5 Cereals in Spain[1]

Cereals account for 10-11% of the final agrarian production and just under 20% of the final crop production. Dry land crops, which occupy most of the area, show low and uneven yields due to climate conditions, and at the same time inefficient farm structures make it difficult to achieve economies of scale. However, these crops have a very high environmental value, especially in steppe bird habitats. Cereal farming in dry lands is practised in expansive disadvantaged areas, where it accounts for a large share of total agrarian production. In some of those disadvantaged areas of environmental value, the future feasibility of crop husbandry is called in question in the context of the new regulations and in the current structural conditions.

The present chapter discusses the main trends in the cereals sector during the last few years: production, consumption and foreign trade, the production structure of the agrarian sector, and the situation in the main sectors where there is a demand for cereals are analysed, and a brief explanation of trade conditions is also included.

5.1 - Balance of cereals in Spain

The overall balance of cereals over the farm years since Spain joined the EEC allows us to give the main parameters for the sector:

- a structural deficit, which has increased throughout this period;
- apparent consumption greater than output and growing, with less marked fluctuations than those registered in output;
- stagnant production subject to wide fluctuations due to agro-climatic effects in dry farming, while the area dropped by 1 200 000 hectares;
- steady growth in imports, much greater than the growth in exports;

[1] Alicia Langreo, Doctor of Agricultural Engineering. General Director of the Saborá Studies Company and Isabel Benito, Technical Agricultural Engineer. Director of the Saborá Studies Company (Spain).

Table 5.1 – Cereals balance (tonnes)

Farm year	Production	Imports	Exports	Variations in stocks	Apparent consumption
1985-86	20 509	3 525	2 189	-534	22 380
1986-87	15 999	2 793	662	-1 135	19 265
1987-88	20 209	2 865	2 618	79	20 376
1988-89	23 146	2 479	2 481	2 653	20 492
1989-90	19 346	2 326	2 203	-732	20 244
1990-91	18 171	3 179	1 462	-21	19 910
1991-92	18 770	3 573	2 003	1 307	19 139
1992-93	13 935	2 990	1 311	-2 346	17 959
1993-94	17 143	5 370	1 795	1 395	19 324
1994-95	14 882	5 187	2 948	-1 696	18 757
1995-96	11 226	8 617	1 335	-168	18 677
1996-97	21 633	5 328	2 708	2 187	22 065
1997-98	18 533	7 465	1 919	-485	24 564
1998-99	21 768	7 582	2 257	724	26 370
1999-00	17 312	7 702	1 995	-1 849	24 867
2000-01	23 794	7 138	2 444	1 665	26 823
2001-02	16 943	8 830	2 255	-1 523	25 042

Source: Ministry of Agriculture, Fisheries and Food (MAPA).

The growth in deficit since EEC accession is due to the increase in fodder consumption resulting from the development of intensive livestock production for meat.

The use of wheat in cattle feed, which has increased since the BSE crisis, and growth in durum wheat production have promoted the consolidation of imports.

The area dedicated to wheat farming has virtually remained unchanged or has grown only slightly since Spain joined the EEC (8% in the period from 1985 to 2003), while production has increased by 18%, although with considerable fluctuations. Yields show an upward trend despite marked fluctuations due to the effect of drought on dry farming.

There has been high growth in foreign trade, especially in imports, which increased to over 6 million tonnes; the volume of exports has increased fourfold. Most exports were of durum wheat.

Table 5.2 - Wheat: historical series of area, yield, output, value and foreign trade

Year	Area (1000 ha)	Yield (ql/ha)	Output 1000 t)	Average price received by farmers (€/100 kg)	Value (1) (€ 1000)	Foreign trade (2) (tonnes)	
						Imports	Exports
1985	2 043.3	26.1	5 328.7	15.64	722 705	232 197	198 251
1986	2 112.3	20.8	4 395.3	17.19	773 154	883 735	242 612
1987	2 221.3	26.1	5 790.9	16.81	976 446	731 384	742 240
1988	2 338.8	27.8	6 532.6	16.36	1 051 561	710 068	332 585
1989	2 317.3	23.6	5 468.2	15.70	858 422	180 272	341 002
1990	2 006.6	23.8	4 773.6	15.46	737 905	716 432	551 459
1991	2 223.3	24.6	5 467.7	16.64	909 607	1 886 338	586 682
1992	2 243.2	19.4	4 357.5	16.12	702 392	1 392 930	846 104
1993	2 030.5	24.5	4 973.0	16.20	805 789	1 977 580	1 106 780
1994	1 969.7	21.8	4 302.3	15.76	677 980	2 246 600	1 183 245
1995	2 126.5	14.8	3 138.7	16.98	533 096	3 146 126	864 192
1996	2 012.4	30.0	6 040.5	15.49	935 558	2 136 521	521 998
1997	2 078.7	22.5	4 676.6	15.43	721 786	3 172 031	392 826
1998	1 912.6	28.4	5 436.3	14.28	776 306	3 468 242	724 529
1999	2 455.4	21.5	5 281.3	13.79	728 144	3 538 540	600 224
2000	2 353.0	31.0	7 293.6	12.93	942 900	2 759 114	844 603
2001	2 177.0	23.0	5 007.7	14.88	745 145	4 207 822	1 299 652
2002	2 406.6	28.3	6 822.2	13.41	914 852	6 537 578	1 517 180
2003 (P)	2 218.0	28.4	6 290.1	13.80	868 034		

(1) The value of breeders' seed is not included.
(2) Flour included in grain equivalent; conversion rate from wheat into flour 0.75%, and semolina rate 0.72%.
(P) Provisional.

Source: MAPA.

The barley acreage dropped sharply – by 27% between 1985 and 2003, whereas the decrease in output was less marked (18%). Wide fluctuations were registered in both output and yields.

Table 5.3 - Barley: historical series of area, yield, output, value and foreign trade

Year	Area (1000 ha)	Yield (ql/ha)	Output (1000 t)	Average price received by farmers (€/100 kg)	Value (1) (€ 1000)	Foreign trade (2) (tonnes)	
						Imports	Exports
1985	4 245.6	25.2	10 698.3	13.2	1 401 218	1 971	953 407
1986	4 339.5	17.1	7 486.0	14.6	1 092 862	733 043	985 984
1987	4 396.6	22.3	9 894.3	13.6	1 339 428	97 335	286 559
1988	4 250.3	28.4	12 092.4	13.6	1 594 497	143 483	1 384 451
1989	4 305.2	21.8	9 428.7	13.6	1 286 355	8 895	1 660 546
1990	4 351.8	21.5	9 382.2	13.5	1 267 042	32 124	944 739
1991	4 412.8	21.0	9 270.1	13.6	1 265 275	106 349	613 650
1992	4 112.2	14.8	6 105.0	13.4	819 328	196 655	779 773
1993	3 540.9	27.4	9 700.8	13.3	1 286 164	74 921	383 062
1994	3 539.5	21.0	7 415.5	13.2	982 280	34 088	1 408 210
1995	3 555.9	14.2	5 046.6	14.9	751 594	1 242 185	269 203
1996	3 572.2	29.9	10 697.0	13.1	1 400 242	658 122	228 943
1997	3 682.3	23.2	8 549.8	13.3	1 140 241	412 044	270 489
1998	3 535.2	30.8	10 895.3	11.8	1 288 032	226 667	201 145
1999	3 120.0	23.9	7 459.5	12.1	901 663	218 707	618 032
2000	3 278.0	33.7	11 063.0	11.6	1 279 267	85 118	218 337
2001	2 992.1	20.9	6 249.1	12.7	790 516	823 382	217 888
2002	3 101.5	27.0	8 362.3	11.8	988 427	1 575 573	39 503
2003 (P)	3 089.0	28.2	8 698.4	12.2	1 056 856		

(1) The value of breeders' seed is not included.
(P) Provisional.

Source: MAPA.

Foreign trade is changing a great deal, but in the last few years the volume of barley exports decreased appreciably compared to the figures for 1985, while imports grew, although well below the growth in wheat and maize imports.

The maize acreage decreased less than 10% between 1985 and 2003, but yields grew considerably – by 40%, so production rose by almost 30%.

Table 5.4 – Maize: historical series of area, yield, output, value and foreign trade

Year	Area (1000 ha)	Yield (ql/ha)	Output (1000 t)	Average price received by farmers (€/100 kg)	Value (1) (€ 1000)	Foreign trade (2) (tonnes)	
						Imports	Exports
1985	526.2	64.9	3 413.8	15.74	539 048	3 857 830	1 669
1986	516.1	66.7	3 441.0	17.90	606 608	1 564 237	60 281
1987	532.7	66.8	3 559.3	16.59	593 926	941 807	458 205
1988	549.4	65.6	3 603.7	15.95	568 678	2 243 670	730 643
1989	490.3	68.6	3 361.2	15.54	522 202	1 378 278	456 770
1990	466.3	65.3	3 046.8	16.44	500 823	1 817 789	152 846
1991	484.8	66.7	3 233.3	16.48	532 840	1 680 772	285 424
1992	393.0	70.2	2 757.5	15.41	424 929	1 815 040	146 293
1993	264.5	61.7	1 632.9	17.12	279 501	2 401 345	130 164
1994	341.8	68.6	2 343.6	15.93	373 261	2 376 585	45 708
1995	357.5	72.5	2 590.4	16.65	431 251	3 141 440	118 320
1996	439.7	85.3	3 751.1	15.52	582 326	2 139 275	126 116
1997	487.2	91.4	4 453.7	14.04	625 284	2 547 990	179 770
1998	459.1	94.7	4 349.1	13.79	599 881	2 733 154	176 077
1999	394.9	94.5	3 731.0	14.08	525 389	3 045 421	98 817
2000	433.1	92.2	3 991.8	14.33	572 190	3 629 845	77 546
2001	512.5	97.2	4 981.9	13.64	679 531	2 829 648	166 244
2002	465.1	95.1	4 425.4	13.70	606 276	3 555 711	123 834
2003 (P)	476.2	91.1	4 338.7	14.79	641 694		

(1) The value of breeders' seed is not included.
(P) Provisional.

Source: MAPA.

Maize imports remained constant compared to the figures for 1985. They decreased during the second half of the 1980s, but since the second half of the 1990s they have been showing an upward trend, and production has also been rising.

The rice acreage has grown considerably since the mid 1990s. Between 1985 and 2003 the growth rate went up to 57%, and yields also grew, with the result that output doubled. There was a marked boom in foreign trade, and a considerable flow of exports has been consolidated since the second half of the 1990s.

Table 5.5 – Rice: historical series of area, yield, output, value and foreign trade

Year	Area (1000 ha)	Yield (ql/ha)	Output (1000 t)	Average price received by farmers (€/100 kg)	Value (1) (€ 1000)	Foreign trade (2) (tonnes)	
						Imports	Exports
1985	74.6	62.0	462.3	22.57	105 562	23 327	105 361
1986	79.7	63.2	503.8	21.59	108 218	25 362	69 539
1987	78.2	63.1	493.3	24.66	115 244	80 119	157 393
1988	81.4	63.2	514.5	27.06	135 186	66 261	126 331
1989	59.9	58.4	349.6	27.23	95 203	119 366	186 310
1990	90.3	63.1	569.9	25.60	145 878	181 539	184 742
1991	93.7	62.1	581.8	25.42	147 875	78 201	210 768
1992	85.7	64.5	552.6	26.42	146 000	66 855	196 437
1993	47.9	66.3	317.8	32.05	101 842	140 508	161 974
1994	66.3	61.5	407.6	38.18	155 631	176 695	102 663
1995	54.5	69.9	329.5	35.92	118 345	193 473	175 429
1996	105.1	69.8	734.0	33.56	246 334	158 231	163 489
1997	113.6	68.3	775.6	31.37	243 328	90 859	260 549
1998	112.7	70.7	796.3	29.01	233 334	94 455	310 669
1999	110.5	74.0	817.3	27.70	226 397	97 721	309 631
2000	117.0	70.7	827.1	27.44	226 961	98 210	268 891
2001	115.6	75.8	876.1	27.90	244 432	91 385	259 586
2002	113.5	72.2	818.9	27.51	225 285	81 601	317 716
2003 (P)	117.5	72.8	855.0	27.48	234 954		

(1) The value of breeders' seed is not included.
(2) In processed equivalent.
(3) (P) Provisional.

Source: MAPA.

5.2 – Foreign trade in cereals

Spain's imports are composed mainly of wheat and maize. Wheat comes from other EU member countries, in particular France, the UK and Germany, although imports also come from former USSR countries (Russia, Ukraine, Kazakhstan) and high-protein wheat comes from Canada. Maize comes from France and third countries, as a consequence of the EU-US Agreement, ratified by the WTO, according to which Spain imports 2 million tonnes of maize and 300 000 tonnes of sorghum per year under preferential conditions from third countries. Exports consist mainly of durum wheat or semolina and certain maize derivatives.

Trade with European countries is carried out through national middlemen in the country of origin or destination, while trade with third countries is carried out through the participation of the major world wholesalers.

Within the EU France and the UK have become Spain's "major cereals partners". Both countries pursue a constant commercial strategy in which their national organisms – ONIC and HGCA – play an important role.

Table 5.6 – Wheat: Spanish foreign trade, by country (tonnes)

Country	Imports			Exports		
	2000	2001	2002	2000	2001	2002
Total	**2 729 078**	**4 157 107**	**6 475 891**	**464 872**	**883 446**	**1 216 929**
EUROPEAN COUNTRIES						
Germany	57 614	366 006	246 582	24 223	68 882	79 741
Austria		24	24			
Belgium & Luxemburg	4 373	174	1	6 154	12 155	37 239
Denmark	2	31 979	13 197			
France	1 355 273	1 439 439	837 667	127 568	214 138	241 219
Greece		8 325	94 870	3 911	639	786
Ireland	7					
Italy	630	3 281	6 766	146 538	372 934	234 902
Netherlands	74	6	3 003	12 688	21 231	17 086
Portugal	90 027	172 541	210 556	67 322	82 517	83 450
United Kingdom	902 929	545 635	489 857	10 602	16 570	25 857
Sweden	3 885	118 641	51 187	2 075	8 883	6 019
Hungary			537			
Latvia			11 068			
Lithuania			36 263			
Poland			24 875	24	618	823
European Union	**2 414 813**	**2 686 051**	**2 026 452**	**401 105**	**798 567**	**727 122**
Bulgaria		4 143	445 939			
Romania		18 679	70 157		24	19
Turkey	26 140					15 846
THIRD COUNTRIES						
Argentina	1 915	503	45 424		19	46
Australia						
Canada	179 555	187 419	76 859			
United States	99 817	455 581	354 371			
Norway					8 630	4 707
Switzerland				14 191	1 233	1 575

Source: Statistics on Spanish Foreign Trade. Customs and Special Taxes Department.

Foreign trade in wheat has grown considerably since Spain joined the EEC, although imports have increased much more than exports. The trade balance is persistently negative. Further details are as follows:

- Wheat imports consist of three fundamental categories: high-protein wheat (imported mainly from Canada and Germany), common wheat (imported mainly from France and, to a lesser extent, from the UK) and wheat for cattle fodder (UK, France and third countries).
- Imports from the European Union have remained relatively stable – between 2 and 3 million tonnes.
- Within the European Union, France is the main supplier, followed by the UK and, to a much lesser extent, Germany. The first two countries have become indispensable suppliers of the Spanish market.
- Italy is the only country with which there is a relatively stable trade surplus.
- With the exception of high-protein wheat, purchases from third countries are erratic, being effected only when they are needed in order to compensate for the lack of either an adequate Spanish harvest or imports from the EU. The US and Canada are the most stable suppliers, but purchases are made from different countries according to commercial opportunities, as has been the case for several years with Russia and Ukraine.
- The increase in exports reflects a growing role of Spanish operators on the international market, particularly in the EU.
- Exports consist mainly of durum wheat and semolina. Foreign trade in flour is limited.

Foreign trade in barley is more limited and is also concentrated mainly in the EU. It is due to other cereals deficits on world markets.

Maize imports are high and indispensable for Spanish meat livestock development. Currently France is the main supplier, followed by Argentina and Brazil. Intensive livestock breeding in Spain and French cereals production almost form a production system per se, and Spain has become one of France's primary customers.

Table 5.7 – Maize: Spanish foreign trade, by country (tonnes)

Country	Imports			Exports		
	2000	2001	2002	2000	2001	2002
WORLD	**3 629 845**	**2 829 648**	**3 555 711**	**77 546**	**166 244**	**123 834**
EUROPEAN COUNTRIES						
Germany	190	12 794	569	41	115	210
Austria	1 268	1 138	8	2 194		
Belgium & Luxemburg	16	16	18		2 947	142
Denmark			27			1 503
Finland			27			
France	1 878 897	1 395 750	2 186 460	6 095	3 976	3 330
Greece	31		51 273	365	409	357
Ireland						11 397
Italy	19 210	2 025	4 154	697	1 537	2 095
Netherlands	305	1 046	1 050	60	22	3 922
Portugal	29 678	4 085	17 756	59 401	156 531	92 324
United Kingdom	230	271	2 912	34	4	7 820
Sweden		273		1	3	1
Cyprus						6
Slovakia			8		10	
Hungary	197 052	202	207 773		91	
Poland				8 287		10
EU	**2 126 877**	**1 417 599**	**2 472 032**	**77 176**	**165 646**	**123 117**
Bulgaria	9 407	–	–	–	–	–
Romania	34 737	–	–	–	–	–
Turkey	483	1 341	2 194	–	1	1
THIRD COUNTRIES						
Argentina	1 433 303	560 261	718 018	–	–	–
Brazil	18	774 027	290 560	–	–	–
Canada	56	61	127	–	–	–
United States	22 278	6 801	5 579	–	–	1
Japan	–	–	–	–	114	39
Switzerland	–	–	–	–	4	1

Source: Statistics on Spanish Foreign Trade. Customs and Excise Department.

5.3 – Cereals consumption

According to the White Book on Agriculture and Rural Development, average cereals consumption shows the following pattern:

- Human consumption is around 4.2 million tonnes, of which 3.7 million tonnes are common wheat for flour and 450 000 tonnes of durum wheat are for semolina.
- Barley consumption for malts and industrial uses amounts to 2.2 million tonnes.
- 1.2 million tonnes are for seeds.
- Around 13 million tonnes of cereals are for cattle fodder.

The main components of cereals consumption are animal fodder and grain-mill products for human consumption: flours, semolina and malts. There are other forms of human consumption (breakfast cereals, isoglucose in the case of maize, etc.) and several industrial uses, and a certain quantity is now also used for producing energy. Rice production must be added to this scenario; the bulk of output is used for human consumption. All of these forms of consumption are intermediate, so that the final product markets for meat and other farm products, pasta, bread, bakery products and beer are those which set the conditions for the cereals market.

5.3.1 - Fodder demand

Total fodder production amounts to almost 20 billion tonnes, more than 40% goes to swine, 26% to bovine and 23% to poultry. Fodder demand depends directly on livestock development and organisation on the one hand and pet food demand on the other. Livestock numbers are growing in general, particularly livestock for fattening, and this consolidates the livestock fodder and meat sector in various Autonomous Communities in Spain.

Table 5.8 – Mixed fodder consumption in Spain (tonnes). Exclusive of premixes

	1999	2000	2001	2002	2003 (*)
Pigs	6 785 411	7 730 660	7 732 860	8 137 137	8 235 000
Bovine animals	4 380 203	5 026 286	4 748 230	5 246 130	5 050 000
Sheep, goats, equine animals and others	1 164 358	1 417 671	709 441	809 658	845 000
Rabbits			790 000	790 000	760 000
Poultry	3 794 304	4 015 685	4 388 186	4 559 170	4 425 000
Fish, marine animals	99 923	90 417	117 786	105 717	110 000
Subtotal for farm animals	16 224 199	18 280 719	18 486 503	19 647 812	19 425 000
Subtotal for pets	289 513	433 116	449 591	128 279	421 416
TOTAL FODDER	**16 513 712**	**18 713 835**	**18 936 094**	**19 776 091**	**19 846 416**

(*) Estimates.

Source: Market Statistics. Spanish Confederation of Animal Feed Compounders (CESFAC). Based on data from the MAPA Technical General Secretary, 2003.

Pig and cattle feed consumption has grown in the last few years, while poultry feed consumption has fallen.

Table 5.9 – Share of each type of livestock in fodder destination (%)

	1999	2000	2001	2002	2003(*)
Pigs	41.82	42.29	41.83	41.41	42.39
Bovine animals	27.00	27.50	25.68	26.70	26.00
Sheep, goats, equine animals and others	7.18	7.76	3.84	4.12	4.35
Rabbits	0.00	0.00	4.27	4.02	3.91
Poultry	23.39	21.97	23.74	23.20	22.78
Fish, marine animals	0.62	0.49	0.64	0.54	0.57
Total farm animals	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

(*) Estimates.

Source: European Feed Manufacturers' Federation (FEFAC) and CESFAC, 2003.

Fodder demand is conditioned by livestock development, whose main characteristics in the past few years have been as follows:

- The bovine livestock headage increased by 27% between 1991 and 2001 due to:
  - an increase in the number of mother cows, which need fodder to supplement grazing;
  - the fattening of all or part of the calves born on farms producing mother cows;
  - a considerable increase in the number of animals younger than 12 months: 42% between 1991 and 2001; most of these animals go for intensive fattening, which provides the largest share of meat for consumption.
- The pig headage grew by 39% between 1991 and 2001, and the vertical integration system was consolidated, which means in particular an increase in the captive market share.
- The number of chickens for fattening also rose significantly.
- Egg production dropped by 12% during the 1990s.
- Significant growth in intensive livestock production began in areas in the interior of the country where human population density is low, opening up a new opportunity for development.

Between 60% and 65% of the fodder market is part of a "captive market", which consists of fodder going to integrated livestock[2]. Pet food accounts for less than 1% of the total, although it is a sector which provides more margins for producing companies.

5.3.2 – Consumption of flours and semolina derivatives: pasta, bread and bakery products

Flour and semolina consumption is directly related to the consumption of flour and semolina derivatives: pasta and bread, bakery products, biscuits and pastry. Both direct consumption and consumption in the rest of the agro-food industry is limited. Some flours are also used in the non-food industry.

Wheat flour output grew steadily during the second half of the 1990s, amounting to 2.9 million tonnes by 2002 (National Statistics Institute - INE), which was an increase of around 20%.

More than 90% of the total volume of bread consumed is fresh bread, but fresh bread consumption showed a downward trend from the beginning of the 1980s until 1992-1993, dropping from 65 kg per person per year to less than 55 kg. Since then consumption has increased slightly, amounting to 57 kg per person in 2003[3]. It can also be pointed out that the consumption of quality bread increased throughout this period and supply became more varied. A very important development is the increase in the consumption of frozen bread, which is changing production chain organisation.

---

[2] In the integrated livestock sector, the integrating company, usually the fodder producer, is also the owner of the livestock and establishes a service contract with the integrated farmer, who agrees basically to supply labour and installations.

[3] According to producers, this is due to immigration.

The consumption of biscuits, bakery and pastry products and pasta is much lower than bread consumption, but followed a very similar dynamic:

- The total consumption of biscuits and bakery and pastry products is currently over 561 million kg. It dropped slightly, but then recovered with the new varieties on the market.
- Pasta consumption amounts to over 183 million kg with annual fluctuations. It has also been influenced by new varieties and new competitors.
- All of these products are mainly consumed at home, although pasta consumption in hotel and restaurant channels and institutions is quite high (almost 16.5%). The share of unpacked bread consumed in the home is 83%.

5.4 – Cereals production in Spain

5.4.1 - Areas and cereals output in Spain

The area dedicated to cereals decreased by almost 1 200 000 hectares in the period under review, a decrease of more than 11% compared to the figure for 1985. During the same period the area of fallow and non-occupied land dropped by 1 380 000 ha.

Table 5.10 – Cereals: area, output and value, historical series

Year	Area (1000 ha)	Output (1000 t)	Value (€ 1000)
1985	7 591	20 972	3 014 635
1986	7 708	16 520	2 694 674
1987	7 881	20 698	3 156 942
1988	7 887	23 825	3 488 629
1989	7 909	19 700	2 885 387
1990	7 553	18 764	2 764 710
1991	7 813	19 467	2 954 942
1992	7 405	14 498	2 177 569
1993	6 456	17 474	2 568 876
1994	6 490	15 240	2 283 714
1995	6 694	11 571	1 906 501
1996	6 767	22 378	3 148 029
1997	6 990	19 341	2 853 059
1998	6 632	22 574	3 038 056
1999	6 698	18 142	2 485 731
2000	6 807	24 567	3 184 137
2001	6 428	18 055	2 575 447
2002	6 729	21 683	2 894 872

Source: MAPA.

Barley (almost 40%), wheat (over 30%) and maize (20%) make up most of Spanish cereals production. Compared with the figures recorded when Spain joined the EEC, wheat share went up 3 percentage points, barley went down 10 points, maize went up 3 points, rice went up 1 point and the rest fell. The decrease in barley production was mainly in the 6-row variety, while the 2-row variety remained stable.

Table 5.11 – Shares of cereals (%) (2002)

	Dry land	Irrigated area	Total area	Output
Wheat	38.87	20.29	35.77	31.46
Barley	49.87	27.26	46.09	38.57
Rice	0.00	10.09	1.69	3.78
Maize	0.59	38.42	6.91	20.41
Other	10.67	3.94	9.54	5.78

Source: Authors' own elaboration based on MAPA data.

The durum wheat acreage increased considerably from the early 1990s onwards to the detriment of strong common wheat, and this affected foreign trade. This growth continued throughout the 1990s, with the result that acreage has increased sixfold since Spain joined the EEC.

Barley and wheat are produced mainly on dry land, both crops occupying almost 90% of farmed acreage on dry land, and only around 10% of the area is irrigated. Maize and rice are grown almost exclusively on irrigated land.

Wheat, barley and oats yields differ considerably, depending on whether the crops are grown on dry or irrigated land.

Table 5.12 – Cereals: national summary of area, yield and output, 2002

Crops	Area (ha)			Yield (kg/ha)		Output (tonnes)	
	Dry	Irrigated	Total	Dry	Irrigated	Grain	Straw
WINTER CEREALS							
Total wheat	2 178 325	228 318	2 406 643	2 677	4 344	6 822 160	3 455 667
Total barley	2 794 859	306 665	3 101 524	2 528	4 228	8 362 328	4 691 444
Oats	422 441	32 744	455 185	1 853	2 990	880 705	514 401
Other (*)	168 127	6 923	175 050	9 990	13 143	337 020	211 965
SPRING CEREALS							
Rice (husk)	2	113 466	113 468	3 200	7 217	818 920	–
Total maize	32 938	432 196	465 134	4 093	9 927	4 425 373	–
Other (*)	7 274	4 703	11 977	6 559	14 373	36 209	
CEREALS TOTAL							
	5 603 966	**1 125 015**	**6 728 981**	**–**	**–**	**21 682 715**	**8 873 477**

Source: MAPA.

The irrigated area amounts to around 17% of the total area and accounts for 35% of output (2002). The share of irrigated area for all cereals has gone up 4 points since Spain joined the EEC, due both to a decrease in farmed dry land in absolute terms and to a slight increase in irrigated land.

5.4.2 – Geographic distribution of cereals production

We shall now analyse specifically the geographical areas for the more important types of cereals.

The wheat acreage is concentrated in five Autonomous Communities, accounting for 88% of farmed land (84% of irrigated land) and 84% of production (2002 figures). Greater yields on dry land, above 3 500 kg/h, are achieved in the Basque Country, Navarre, La Rioja, Catalonia, the north of Aragon, the north of Castile and Leon and the Guadalquivir Valley in Andalusia; these areas will probably be the main wheat-growing areas in the future. On the other hand, yields in several regions where large areas are dedicated to wheat are low: most of Castile-La Mancha, the south of Castile and Leon and the south of Aragon; here, farming prospects would seem rather problematic in view of the changes in the CAP.

Table 5.13 – Wheat: area, yield and output – analysis by province, 2002

Autonomous Communities	Area (ha)			Yield (kg/ha)		Grain crop output (tonnes)	Harvested straw (tonnes)
	Dry land	Irrig.	Total	Dry	Irrig.		
BASQUE COUNTRY	27 460		27 460	5 900		162 012	135 000
NAVARRE	69 697	8 615	78 312	3 845	4 398	305 876	155 996
LA RIOJA	29 732	4 973	34 705	4 252	5 000	151 285	127 075
ARAGÓN	285 307	42 286	327 593	979	3 982	447 704	158 860
CATALONIA	62 723	14 410	77 133	3 916	4 725	313 682	193 728
CASTILE AND LEÓN	681 501	53 485	734 986	2 860	4 448	2 186 814	1 205 041
MADRID	24 676	1 360	26 036	2 700	4 500	72 745	87 294
CASTILE–LA MANCHA	284 938	41 873	326 811	2 216	4 675	827 185	502 954
EXTREMADURA	149 010	5 700	154 710	3 716	3 883	575 830	172 749
ANDALUSÍA	529 011	49 580	578 591	2 775	4 285	1 680 535	643 515
REST	34 270	6 036	40 306			98 492	73 455
SPAIN	2 178 325	228 318	2 406 643			6 822 160	3 455 667

Source: MAPA.

In the 2002 farm year the area dedicated to durum wheat accounted for 38% of wheat area and its output for 31%. Yields were somewhat lower.

The area dedicated to durum wheat is concentrated in Andalusia, with more than 55%, and Aragon (25%), followed at some distance by Extremadura and Castile-La Mancha. The bulk of output is concentrated in Andalusia: 70%.

The cool dry lands of Andalusia were the main production area for strong common wheat, supplying the Spanish flour market and, during the first years that Spain was an EEC member they increased their exports to the other European markets. Durum wheat development has been tied to the differential subsidy, and this was done at the expense of strong common wheat, with the result that most durum wheat now has to be imported. A change in this subsidy will probably mean a return to strong wheat growing.

Table 5.14 – Wheat: analysis by province of area and output according to grain hardness, 2002

Autonomous Communities	Durum wheat		Common & medium wheat	
	Area (hectares)	Output (tonnes)	Area (hectares)	Output (tonnes)
BASQUE COUNTRY			27 460	162 012
NAVARRE	14 145	9 403	64 167	296 473
LA RIOJA	179	801	34 526	150 484
ARAGÓN	232 256	212 549	95 337	235 155
CATALONIA	70	291	77 063	313 391
CASTILE AND LEÓN	17 361	36 556	717 625	2 150 258
CASTILE–LA MANCHA	46 848	82 575	279 963	744 610
EXTREMADURA	96 800	321 503	57 910	254 327
ANDALUSÍA	516 900	1 486 933	61 691	193 602
REST	1 625	2 584	64 717	168 653
SPAIN	926 184	2 153 195	1 480 459	4 668 965

Source: MAPA.

Barley is concentrated in two Autonomous Communities, Castile and Leon and Castile-La Mancha, and together they account for 70% of area and production. Yield distribution is quite similar to that of wheat.

Table 5.15 – Barley: area and output - analysis by province according to grain hardness, 2002

Autonomous Communities	Area (hectares)			Yield(kg/ha)		Grain output (tonnes)	Harvested straw (tonnes)
	Dry	Irrig.	Total	Dry	Irrig.		
BASQUE COUNTRY	13 529		13 529	5 650		76 439	70 000
NAVARRE	94 879	6 510	101 389	2 751	3 610	284 513	142 265
LA RIOJA	16 158	3 560	19 718	2 395	4 600	55 074	41 306
ARAGÓN	320 686	50 423	371 109	2 269	3 343	896 084	272 479
CATALONIA	175 331	17 853	193 184	3 493	5 271	706 477	389 272
CASTILE AND LEÓN	1 185 793	99 114	1 284 907	2 256	4 120	3 083 857	1 763 132
CASTILE–LA MANCHA	759 808	104 549	864 357	2 931	4 813	2 730 315	1 643 753
EXTREMADURA	46 100	2 900	49 000	3 190	3 793	158 047	79 024
ANDALUSÍA	82 084	10 759	92 843	1 575	3 276	164 531	82 873
REST	100 491	10 997	111 488	13 873	15 494	206 991	207 340
SPAIN	2 794 859	306 665	3 101 524			8 362 328	4 691 444

Source: MAPA.

Rice is grown in five Autonomous Communities: Andalusia (35%), Extremadura (23%), Catalonia (19%), Comunidad Valenciana (13%) and Aragon (9%). In all of these regions the land is of great ecological value, and they all receive specific agro-environmental grants. Agriculture is expanding in emergent regions, Andalusia and Extremadura, where farm structures are better; the long-grain variety is grown in those areas.

Table 5.16 – Maize: area and output – analysis by province according to grain hardness, 2002

Autonomous Communities	Area (hectares)			Yield (kg/ha)		Output (tonnes)
	Dry	Irrigated	Total	Dry	Irrigated	
GALICIA	24 715	235	24 950	3 838	5 500	96 160
NAVARRE	249	11 676	11 925	4 425	8 361	98 725
ARAGON	51	78 707	78 758	3 785	8 471	666 957
CATALONIA	4 614	37 608	42 222	6 129	10 367	418 172
CASTILE AND LEON	462	126 396	126 858	4 987	9 337	1 182 446
MADRID	13	9 414	9 427	3 500	11 500	108 307
CASTILE–LA MANCHA	83	48 013	48 096	3 562	12 234	587 708
EXTREMADURA		67 000	67 000		9 715	650 900
ANDALUSIA	614	50 060	50 674	3 583	11 700	587 896
REST	2 137	3 087	5 224			28 102
SPAIN	32 938	432 196	465 134			4 425 373

Source: MAPA.

The maize area is concentrated in 6 Autonomous Communities: Castile and Leon, Aragon, Extremadura, Andalusia, Castile-La Mancha and Catalonia, which together account for 94% of acreage and 92% of output.

The main change that took place following Spanish accession to the EEC was the marked expansion of agricultural activity in Castile and Leon, where acreage increased from less than 5% to almost 30%. This process is related to the expansion of livestock breeding in the region, and the trend is likely to continue due to the decrease in land dedicated to beet as a result of the new trends anticipated in the WTO.

5.4.3 – Farm characteristics

According to the 1999 Agrarian Census, there are 434 720 cereal farms in Spain, i.e. 26% of farms with Agricultural Area in Use (AAU)[4]. On 82% of these cereal farms all of the land is dry, and there are 136 834 farms with at least one irrigated area. Cereal farms account for a total of almost 7 million ha, of which less than 1 million are irrigated.

Table 5.17 – Cereal farms according to production method

Size AAU (ha)	Total		Dry		Irrigated	
	Farms	ha	Farms	ha	Farms	ha
Farms with land	434 720	6 999 423	354 918	6 006 859	136 834	992 564
> 0.1 to < 0.2	2 513	160	1 708	102	833	57
> 0.2 to < 0.5	11 782	1 618	7 497	884	4 586	735
> 0.5 to < 1	20 673	5 857	12 973	3 147	8 570	2 710
> 1 to < 2	35 328	20 218	23 831	12 066	13 388	8 152
> 2 to < 3	27 445	27 039	19 819	17 391	9 130	9 648
> 3 to < 4	22 754	31 757	17 033	20 742	7 078	11 014
> 4 to < 5	19 256	35 121	14 739	23 290	5 763	11 831
> 5 to < 10	66 856	194 682	53 453	135 840	18 909	58 841
> 10 to < 20	70 735	430 636	59 092	317 974	20 980	112 662
> 20 to < 30	37 524	426 782	32 806	338 172	11 536	88 610
> 30 to < 50	39 980	762 489	36 383	641 817	12 382	120 671
> 50 to < 70	21 492	628 681	20 132	549 036	6 553	79 646
> 70 to < 100	18 698	766 331	17 668	684 566	5 557	81 766
> 100 to < 150	16 114	936 861	15 377	848 079	4 587	88 781
> 150 to < 200	7 710	595 919	7 362	540 117	2 339	55 802
> 200 to < 300	6 861	664 625	6 533	600 243	1 978	64 382
> 300 to < 500	4 718	575 096	4 485	512 061	1 344	63 036
> 500 to < 1000	2 982	495 468	2 806	424 809	883	70 659
> 1000	1 299	400 083	1 221	336 522	438	63 561

Source: 1999 Agrarian Census.

[4] The White Paper on Agriculture and Rural Development (MAPA 2003) states that 358 000 farms are receiving compensatory grants.

There is a high degree of farm fragmentation: 32% of farms have less than 5 hectares of AAU and together total less than 2% of the total area. At the other extreme, over 9% of farms have more than 100 hectares and account for 52% of the total area. Almost 11% of the farms which are entirely on dry land have more than 100 hectares, accounting for 54% of the area, and those larger than 500 hectares, which is the profitability threshold, will face tougher WTO rules in the medium term; these farms account for around 1% of farms and almost 13% of the total area.

There are 153 277 holdings whose economic and technical orientation (ETO) is "cereals and oleaginous and leguminous plants"; 35% of these farms include cereals in their crops. This collective structure is also very deficient: 75% have less than 16 European Size Units, a figure that can be considered the threshold for achieving a certain degree of modernisation and professionalism in farming activities; less than 0.75% of farms have over 40 ESU, yet they account for 41% of AAU.

Table 5.18 – Farms whose ETO is "cereals and oleaginous and leguminous plants"

ESU	Farms	AAU (ha)
Total	153 277	6 998 519
< 1	24 626	49 070
1 to < 2	17 373	91 712
2 to < 4	22 571	233 744
4 to < 6	14 874	248 632
6 to < 8	10 978	257 022
8 to < 12	15 628	518 865
12 to < 16	10 159	477 132
16 to < 40	25 849	2 208 275
40 to < 60	5 841	957 557
60 to < 100	3 351	835 821
> 100	2 027	1 120 688

Source: 99 Agrarian Census.

This fragmented structure explains why there is such small degree of professionalism among the existing cereals farms. In the case of those specialising within this ETO, the situation is as follows:

- The average work volume is less than half a YWU (Year-Work Unit), which makes professionalism difficult.
- Only holdings with an economic size of more than 40 EUD count on more than one YWU, and this goes for 0.75% of farms and 41% of the area.
- There is a high degree of ageing: less than 45% of farm owners are under 45 years of age and 30% are over 65. Ageing is lower in the case of the largest farms.
- Owner dedication to the farm is very low: almost 62% of farm owners dedicate less than 25% of their time, and less than 20% of farmers dedicate more than

75%. The scenario changes completely with farms larger than 12 ESU, where dedication increases appreciably.

In response to this situation, which makes farming unfeasible on most farms, agrarian tasks – even farm management – are being outsourced to a large extent in a process affecting farms of all sizes except for the biggest ones. In fact, management concentration is greater than farm concentration. This process is not reflected in any available statistics or well defined, but it is leading to a network of services companies in agriculture, which is demonstrating a high degree of efficiency; in certain cases cooperatives provide these services by developing "crop sections".

An indicator of this process is the number of farms that use machinery from other companies: 37% of all farms with AAU use tractors that are not their own and 60% of cereal farms use harvesters which are not their own.

5.4.4 - Specific characteristics of cereal-growing systems in Spain

Cereal farming is carried out mainly with a family workforce, although the number of employed wage earners is increasing on larger farms.

Farms are adequately mechanised, although the tractor fleet is very old; in order to address this problem the government has approved several renewal schemes, in which old tractors are bought from the farmers whenever they replace them.

Cereals production on dry land in the more arid regions, which account for half of the cereals acreage in winter, incurs high production costs due to low yields, which could only be improved through economies of scale and measures to reduce input acquisition costs and adapt farming techniques. But it is very difficult to develop such strategies due to farm fragmentation and the lack of organisation, factors which are closely related. According to the results of studies carried out by the MAPA in 2003, costs per tonne in the southern regions were twice as high as those in northern Spain.

The majority of the characteristics of cereal farming in Spain are related to topics analysed above. We shall now underline the more important ones and discuss which of them are going to have greater influence in the future.

Factors resulting from agro-climatic conditions:

- The huge yield variations in dry land farming, which are related to the long and recurrent periods of drought, lead to tremendous uncertainty. In order to find a solution to this problem, the Spanish Government launched an Agrarian Insurance Policy in 1980, which is very popular in general; dry land cereal farming has since become one of the most insured sectors of agriculture, with the result that it has now reached the maximum level of insurance possible.

- Agro-climatic variations are a cause of great uncertainty, which is a constraint on input use (fertilisers and certified seeds) in the areas where risks are greater.
- The use of certified seed for common wheat and barley is very limited, around 25% of the total, although it has doubled in the course of the last 10 years. This means that both varietal innovation and purity are low, which creates a classification problem.
- Due to the climatic diversity throughout the Iberian peninsula there is a very wide range of varieties, much wider than in other countries; this makes for genetic wealth but makes it difficult to homogenise crops and ensure crop quality.
- Besides yields, quality is also very variable due to irregular water supply in the areas with the lowest yields. This irregularity makes non-homogeneous harvests more difficult to sell despite the protein level obtained from the high sunshine.
- In the case of dry land crops, especially in areas with lower yields, fallow land techniques are quite widely used and are fundamental for maintaining soil fertility.
- Erosion is the main agro-climatic problem faced by cereal farming on dry land; one way of coping with this problem, in addition to measures such as reducing fuel consumption and more effectively retaining the low level of humidity of most of the soils, is to develop no-tillage or direct sowing techniques; these techniques are rapidly expanding, particularly on farms with more than 40 hectares of herbaceous crops.
- Cereals grown on irrigated land, especially maize, in regions with better yields and qualities, are facing potential restriction of water utilisation for irrigation.
- In Spain more than 60 000 hectares are farmed with genetically modified maize (Bt maize) in order to combat disease, mainly in the Ebro Valley.

Factors which are the result of farm structure:

- Farm fragmentation promotes a growing trend to outsource farming work, including farm management; this can greatly increase the number of services companies in the medium term.
- Lack of size makes it quite difficult to achieve economies of scale, so that currently most producers in the southern half of the country have to contend with very high costs, which make it difficult to survive in farming.
- Low professionalism makes it difficult to organise the sector, which is less well organised than in other EU countries. This is evident in the structure of the commercial network.

5.5 – The cereals processing industry

5.5.1 – The milling industry: semolina and flours

At the end of 2003 there were 209 flour mills and semolina factories distributed throughout the country. They are concentrated more in production areas (Castile-La Mancha, Castile and Leon, Ebro Valley) and near the ports used for cereal imports. The location of capacities in the flour industry is as follows: Ebro Valley (33.01%), Andalusia (19.92%), Castile and Leon (19.27%) and Castile-La Mancha (14.25%). The mills in Andalusia and along the coast obtain their supplies from imported wheat.

This industry location is a key point for the future; it will predictably remain close to the entry ports and to the areas with better average yields (northern Castile and Leon, most of the Ebro Valley, etc.), as mills located in production areas with low yields can be affected by the decrease in output due to the decoupling of aids.

The flour industry has been undergoing restructuring for some time, which has greatly reduced the number of companies: there were almost 500 in 1990 and 310 in 1995. Even now, there is still considerable milling overcapacity – 60% according to AFHSE (Flour and Semolina Producers Association of Spain) – which is weighing down the market.

A threefold process is taking place at the present time: large and medium-sized companies are concentrating, small companies and medium-sized companies in disadvantageous locations are closing down, and small and medium-sized companies that have found a market niche are becoming established. The company shutdowns, which are frequently related to when the owner retires, will probably continue, as will the concentration and growth of the bigger firms.

Due to the poor margins in this sector and the logistic costs inherent in the activity, company concentration will continue in addition to industrial concentration, and this will lead to a few big groups with several factories and a fringe of small local firms, specialising in certain production niches (ecological flours, differential qualities, etc.).

There is no foreign capital in this sector and most of the companies are family-owned, small or medium-sized. With the exception of one leading group, most of the companies are undercapitalised on the whole and their levels of investment are very low. The situation varies: one large leader company which owns several factories, a fringe of viable, fairly large companies, and a large segment of small companies, which are unlikely to survive in the medium term, except for those which find specific niches.

The semolina-producing subsector consists of nine factories located in Andalusia, Catalonia and Aragon, which belong to five different companies, three of which also make pasta. The companies in the latter two regions could be affected by the evolution of durum wheat production in a scenario of decoupling of aids. The installations are generally modern and capitalised.

5.5.2 – The fodder industry

There are 808 fodder companies according to the INE, while the CESFAC estimates up to 1 000, counting as fodder industries all farms producing fodder. But despite this fragmentation it is a rather concentrated sector, where the leader company has a share of 25% of fodder production, the first ten account for between 50% and 60%, and the firms affiliated to the CESFAC – almost 300 – account for over 80%.

Except for cases where there are specific market niches, small companies and those with no integrated livestock have poor margins and a precarious existence and face a difficult future, since working conditions have become more stringent due to the new food safety regulations applied to fodder. The concentration process in this subsector will thus probably accelerate.

The larger companies focus on fodder production for intensively produced livestock: pigs, poultry and bovine animals for fattening. They all have integrated livestock as a way to make fodder profitable by selling meat, but the livestock and fodder production sections within their structures are not always adequate. Due to the importance of their relations with integrated farmers, they have developed a considerable network of extension services. There are frequent conflicts with integrated stock breeders over the amount of income the latter earn, production rhythms, fodder quality, etc.

Currently there are around 20 fodder companies that use the certified CESFAC seal on their product, i.e. almost 20% of total production. This is the certified volume, and it is increasing rapidly.

The main fodder-producing areas are as follows:

- Catalonia (30%);
- Castile and Leon (15%);
- Galicia (11%);
- Aragon (10%);
- the triangle formed by Catalonia, Aragon and Comunidad Valenciana, accounting for 45%.

The Spanish Agrarian Cooperatives Confederation quotes the figure of 170 fodder cooperatives, most of them located in the Autonomous Communities of Andalusia, Catalonia, Castile-La Mancha, Castile and Leon and Galicia. They include big companies managed by integrated stock breeders (cooperative members and non-members), small cooperatives which do not include livestock and supply to a more or less integrated livestock market, and a collective of very small cooperatives.

It can be said that there is generally no connection between fodder cooperatives and cereal producers, except in the case of some large level-1 and level-2 co-operatives which have integrated their fodder and cereals sections. Together co-operatives provide 35% of total fodder production.

5.5.3 - Malt houses

The malt industry is very concentrated, with sizeable companies located near production areas. Most of them belong to beer producers, although producer cooperatives also participate in some of the biggest ones.

5.6 – The commercial network in the cereals sector

The first step in cereals trading is carried out by co-operatives, which handle approximately one-third of the total volume, and wholesalers, which handle two-thirds of the volume. Virtually no industries buy direct from the farmer.

It is the wholesalers who manage most of the storage capacities, and in many cases it is also they who supply seed and other inputs to farmers. The larger companies have been dealing in part of European cereals imports since the beginning of the nineties.

The number of wholesalers trading in cereals is very high – estimated by several experts on the sector at around 2 000. The wholesalers comprise a large number of very small firms which simply act as local middlemen, selling their goods to larger wholesalers.

A similar situation is found in cooperatives, a segment where many level-1 cooperatives collect rather small quantities, which they sell or, in some cases, simply pass on to level-2 cooperatives or wholesalers for them to sell.

The number of sizeable wholesalers is quite limited – only 25–30 operators, both large cooperatives and ordinary wholesalers. Their characteristics differ according to their legal status; the main features are described below.

There is a large number of level-1 cooperatives which trade cereals, though for many cereals are a second-tier product. The Agrarian Cooperatives Confederation of Spain says there are 464 co-operatives dealing in herbaceous crops with a share of around one-third of the cereals market. There are also 12 level-2 co-operatives, which handle large volumes and are very important on the cereals market. These companies are located primarily in cereal-producing areas; the largest share of co-operative structures in the cereals trade is found in Navarre and Extremadura, with more than 60%, and Castile and Leon (40%).

Cereals trade co-operatives have only weak links with those producing fodder. Only a few of them have a sizeable fodder manufacturing section.

There is a large number of these cooperatives in the cereal wholesalers sector (Trading Companies), but only 180 of them are members of the Spanish Association of Cereals and Oleaginous Traders (ACCOE). Around 40% of them can be considered medium-sized or large. They are located near the production and consumption areas.

The cereals traders also include large importers, which are big multinational companies operating on international markets. They deal on the oleaginous markets, and are related to the fats subsectors. Their share of common and durum wheat is low; some of them are big livestock multinationals. It is they which account for most imports from third countries, but they do not deal on the domestic market or on intra-European markets.

The Spanish cereals trade network has major deficiencies, which affect the organisation and efficiency of the market:

- Although there are adequate storage capacities for the needs of the Spanish market and for crop storage, there are no segmented storage capacities which would allow different qualities to be identified.
- In most cases, the commercial network does not have any cereals quality analysis systems, a fact which promotes lack of qualification on the market and prevents farmers from being paid according to quality.
- Logistic organisation is deficient, increasing costs and exacerbating the effect of rising fuel prices.
- Smaller companies lack qualified personnel (management, marketing staff).

The situation is different in areas with better yields and higher output, where the best companies are located.

The market in cereals produced in Spain is conditioned both by farmer characteristics and by the marketing network and has to contend with major problems.

- It is a not a well- organised market.
- There are two markets in the course of the year: the – very disorganised – two-month market following the harvest, and the market during the rest of the year, where larger cooperatives and wholesalers play a more important role.
- There is hardly any product identification or medium-term supply agreements.
- There is no national system for quality grading.

The characteristics of the imported commodity market are quite different:

- Imports from the European Union are effected by Spanish and European operators, in some cases with the participation of inter-professional organisations from the countries of origin. They consist of identified and homogenised goods, with a bonus for medium-term agreements. Stable flows from France and the UK have consolidated. Prices are usually higher.
- Maize imports from third countries are effected through the biggest wholesalers on the international markets. Purchases and supply agreements are concluded for future markets, where euro/dollar fluctuations are a fundamental feature.

5.7 – Organisation of the sector

The cereals sector is structured around three professional agrarian organisations, which are horizontal in structure and have been recognised by the Ministry of Agriculture, Fisheries and Food: the Agrarian Association of Young Farmers (ASAJA), the Coordination of Farmer and Stockbreeder Organisations (COAG) and the Small Farmers' Union (UPA). Each of them has an officer responsible for this sector and a minimum technical support structure. However, their involvement in the sector is rare and only for short periods; it is usually related to WTO modifications, and they pay little attention to all other aspects.

Currently the main moot point is how the modulation of aids is to be applied. The agrarian organisations' stance on the decoupling of compensatory aids has changed in the course of the debate, and a clear position in favour has been adopted.

The three organisations are integrated within the Wheat, Flours and Bread Inter-professional Organisation (INCERHPAN), but their participation is very limited. For instance, they do not contribute towards running expenses and did not participate in the agreement to pay for a advertising campaign to boost bread consumption. The same three organisations are taking part in talks with a view to forming an inter-trade organisation of fodder producers.

There are also several organisations with specific aims, either manufacturing (maize processors) or a crop system (Spanish Association of Conservation Agriculture, AEAC-SV).

The organisation of companies in other phases of the production chain is easier.

- Trading companies are associated within the Agrarian Cooperatives Confederation of Spain (CCAE), which has a Cereals Sector Board, and within the Cereals and Oleaginous Traders Association of Spain (ACCOE).
- The staple commodities industry is organised in different associations according to product: flour and semolina manufacturers, fodder manufacturers, malt producers, etc... All of them belong to the Food and Beverage Industries Federation (FIAB).
- The manufactured products industry also has its own associations: traditional bread manufacturers, frozen dough manufacturers, etc...

There is only one inter-professional organisation for the time being, INCERHPAN, which is endeavouring to reach an agreement to finance a campaign to promote bread consumption. An inter-trade organisation is in the making in the fodder sector.

There is also the Spanish Association of Cereals Technicians (AETC), which deals with topics related to the quality and improvement of cereal farming and the cereals industry.

5.8 – The impact of the CAP reform and outlook

The three points that will have an important impact on the cereals sector are the WTO modifications, the application of food safety requirements (traceability and hygiene standards) and agro-environmental measures.

The effects of the WTO modifications are due to two main issues:

- the decrease in the amount of the compensatory subsidy resulting from the freezing of the amount until 2013, which means losing inflation compensation;
- the 75% decoupling of compensatory aids and the application of one single payment per farm.

These two issues are important due to low cereal yields on dry land in Spain, which lead to high unit costs, and the activity will therefore become very fragile in view of the drop in subsidies. According to Ministry of Agriculture estimates in the White Paper on Agriculture and Rural Development (2003), the average costs for wheat and barley farming on dry land were around €200 per tonne in most regions, with the exception of the north of Castile and Leon and the most productive areas in the north of the Ebro Valley.

A result of the application of the decoupling measures can be that in areas where production costs (operating costs) are higher than the sum of sales plus 25% in the form of compensatory aid, farmers will stop farming unless measures can be introduced to reduce costs. Areas where average annual yields are lower than 1 200-1 500 kg/ha can find themselves in this situation; the MAPA identifies 42 such areas, although most of them are low-yield areas. With yields between 1 500 and 3 000 kg/ha, structural adjustments should be made and farming systems should be modified.

In order to evaluate the effects of the new situation, the structural situation of farms must be taken into account, i.e. basically the combined effects of the high fragmentation rate, old age and scant farmer dedication, plus the problems that stem from the insufficient professional organisation of the sector (low presence of cooperatives, few big cooperatives at levels 1 and 2, a commercial network that is not particularly efficient and low activity of inter-professional organisations).

Adaptation to the new agro-environmental requirements has been remarkably successful and the application of good agrarian practices is widespread. In general, agro-environmental programmes related to cereals are having considerable success. However, the application of traceability standards can be more difficult due to the existing lack of commercial organisation.

From the environmental point of view, the main risk for Spanish dry lands, particularly in the south, is erosion. An Association of Conservational Agriculture has been created in response to this threat with the support of the Higher Technical College of Agricultural Engineering in Cordoba and of several research centres, which are encouraging the development of conservational agriculture. Besides significantly limiting erosion, this production system allows better soil structure and humidity, saving 40% of fuel. No-tillage or minimum-tillage techniques are spreading very quickly in cereal areas, despite the fact that their application requires a certain amount of investment (in new equipment), a training plan for farmers and a minimum range of crops. This system will probably expand over the next few years.

During the last few years an agricultural services market has developed around dry land cereals through the outsourcing of various tasks and, increasingly, farm management. This process is not well reflected in the available statistics and is taking place to a certain extent in the underground economy. This dynamic has generated an important network of agricultural service companies, which are taking care of crops more and more, thus bringing concentration of management that is pushing real production costs down much more than statistics show. Various types of service companies play this role: farming sections of cereals cooperatives, which share equipment managed by cooperatives, companies providing technicians, agrarian equipment or any other inputs, farmers looking after and managing their neighbours' fields, etc... This process will probably speed up

considerably with the new measures, and this could help to prevent farmers from giving up farming in low-yield areas, since economies of scale will be possible.

Crops grown on irrigated land are unlikely to face any particular problems in connection with the with CAP reform. However, the modification foreseen for beet will mean an increase in cereal farming on irrigated land, especially in maize growing, a process that is already taking place in Castile and Leon.

The decrease in the specific subsidy for durum wheat will lead to an increase in the area under strong common wheat, mainly in Andalusia.

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