

IENICA

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INTRODUCTION

Portuguese agriculture is based on the cultivation of a large area of winter cereals (small grains, wheat, barley, oats and rye), grown as rain fed crops; some spring crops, which can be produced under good irrigation systems, like tomato for processing and rice, and other crops maize and potatoes that in some farms can be properly irrigated or not. Sunflower is a non-traditional crop, mainly grown as rain fed Spring crop. A large area is cultivated with perennial crops, such as fruit trees (fresh fruits: apples, pears, peaches and oranges); nut trees, (almonds, hazelnuts, filberts and chestnuts), grapes for wine and olive trees are also grown. These crops are part of the agricultural production; we also have a large area of forest. (Tables 1, 2 and 3)

Table 1 - Area(x1000 ha) with agricultural crops

Crops	71-80	80	85	90
Winter cereals	890	522	578	457
Maize	372	244	198	215
Rice	35	35	31	34
Beans + chick pea	330	96	68	65
Potato	113	112	123	117
Tomato for processing	18.5	18.1	20.7	16.9
Sunflower		25	40	105
Sub-total for annual crops	1758	1052	1059	1010
Fresh fruits	61	56	66	74
Nuts		57	58	61
Wine (x1000 hl)				267
Olive Oil (x1000 hl)				340
Sub total for perennial crops				742

Source: Moreira, sd

Table 2 – Total production (x 1000 t) of different crops

Crops	71-80	80	85	90
Winter cereals	788	736	688	544
Maize	471	489	531	658
Rice	139	152	144	156
Beans + chick pea	57	36	37	34
Potato	1086	1596	1622	1300
Tomato for processing	674	457	736	826
Sunflower		22	28	61
Sub-total for annual crops	3215	3488	3786	3579
Fresh fruits	333	426	541	625
Nuts		30	38	46
Wine	9708		9012	8073
Olive Oil	470		418	370

Source: Moreira, sd

Table 3 – Area with forest crops

Specie	Area (x 1000 ha)
<i>P. pinaster</i>	1249
<i>Eucaliptus</i>	500
<i>Quercus suber</i>	660
Other	791
Total	3200

Source: Moreira, sd

CLIMATE AND SOILS

Portugal is located in the Southwest of Europe, with a Mediterranean climate, rain during the winter and a very dry and hot summer. The inter annual variability of the rain is very large, which usually causes an extreme variation in the yield of rain fed crops, like winter cereals. An explanation for how the climate varies in Portugal from North to South, the annual rainfall average from 1539 mm in Braga to 453 mm in Faro and the annual average temperature changes from 14.4 to 17.8 °C.

Travelling from West to East, the conditions are more continental, with less rain as we approach the Spanish border and with a bigger difference between the winter and summer average temperature. The variation in rain is similar to the temperature. During the months of June, July and August, the wettest places may get 100 mm of rain, and the driest only 20 mm.

The soils are poor (normally low pH, low organic matter content and low phosphorous content); there are erosion problems in some regions as the country has a lot of small ranges, with extreme slopes and there is a lack of relay flat areas.

TECHNICAL BACKGROUND OF FARMING

The agriculture in Portugal is very diversified, from North to South. The instruction of farmers is very diverse, within each region and from one region to the other; the younger farmers having a higher degree of education.

The goals of each type of enterprise are different: we still have self-subsistence farms and others that are totally market orientated. The first type is mainly located in the northern part of the country, where the farms are very small (Table 4).

The most developed sectors are among the wine and the milk production areas. In table 4, we have some general indicators that show us such differences between regions.

Table 4-Some technical indicators for the different agrarian regions

Regions	SAU/enterprise. (ha) ¹	SAU/UTA (ha) ²	Area cropped /SAU ³	Power (CV) per SAU ⁴	Power (CV) per UTA ⁵	Animal (CN)/SAU ⁶
Entre Douro e Minho	2.6	1.5	1.40	4.62	7.05	1.18
Beira Litoral	1.8	1.4	1.32	5.83	7.92	1.54
Trás-os-Montes	6.1	6.7	0.88	1.36	9.08	0.40
Beira Interior	7.2	6.9	0.75	1.25	8.62	0.45
Ribatejo e Oeste	4.6	4.0	0.98	4.19	16.85	1.08
Alentejo	40.7	29.8	0.55	0.78	23.31	0.33
Algarve	5.3	5.8	0.78	2.58	14.96	0.42
Continente	7.1	5.6	0.78	1.96	10.93	0.58

Source: Rolo (1996)

1 –Area used per enterprise

2 – Area used for crop production per unit of agricultural work

3 – Area with crops per total area of the enterprise

4 – Power from machinery divided by area

5 - Power from machinery divided by number of workers

6 – Number of “adult head of cattle” divided by the area

AGRICULTURAL PRODUCTION

Historically, Portugal has always had a shortfall in cereals, mainly wheat, as it was the basic food crop. This wheat production shortage was one of the reasons for the Portuguese expansion to Africa and latter to Asia and South America.

Due to the poor climatic conditions for agricultural production, the self-sufficiency in several commodities is low. Table 5 presents the values for several of them

Table 5 - National Production, Import, Export, Used and self-sufficiency of several commodities.

A) Cereals

Year	Nat. Prod. x1000t	Imp. x1000t	Exp. x1000t	Used x1000t	Self-Sufi. %
1990/91	1272	1709	47	3028	42.0
1991/92	1628	1637	73	3257	50.0
1992/93	1236	2162	31	3291	37.6
1993/94	1392	2344	79	3572	39.0
1994/95	1535	2439	86	3735	41.1

Source: INE (1996)

B) Wheat

Year	Nat. Prod. x1000t	Imp. x1000t	Exp. x1000t	Used x1000t	Self-Sufi. %
1990/91	297	795	34	1117	26.6
1991/92	619	574	55	1175	52.7
1992/93	362	1024	13	1303	27.8
1993/94	422	1079	32	1431	29.5
1994/95	462	1077	46	1431	32.3

Source: INE (1996)

C) Maize

Year	Nat. Prod. x1000t	Imp. x1000t	Exp. x1000t	Used x1000t	Self-Sufi. %
1990/91	666	741	12	1439	46.3
1991/92	656	829	13	1511	43.4
1992/93	628	965	7	1561	40.2
1993/94	638	1106	19	1672	38.2
1994/95	728	1141	22	1785	40.8

Source: INE, 1996

D) Potato

Year	Nat. Prod. x1000t	Imp. x1000t	Exp. x1000t	Used x1000t	Self-Sufi. %
1988/89	1280	228	7	1501	85.3
1989/90	1358	197	10	1545	87.9
1990/91	1343	318	9	1652	81.3
1991/92	1421	376	10	1787	79.5
1992/93	1569	195	15	1749	89.7

Source: INE 1993

E) Total of seeds and fruits oleaginous

Year	Nat. Prod. x1000t	Imp. x1000t	Exp. x1000t	Used x1000t	Self-Sufi. %
1991	401	1143	12	1525	26.3
1992	446	917	8	1374	32.5
1993	270	820	11	1068	25.3
1994	324	844	9	1156	28.0
1995	345	1173	10	1498	23.0

Source: INE (1996)

NON FOOD INDUSTRIAL CROPS

At the end of last century several fiber plants were cultivated in Portugal, Table 6, identifies the plants and the textiles manufactured.

Table 6 – Production and utilisation of textiles plants, in the beginning of the 20th century.

Plant	Utilisation
Flax	general fabric production
<i>Cannabis sativa</i>	ropes and fabric for sails
<i>Boehmeria utilis</i> , Bl	fabric
<i>Boehmeria nivea</i> Hock et Ara.,	fabric
<i>Stippa tenacissima</i> , L.	ropes, carpets, baskets etc.
<i>Chamoerops humilis</i> , L.	small ropes, strings, baskets,
<i>Phoenix dactylifera</i> L.	hats of “straw”
<i>Agave americana</i>	ropes and fabrics
<i>Juncus maritimus</i> , Lam	“empreita” (twisting the fibbers)
<i>Juncus inflexus</i> , L.	“croças” traditional water proof overcoat
<i>Juncus acutus</i> , Lam.	“croças”, ropes, baskets
Mulberry tree	silk production, since the VII century, till 1898

Source: Cincinato, 1900

These textiles plants today are cultivated in a very small area and dominated by the flax. The others, were forbidden to be grown to protect the production in the former colonies or they lost their value as an industrial raw material.

Today the production of fibber crops is very limited, with the exception of the forest products used for paper pulp, chip wood and other industrial uses.

Flax and Hemp are now being produce, specifically due to the subsidies paid, but the raw product is transformed mainly in Spain. The cultivated area is quite small and the interest in the production is manly due to the subsidy and not the demand.

Textile Industry

Portugal has a large textile industry but the great majority of the raw material used, like fibbers, starch and dye, are imported.

Sugar beet

The crop is quite new, no more them 5 years in Portugal, as the sugar production was based on sugar cane, produced in the former colonies, till 1974.

Research on non food industrial crops

The research on these topics is basically found in two institutions: Ministry of Agriculture and the Foundation for Science and Technology (FCT). At the moment two research projects, funded by Ministry of Agriculture, through the PAMAF program are being carried on. A project in oil seed rape and another with aromatic plants mainly used as herbs, but considering alternative uses.

The FCT had financed two projects on the following themes: one is “Production of essential oils from *Rosmarinus officinalis* and *Thymus martichina* and the other “Determination of the composition of the essential oils of the genus *Juniperus* in Portugal”.

In the past, a few reports were published on sugar beet, Kenaf in 1991 and 1992; six cotton studies, from 1976 to 1982; and some reports on tobacco and lupinus.

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