	8 508
2003	4 091	30	4.8	1 371	5 497
2004	3 882	49	0.0	1 822	5 753

Source : FAOSTAT and Algerian customs authorities.

It was from 1973 onwards – after the considerable increase in foreign exchange revenue obtained through the hydrocarbon market following the "first oil crisis" and despite the equally considerable increase in cereals prices on the world market

– that Algerian cereals imports became structural and increasingly massive. The volume of these imports more than tripled between the 5-year period from 1972 to 1977 and the 1982-1987 period, rising from an index of 100 to an index of 340. Ten years later their volume had increased more than fivefold (with an index of 526 in the 1997-2003 period) and amounted to a total volume of almost 6.9 million tonnes, i.e. more than twice the volume of domestic output. The average annual cost rose from US\$257 million in the 1972-1977 period to over US\$1 billion in 1992-1997 before dropping again to US\$856 million in the course of the last six years.

In the case of maize, since local production was hardly worth mentioning and direct human consumption was virtually inexistent, needs were satisfied exclusively by imports, which were intended directly for the animal feed manufacturing plants. Volumes increased from 1976 onwards at the growth rate in the production capacities of the poultry sector as a whole. Whereas less than 100 000 tonnes were purchased on the international market before 1976, the year when the first major poultry farms were launched, the quantities multiplied tenfold from 1987-1992 onwards; they then stagnated at an annual average of 1 million tonnes for over a decade before returning to a marked upward trend in the last five years, during which over 1.2 million tonnes were imported per year.

Barley imports, on the other hand, are intended to satisfy mainly the needs of sheep farmers, and import volumes vary widely from one year to the next since they follow fluctuations in local production. Before 1986 the volume of imports was often at zero level and always below 100 000 tonnes; they then became constant and increased rapidly in view of the growth in sheep numbers and the succession of years with low rainfall. They have amounted to almost 500 000 tonnes per year over the last six years.

**Table 4.9 - Evolution of cereals imports  
(million US\$)**

Year	Wheat	Barley	Oats	Maize	Total
1966	60	3	1.0	0	64
1967	55	3	0.3	1	59
1968	50	2	0.0	0	52
1969	39	0	0.0	0	40
1970	27	0	0.0	1	27
1971	54	1	0.0	1	56
1972	68	4	0.0	2	74
1973	90	2	0.0	4	96
1974	305	14	0.0	2	321
1975	385	9	0.8	5	400
1976	368	10	0.4	13	393
1977	305	19	0.3	21	347
1978	403	73	1.5	24	501
1979	465	50	20.3	28	563
1980	690	52	6.2	19	767
1981	632	18	2.7	59	712
1982	698	84	6.4	63	852
1983	555	50	7.0	50	662
1984	528	91	11.2	90	720
1985	752	74	4.6	106	936
1986	548	0	0.0	115	664
1987	433	4	0.0	87	524
1988	493	62	0.0	107	661
1989	981	76	25.6	222	1 305
1990	623	52	19.9	123	818
1991	455	9	6.7	115	585
1992	593	17	2.8	137	749
1993	656	70	2.8	142	872
1994	988	120	26.4	196	1 331
1995	1 069	17	0.0	134	1 220
1996	911	0	0.0	145	1 057
1997	1 050	33	0.0	144	1 227
1998	802	56	0.0	132	990
1999	671	68	0.6	150	890
2000	806	69	2.1	175	1 052
2001	728	42	2.2	205	977
2002	952	64	2.0	237	1 256
2003	675	3	1.2	160	839
2004	830	6	0.0	303	1 140

Source : FAOSTAT and Algerian customs authorities.

Wheat imports are intended for state-owned industrial processing enterprises, whose grinding capacities have quadrupled in just over 30 years (43 700 ql/day in

1965 and 180 670 ql/day in 1998). These capacities have doubled since 1998 following the liberalisation of the sector and the increase in the number of private mills. The direct sale of cereals to consumers is virtually excluded, and seed quantities account for only a very small proportion of total imports. Despite the very rapid and sharp growth in wheat imports and the subsequent increase in the volumes of semolina and flour produced by the national cereals industry, the regular supply of a sufficient quantity of commodities on the domestic market requires the import of a complement in the form of semi-finished products; the following table shows the volumes involved.

**Table 4.10 - Evolution of semolina and flour imports in grain equivalents (1000 T)**

Period	Semolina	Grain equivalent	Flour	Grain equivalent	Total grain equivalent	Index
<b>1972-77</b>	74.2	103.0	117.1	156.1	259.1	100
<b>1977-82</b>	460.4	639.5	202.9	270.6	910.1	351
<b>1982-87</b>	667.2	926.7	71.5	95.4	1 022.1	394
<b>1987-92</b>	766.9	1 065.1	95.5	127.3	1 192.5	460
<b>1992-97</b>	557.6	774.4	583.2	777.4	1 551.8	599
<b>1997-03</b>	14.8	20.5	258.7	344.8	365.3	141

Data sources: ENIAL<sup>3</sup>/DEP<sup>4</sup> balance sheet for 1995; balance sheets of the Agrobase Holding and ERIAD Group.

Imports ultimately played a key role in supplying the national cereals market. In view of the very limited progress registered in domestic cereals production, the State was doomed to constantly seek means of achieving a form of rational management of external supplies that suited the budget resources of the moment but offered a guarantee against the risks of shortages, which always had dire effects. The growing inadequacy of domestic supply forced the OAIC, which held the monopoly of the cereals trade from 1962 to 1996, to focus its activities primarily on controlling the flow from the world market. Annual imports were planned on the basis of the forecast of needs for each species and harvest forecasts as well as the stocks held by the cooperative network. This planning was never very easy because, first of all, there were no reliable consumption indicators. And it was made even more random by the inaccurate data on domestic production supplied by the Ministry of Agriculture.

The need to reconcile the world and domestic prices, to adjust imported volumes to the level of the national deficit, to ensure a regular supply for the processing industry, to build up reserves, and so on, were imperatives which induced the State to vest itself with means and regulatory mechanisms that were suited to its

<sup>3</sup> ENIAL : national food industry enterprise.

<sup>4</sup> DEP: Directorate for Surveys and Planning.

objectives in the field of food policy and economic policy in the broad sense of the term.

Obviously, in view of the oligopolistic nature of the cereals market, the OAIC's leeway was very limited as regards choice of suppliers or negotiating sales conditions – a situation common to all major importers. Import planning was already complex and was further complicated by the constraints imposed on the OAIC concerning the transport and handling of the cereals purchased on the world market. First of all, the State imposed observance of a preferential clause for the national armament, i.e. for the ships belonging to the National Maritime Company (CNAN) whenever they were available and even if it was more costly in relative terms to charter those vessels. It further required the OAIC to use the means and facilities of harbour enterprises for unloading the ships even though it had more efficient teams, whose services it was only allowed to use in addition to those of the harbour enterprises. Furthermore, the deficiencies of the country's port capacities (only one deep-water harbour - Oran - to which Djendjen harbour had recently been added, although the latter harbour was still underutilised in view of the difficulty in evacuating the quantities unloaded because of the lack of adequate road or rail infrastructures) limited the size of the vessels chartered (10 000 to 25 000 tonnes) and increased transport costs accordingly. The use of small boats required very rigorous negotiation of the contracts signed with the big shippers in order to avoid a situation where boats loaded with cargo had to wait in harbour, since these waiting periods entailed the payment of demurrage. These constraints combined to make it virtually impossible to achieve any appreciable reduction in the costs incurred in the reception of the veritable fleet of boats required to supply the country (there were up to 600 on average each year, i.e. two a day).

In addition, the management of these flows was made all the more difficult, since the problems posed by the above-mentioned specificities of the international cereals market were compounded by those posed by the complexity of the price formation mechanisms on the domestic market, whose operation ultimately depended on the behaviour of the OAIC.

The mechanism which had been adopted hitherto had an appreciable advantage: it meant that the domestic price system could be artificially disconnected from world prices. Local production did not actually compete directly with imported products, since the OAIC provided the guarantee that all of the commodities delivered by crop growers would be purchased at the guaranteed price through the cereals cooperatives.

However, it nevertheless cannot be said that the world market was absolutely neutral with regard to local production, since the certainty that regular supplies would be provided on the domestic market was bound to influence the behaviour of Algerian cereal growers, for whom this would be a further reason for confirming choices henceforth dictated solely by their aversion to risk, since self-sufficiency in cereals was considered less and less an absolute necessity.

It was thus not until 1994, when the constraints imposed had become sufficiently burdensome, that any major change was made to the price formation system in the cereals sector. This change was brought about essentially through the adoption of a new reference: the level of the import price, which was taken as a basis for determining the consumer price, the milling, bread-making and distribution margins of the various actors thereby being taken into account. So the consumer prices of bread, flour and semolina depended henceforth on the evolution of prices on the world market. The only subsidies that remained were thus those involved in the difference between the guaranteed prices paid to local cereal growers and the prices at which the commodities were sold to the processing industries. And wheat (both durum and common) was the only commodity still subsidised after the liberalisation of the marketing of the other cereals (barley, oats, maize). Local wheat production thus continued to benefit from protection against competition from imported products. It must be pointed out, however, that that protection was far from any level that would have compromised the chances of integration into the framework of the new world organisation of trade. A recent survey conducted by N. Lamdani and based on the construction of a policy analysis matrix (PAM) actually shows that national cereal production was not really protected at all, since the total Aggregate Support Measure (total ASM) was less than 3% for the years from 1994 to 1997.

After Algeria's ratification of the Agreement Establishing the World Trade Organisation and then of the Grains Trade Convention, a process for liberalising the import of cereals was launched seriously from 1996 onwards within the framework of the economic reforms the country had been embarking upon since 1987-1988. It created the opportunity for any economic agent (public or private), whether specialising in import/export operations or not (industrial firms which process cereals, for example), to import cereals on the basis of licences issued by the OAIC in accordance with specifications stipulating inter alia the quality standards and ceiling prices tolerated. The increase in the number of industrial milling plants in the private sector attracted many private import-export firms and scores of them embarked on activities in the import of cereals to such an extent that their contributions today account for 50% of the total volume of imports. But due to the vagaries of the world cereals market, particularly over the last two years, the weakest firms have withdrawn from this activity and it is conceivable that in the very short term there will be only five or six left including the Blanky Group, which has its own storage facilities and is also launching activities in the processing sector.

However, since the new operators have no obligation to guarantee that they will supply the national market, that function remains the privilege of the OAIC, which, not surprisingly, is finding it much more difficult to provide that guarantee than was the case in the past. The volatility of prices on the world market from one month to the next or from one season to another can cause the new actors to withdraw provisionally, and this forces the OAIC to take over just when prices are at their highest. The public agency thus now finds itself vested with the "moral"

responsibility of supplying the domestic market without having the prerogatives that it formerly enjoyed for fulfilling that regulatory mission. This to a large extent explains the delays that have accumulated in the measures to adapt the OAIC to the new status of Commercial Public Undertaking, which it acquired in 1997.

The Algerian market thus attracts the attention of many supplier countries with permanent or occasional cereals surpluses.

In the course of the last 10 years from 1995 to 2004, for instance, 36 countries delivered **durum wheat** to the Algerian market, and the average annual import volume amounted to a total of 2 996 716 tonnes with an average value of US\$564.1 million. Six of these suppliers are conspicuous by the regularity and volume of their contributions; in order of importance, they are Canada (38.2%), France (13.8%), Germany (11.7%), the US (10.5%), Mexico (7.2%) and Syria (6.2%). Together they deliver 87.5% of the volume imported by Algeria each year. However, whereas Canada, the US, France and Syria can be regarded as traditional suppliers, Germany and Mexico are "outsiders" which have seriously challenged the positions acquired by the first three countries. With 31.4% of market shares, the seven countries of the EU which contribute to supplying the Algerian market come only second after Canada.

**Common wheat** is the second cereal which Algeria imports regularly in massive quantities. There are now 35 countries which participate in supplying the Algerian market whereas there were less than 10 until 1998. That market has been absorbing 1 114 056 tonnes of common wheat per year amounting to an average value of US\$168.2 million. But it must be noted that the imported tonnage, and the cost, has been rising sharply since 2000. The two traditional suppliers – France and the US – account for 42.2% of imports, but France has taken the lead again (36%) after losing that position in the period preceding the Blair House Agreement (1984-1993) as the result of the aggressive commercial policy pursued by the US to win market shares, particularly in North Africa. The steady increase in imports from Germany must also be noted (that country now holds 15.9% of the market), as must the arrival in force of Russian wheat (13.3%). There are in fact five countries (France, Germany, the Russian Federation, Canada and the US) which provide 79.1% of supplies, the remaining 20.9% being supplied by the other 30 countries.

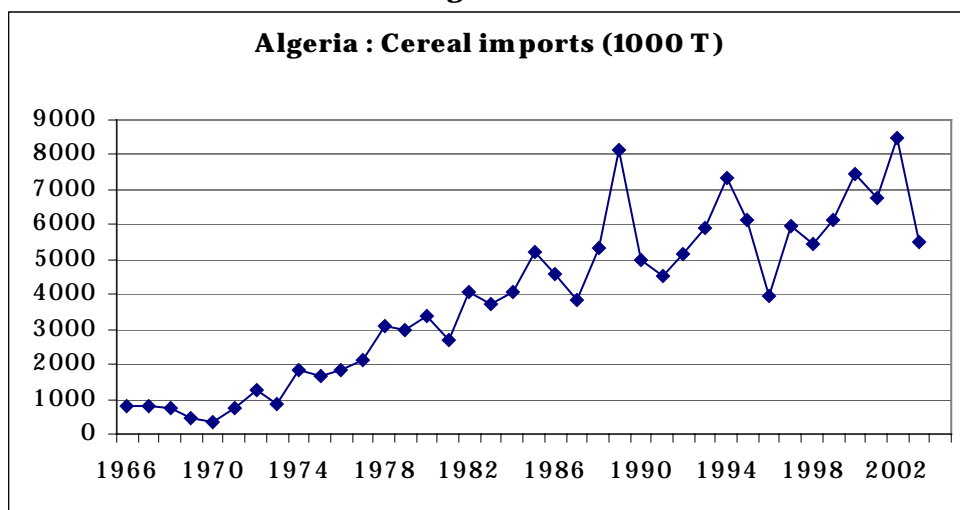
In the same 10-year period, no less than 34 countries supplied Algeria with **maize**. The market has absorbed an average annual of volume of 1 235 084 tonnes, but there has been a marked upward trend since 2000, since the poultry sector seems to be overcoming the crisis it went through following the implementation of the structural adjustment programme. In the last five years the average annual volume of maize imports has in fact amounted to 1 675 472 tonnes, which has been an increase of 110% compared to the previous 5-year period (794 696 tonnes). Only 4 of the 34 suppliers (the US, Argentina, France and Hungary) can be considered traditional suppliers. But the bulk of market shares is undoubtedly held by the US (74.65% of volume on average) followed by Argentina, which lags far behind with

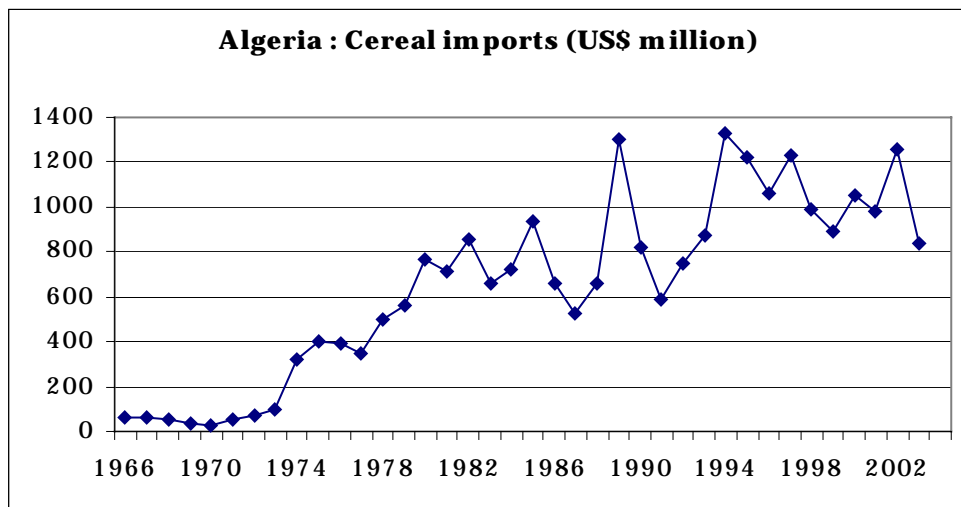


14.62%. Although France is always present in the list of suppliers, it only controls a very small market share – 1% – and is preceded by Hungary with 4.18%. The very modest remainder (5.5%) is shared by the other 30 supplier countries, which do not sell regularly on the Algerian market. In the period under review the average annual value of imports amounted to 182.5 US\$ million, the average price per tonne being US\$147.7.

As for **barley** imports, which have been a permanent feature since 1987, the average annual volume purchased on the international market amounted to 330 683 tonnes over the same period from 1995 to 2004, with an average value of US\$37.2 million, i.e. an average price of US\$112.35/tonne. These purchases were made from 22 different supplier countries, only five of which were able to control market shares of over 5%: France (28.5%), the Russian Federation (21.24%), the United Kingdom (12.1%), Spain (4.9%) and Germany (4.9%). These five countries together provide over 71,6% of the barley supplied to the Algerian market. The other 17 supplier countries share the remaining 28.4%, which is distributed very unevenly, however, since six countries – Ukraine (5.07%), Romania (4.28%), Syria (4.34%), Bulgaria (3.54%), Turkey (3.09%) and the US (3.01%) – capture 23.33% of the shares, actually leaving only 5.1% of the Algerian market to the other 12 countries.

**Figure 4.3**



**Figure 4.4**

In the final analysis, Algerian cereal imports amounted to an annual average of 5 677 539 tonnes over the last decade and to a total cost of US\$952 million. Wheat for human consumption alone accounted for 72.4% of the total volume (4 110 772 tonnes) and 76.9% of the total cost (US\$732.3 million).

The three scenarios that were constructed to evaluate future domestic supply and demand included an estimate of the evolution of imports over the next 10 years. In scenario no.1, the "optimistic" scenario, wheat imports would stabilise at 4.625 million tonnes at a total cost of 740.1 US\$ million, an increase of 19.7% compared to the hypotheses concerning the evolution of prices on the international market. In scenario no.3, the "pessimistic" scenario, wheat imports would increase by 14.5% amounting to a volume of 5.294 million tonnes, whereas they would cost something like 859.4 US\$ million, an increase of 38.9% compared to 2003. The midway scenario forecasts the import of 4 976 million tonnes, i.e. a moderate increase of 7.6%, at a total cost of 802 US\$ million, which would be an increase of 29.7% compared to 2003. In all three cases the degree of dependence on the international market would remain very high, ranging from 68.6% in scenario no. 1 to 73.8% in scenario no. 3.

**Table 4.11 Projections of wheat output, demand and imports from 2003 to 2015**  
**Scenarios A, B and C**

	<b>Units</b>	<b>2003</b>	<b>2015 A</b>	<b>2015 B</b>	<b>2015 C</b>
Population	million	32.08	38.58	39.04	39.51
Durum wheat output	1000 T	1 080.89	1 370.83	1 292.33	1 217.97
Common wheat output	1000 T	589.90	748.14	705.29	664.71
Total wheat output	1000 T	1 670.79	2 118.96	1 997.62	1 882.68
Durum wheat/capita	kg	95.00	79.24	84.21	89.45
Durum wheat demand	1000 T	3 047.60	3 057.40	3 287.52	3 533.85
Common wheat/capita	kg	90.00	95.55	94.42	92.18
Common wheat demand	1000 T	2 887.20	3 686.62	3 686.13	3 641.69
Total wheat demand	1000 T	5 934.80	6 744.02	6 973.65	7 175.54
Durum wheat imports	1000 T	1 966.71	1 686.57	1 995.20	2 315.88
Common wheat imports	1000 T	2 297.30	2 938.49	2 980.83	2 976.97
Total wheat imports	1000 T	4 264.02	4 625.06	4 976.03	5 292.85
Durum wheat imports	million \$	332.88	435.75	360.05	417.91
Common wheat imports	million \$	285.61	304.35	442.03	441.46
Total wheat imports	million \$	618.49	740.10	802.07	859.37
Imports/demand	%	71.85	68.58	71.35	73.76

#### **4.5 - The consequences for Algeria of the future WTO negotiations on access to the market and production and export support in exporting countries (US, EU, others)**

Algeria is currently deeply involved in measures aiming to integrate the national economy into the globalisation process to a greater extent in the short term. In September 2005 the country began to implement the Association Agreement which was signed with the European Union and is based essentially on the progressive dismantling of customs barriers with a view to completing the construction of the EU/Mediterranean free trade zone. In addition to this, Algeria is currently putting the finishing touches to an agreement on WTO membership, which is due to be finalised by the end of 2005 or beginning of 2006. What will be the main effects of the application of these two agreements on the Algerian cereals sector?

It has been mentioned above that the national market is already open to a large extent to trade in all cereals with the outside world, since imports cover over 70% of needs on average and the growth in domestic output is unlikely to lead to any appreciable reduction in that share in the medium-term. On the contrary, the projections which we have constructed show that, at best, the volume of imports will be stabilised at the present level and that it is highly likely that volume will grow significantly. The application of the two agreements with the EU and the WTO should result in a reduction of the customs duties levied on imported grain. These duties are currently very low (5%), and reducing them would be in the

interests of both industry (whose costs would decrease accordingly) and consumers (who should benefit from this decrease in processing costs). The State would be the only loser, since its customs revenue would drop, but since that revenue only accounts for a very small share of budget resources, this would hardly constitute an insurmountable handicap. Cereals from the EU already benefit from a preferential rate of 0% on the quotas defined by the agreement (100 000 tonnes in the case of durum wheat, 300 000 tonnes in the case of common wheat, 200 000 tonnes in the case of barley and 500 tonnes in the case of maize); these quantities are still below the selling capacity on the Algerian market, which means that the bulk of European cereals will have to be subject to the tariff negotiated with the WTO.

On the other hand, the application of these two agreements could have adverse effects on all of the firms in the sector that specialise in further processing (bakeries, pasta and couscous factories, biscuit factories), most of which would be uncompetitive if customs duties were considerably reduced. Since 1998, it has only been possible to reduce the volume of cereal derivative imports by maintaining a high customs tariff (30%), increased in 2000 by a Provisional Additional Duty, which was originally fixed at 36% and was to be gradually reduced to zero by January 2006.

However, in the case of cereal derivatives from the EU the agreement concluded makes provision for a 25% reduction of customs tariffs compared to the current tariff for a very limited number of tariff lines (4) concerning sensitive products.

What will be the predictable impact on Algerian cereal growers? The abolition of all forms of aid to farmers and the direct immediate confrontation of local production with imported products without any prior measures to upgrade local cereal farms would force national farmers to give up farming because they could not compete. But the fact that Algeria is situated in an agro-climatic zone where a semi-arid climate is the predominant feature leaves few production alternatives to farmers, most of whom would be doomed to retire from farming if they could no longer grow cereals.

The mechanism currently in operation is based on the fixing of a guaranteed minimum producer price (GMP) for both common wheat (GMP = 1 700 DA/ql) and durum wheat (GMP = 1 900 DA/ql), which is paid to farmers irrespective of the quantities they deliver to the collecting organisations. The GMP is supposed to correspond to the price normally charged by farmers in order to ensure that their activity is profitable. In the absence of any GMP their output would have been directly confronted with imported wheat, the international price would have been imposed as the reference price for local production, and they would without a doubt have stopped farming. So this mechanism provides support for all producers. It is close to the "deficiency payments" mechanism practised in particular by the United States. The greater the volume of domestic output, the greater the costs that will be generated for the State budget through the payment of the price differential (GMP – international price) to producers. This producer support is an indirect form

of protection of national production to the detriment of imports. The member countries of the WTO would certainly consider it unacceptable if the volume of imports did not already amount to a very large share of consumption, which means that there is no difficulty for foreign wheat to access the Algerian market. It does not in principle have any perverse effect on consumption, since it is the average price on the international market which constitutes the reference for forming the prices at which grain is sold to millers and for forming the consumer prices of wheat derivatives. The differential received by Algerian cereal growers does not influence the behaviour of the other operators in the sector, who can only regard the price they pay for the grain they use as a factor which guides their preferences for local grain or imported grain. Whatever the origin of that grain, the price they will pay for it will be determined solely by its intrinsic qualities. The same applies to consumers, who are at the end of the chain. Furthermore, farmers only receive the subsidy for the quantities that are delivered to the collecting organisations. But, as has already been stated, the quantity collected is, at best, equivalent to 50% of the harvest.

With regard to market access, the public authorities have already carried out fundamental reforms of the protection system, since the system currently in operation is one which allows fluctuations in the international price to affect domestic prices. At the present time, these domestic prices are equivalent to the CIF price increased only by port charges and a customs duty calculated in proportion to the CIF value.

With a system of this nature operators (millers, importers) are obviously absolutely free to decide on the quantities to be imported in order to supply the domestic market and the sources of their supplies.

In the final analysis, the main problem created by the application of the Uruguay Round Agreements lies in the difficulties it is bound to create for the stabilisation of the consumer prices of strategic products such as bread and semolina. All of the projections that have been elaborated on the future evolution of cereal prices on the international market rely on an upward trend connected with the reduction of the internal supports granted to cereal growers in the major exporting countries and to a moderate increase in world production. In Algeria, the efforts to maintain the current mechanism for determining consumer prices will have to be adapted through the introduction of a system for constantly updating the reference price (the average price on the international market), and it will thus have to be accepted that an increase in that international price will affect the consumer price, which would in fact become a market price. Will the consequences in terms of consumer purchasing power be politically acceptable?



CIHEAM

# Agri.Med

**Agriculture, fisheries, food and  
sustainable rural development  
in the Mediterranean region**



Annual report  
2006

Centre International de Hautes Etudes Agronomiques Méditerranéennes

# TABLE OF CONTENTS

	page
<b>FOREWORD</b>	<b>i</b>
<b>ACRONYMS AND INITIALS</b>	<b>xxi</b>
<b>PREFACE</b>	<b>xxv</b>
 <b>PART I :      The Mediterranean                   in the WTO negotiations</b> <i>(J.-M. Garcia Alvarez-Coque)</i>	 <b>1</b>
 <b>CHAPTER 1 :   The multilateral trade negotiations and their                   implications for Mediterranean countries</b>	 <b>1</b>
1.1   The Agriculture Agreement and the Mediterranean countries	1
1.2   Groups and positions	4
1.3   Issues and progress	7
1.4   CAP reform and agricultural trade negotiations	15
1.5   Looking ahead: the future of the multilateral trading system	20
1.6   Concluding remarks	23
Appendices	25
 <b>PART II :      The Mediterranean and the cereals issue.                   Geostrategy, trade, outlook</b>	 <b>31</b>
 <b>CHAPTER 2 :   Cereal supplies in the Mediterranean countries:                   situations and outlook</b> <i>(M. Allaya &amp; G. Rucheton)</i>	 <b>31</b>
2.1   Cereals consumption and demand	32
2.2   Cereals production in the Mediterranean region	35
2.3   Trade in cereals in the Mediterranean countries	37
2.4   Outlook	39
Appended tables	43

	page
<b>CHAPTER 3 : Cereals policies in Morocco</b> ( <i>A. Aït El Mekki</i> )	<b>51</b>
3.1 Introduction	51
3.2 Structural data on the cereals industry in Morocco	52
3.3 Historical overview of cereal price policy	60
3.4 Current price policy and trade system	63
3.5 Conclusions and recommendations: what should be the line of cereals policies in the future?	74
Appended tables	77
<b>CHAPTER 4 : Cereals policies in Algeria</b> ( <i>F. Chehat</i> )	<b>83</b>
4.1 Evolution of consumption and demand	83
4.2 The cereal growing and production systems	85
4.3 Market integration of cereal growers	92
4.4 The restructuring of imports according to origin	98
4.5 The consequences for Algeria of the future WTO negotiations on access to the market and production and export support in exporting countries (US, EU, others)	109
<b>CHAPTER 5 : Cereals in Spain</b> ( <i>A. Langreo &amp; I. Benito</i> )	<b>113</b>
5.1 Balance of cereals in Spain	113
5.2 Foreign trade in cereals	118
5.3 Cereals consumption	122
5.4 Cereals production in Spain	125
5.5 The cereals processing industry	134
5.6 The commercial network in the cereals sector	136
5.7 Organisation of the sector	138
5.8 The impact of the CAP reform and outlook	139
<b>CHAPTER 6 : Cereals and related policies in Turkey</b> ( <i>E. Cakmak &amp; O. Eruygur</i> )	<b>143</b>
6.1 Introduction	143
6.2 Agricultural policies and cereals	143
6.3 Area, production, yield and consumption	148
6.4 Prices and comparative support to cereals	167
6.5 Trade in cereals	171
6.6 Conclusion	184
Appendices	187



	page
<b>PART III : Consumers and the health and environmental quality of products</b> <i>(M. Padilla, R. Hamimaz, H. El Dahr, R. Zurayk &amp; F. Moubarak)</i>	<b>195</b>
<b>Introduction</b>	<b>195</b>
<b>CHAPTER 7 : The perception of risks and quality by Mediterranean consumers: elements of debate on the case of Morocco</b>	<b>197</b>
7.1 The challenges of quality and risks in developing countries	198
7.2 Consumers and food risks in Morocco	206
7.3 Food risks and quality marks	216
7.4 Conclusions	219
<b>CHAPTER 8 : The development of products protecting the health and the environment in the Mediterranean region</b>	<b>221</b>
8.1 The health-enhancing food market	221
8.2 The organic and hydroponic product market	230
<b>CHAPTER 9 : Mediterranean consumers and products protecting the health and the environment</b>	<b>247</b>
9.1 Consumer perception and purchasing motives in the Euro-Mediterranean countries	248
9.2 Perception and purchasing motives of (non-European) Mediterranean countries	250
9.3 Consumer perception of hydroponic products	252
9.4 Conclusion	253

	page
<b>PART IV : Country profiles: Spain, Algeria, Egypt</b>	<b>255</b>
<b>CHAPTER 10 : Spain</b> ( <i>V. D. Martinez Gomez</i> )	<b>255</b>
10.1 Agriculture and the Spanish economy	255
10.2 Agricultural and food production, food consumption and trade	260
10.3 Agriculture and agro-food policies	277
<b>CHAPTER 11 : Algeria</b> ( <i>S. Bedrani</i> )	<b>283</b>
11.1 Evolution of the national economy in 2004 and outlook	283
11.2 The context of the global economy and international trade and its implications for the Algerian economy and more specifically for the agricultural sector	287
11.3 Evolution of agricultural aggregates in the economy	287
11.4 Agricultural products	288
11.5 The agro-food industries	292
11.6 Foreign trade and the self-supply rate	293
11.7 The fisheries sector	296
11.8 Evolution of agricultural and rural development policies	299
11.9 Agriculture, natural resources and the environment	304
Appended tables	307
<b>CHAPTER 12 : Egypt</b> ( <i>M. Mansour Abd El-Fattah</i> )	<b>329</b>
12.1 Developments at the macroeconomic policy level	329
12.2 Agricultural resources and agricultural production	333
12.3 Agricultural policies	338
12.4 Production and agricultural income	354
12.5 Agricultural foreign trade	356
12.6 Food consumption	361
12.7 Agricultural and food industries	363
Appendices	365

	page
<b>PART V : Indicators of agricultural and food development</b>	<b>383</b>
<b>CHAPTER 13</b> ( <i>M. Allaya &amp; G. Rucheton</i> )	
13.1 Introduction	383
13.2 Notes on methodology	383
<b>REFERENCES</b>	<b>401</b>