

2. Brucellosis

2.1. Brucellosis in animals

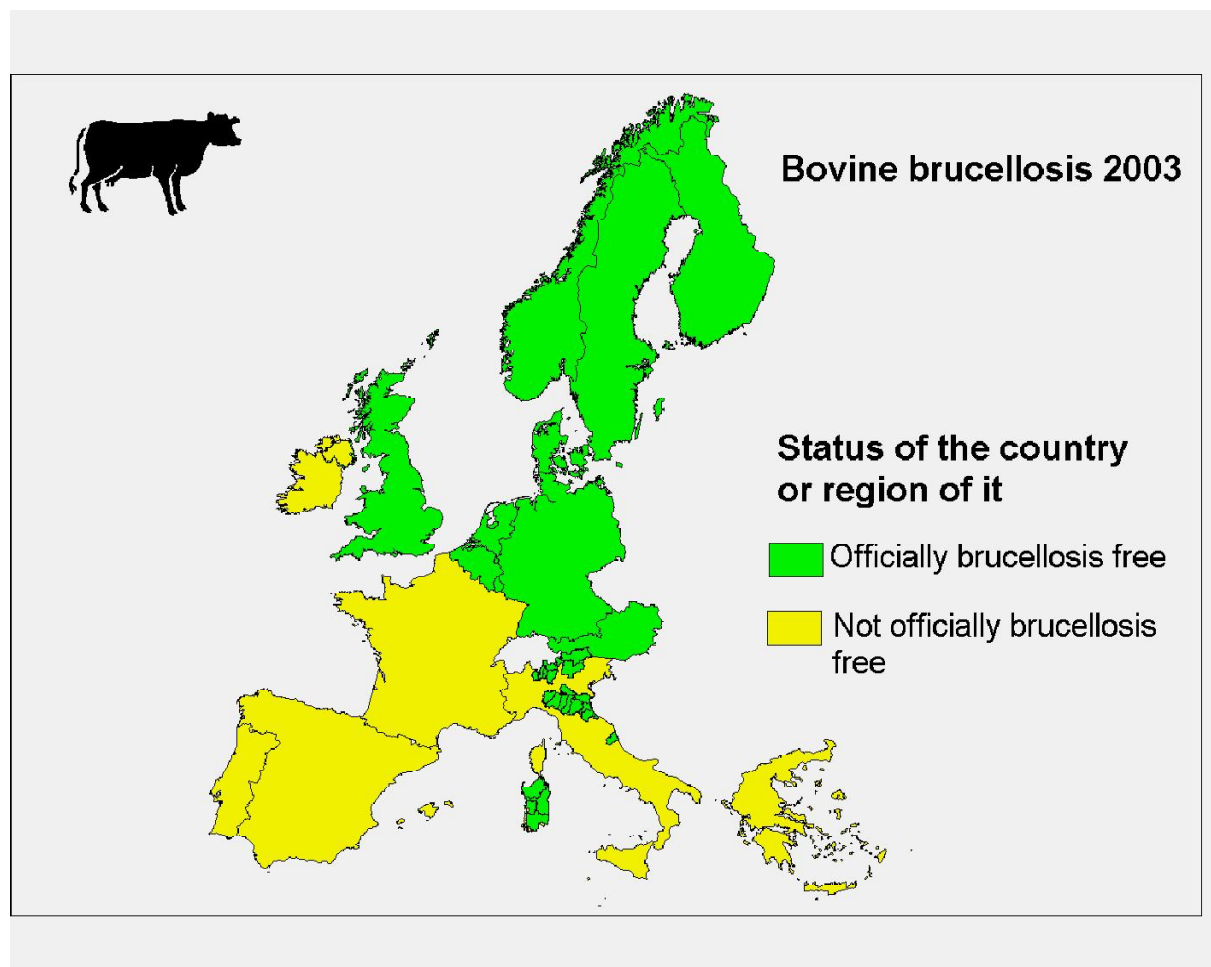
2.1.1. Bovine brucellosis

On the basis of Directive 64/432/EEC (as amended by Directive 97/12/EC) Austria, Belgium, Denmark, Finland, Germany, 21 provinces in Italy, Luxembourg, Sweden, The Netherlands, Great Britain and 4 islands of the autonomous region of the Azores (Portugal) were recognised officially brucellosis free (OBF) by the end of 2003.

In 2003, Belgium and 21 provinces in the regions Lombardia (6 provinces), Marche (1 province), Trentino-Alto Adige (1 province in addition to Bolzano), Emilia-Romagna (9 provinces) and Sardinia (4 provinces) in Italy were recognised OBF by Decisions 2003/164/EC and 2003/467/EC respectively.

According to Decision 227/96/COL Norway has also reached the OBF status.

Figure BR 1. Bovine brucellosis in 2003 – status of the countries



Note: Some insular regions are not shown in the map

In most non-OBF countries (France, Greece, Ireland, Italy, Portugal and Spain) eradication programmes for bovine brucellosis approved for Community co-financing were run in 2003 (Decision 2002/943/EC).

Requirements for surveillance of brucellosis in cattle are different for countries recognised OBF and the other countries. Therefore, the epidemiological situation as regards bovine brucellosis is described separately in the following paragraphs.

OBF countries

In Belgium, which gained the OBF status in 2003, no infected herds were recognised in 2003. 99,98 % of the herds are recognised OBF.

In several OBF countries suspicious cases were identified on the basis of clinical symptoms, routine testing or during the examinations at AI stations. Some of these animals have been immediately destroyed. Only a few of the cases were finally confirmed to be positive by culture. In Austria, out of 41 herds with a suspicious result, finally 2 herds were confirmed positive.

During 2003, *Brucella abortus* was isolated from four herds in Scotland. All the infected cattle and the contacts at risk were slaughtered (22 reactors and 363 contacts). In each of these cases the origin of infection was directly linked to cattle moved from Ireland. Infection was detected in three of the cases following a report from the Veterinary Authority in Ireland, that the cattle moved to Great Britain had originated from a herd which had subsequently had a breakdown, and in the fourth case on post movement check testing. As these were isolated cases with no further spread, Great Britain has retained its Officially Brucellosis Free Status.

Data for the regions of Member States, recognised OBF, were not presented separately, therefore the whole country is described in the section on the non-OBF countries.

Non-OBF countries

Notification data

The number of herds meeting the legal requirements of being OBF is notified to the central competent authority. This type of information is not reported for each of the **non-OBF countries**, as regards the number of newly recognised infected herds. At the end of 2003, between 81 % (Portugal, Greece) and 100 % (Ireland) of the herds were recognised OBF.

The share of infected herds at the year-end ranged between 0,0004 % (France) and 1,3 % (Portugal). In France, one herd was infected at the end of 2003. No infected herds were recognised in Madeira.

Table BR 1 summarises the share of OBF herds in non-OBF Member States.

Regular testing

There is no close relationship between the number of herds notified officially brucellosis free and the results on the basis of routine testing of the herds. This might be explained by the fact that the population covered in routine testing within a reporting year is different from the total population of a country covered by the notification requirement.

On national level, the rate of herds with positive reactors ranged between 0,001 % (France) and 4,1 % (Greece) in 2003. In Madeira, no positive reactors were identified. In France, reactors in three herds were confirmed. In another three countries, Ireland, Northern Ireland and the mainland of Portugal, less than 1% of the tested herds showed positive reactors. Highest rates of infection were reported within the regions of Greece (4,1 %), where an eradication campaign is run and on some of the Azores islands (4,9%), although some of them were recognised OBF.

There was no common trend in the countries. In Italy, situation has remained comparable over several years now. In Spain, after an increase observed in 2001, the infection rate detected within the first testing remained at the level observed in 2002. Similarly, on the Azores and the mainland of Portugal, the share of herds positive in routine testing decreased in 2003. In Greece, in 2003, 4,1 % of the herds tested were found positive in those regions where an eradication campaign is run, which is an increase compared to the 3,6 % observed in the previous year.

In Ireland and Northern Ireland, less herds gave a positive result in routine testing. A detailed analysis of the situation in Northern Ireland is described in the national report.

Results of routine testing of bovine herds are given in Table BR 2 and Figure BR 2.

Table BR 1. Bovine brucellosis on the basis of notification, 2003

	Herds under control	OBF herds	% OBF herds	Notification at year end		Notification during year	
				Herds infected	% Herds infected	Herds infected	% Herds infected
France	277291	274859	99,12	1	0,0004	3	0,001
Greece	25723	20989	81,60	263	1,02	-	-
Ireland	126084	126084	100,00	112	0,09	167	0,13
Italy	150508	129198	85,84	1226	0,81	1025	0,68
Northern Ireland	30367	29060	95,70	192	0,63	161	0,53
Portugal	95881	78071	81,42	1273	1,33	129	0,13
- Mainland	81612	67788	83,06	912	1,12	57	0,07
- Madeira	3534	3534	100,00	0	0,00	0	0,00
- Azores	10735	6749	62,87	361	3,36	72	0,67
Spain	159314	153316	96,24	1157	0,73	-	-

Figures given in this table do not necessary coincide with those reported by the Member States in the framework of the eradication programmes

Table BR 2. Results of routine testing of herds for bovine brucellosis in Member States not officially brucellosis free

	2002			2003		
	Herds tested	Herds positive	% herds infected	Herds tested	Herds positive	% herds infected
France	279098	2	0,00	273861	3	0,001
Greece ⁴	13988	505	3,61	12747	525	4,12
Ireland	124195	217	0,17	126084	167	0,13
Italy	142602	1759	1,23	136217	1863	1,37
Northern Ireland	19447	225	1,16	18441	175	0,95
Portugal	79469	856	1,08	73692	653	0,89
- Mainland	72657	477	0,66	66065	292	0,44
- Madeira	394	0	0,00	270	0	0,00
- Azores	6418	379	5,91	7357	361	4,91
Spain ¹	162417	2229	1,37	158407	2295	1,45
Spain ²	174978	3950	2,26	-	-	-
Spain ³	162417	1783	1,10	-	-	-

Figures given in this table do not necessary coincide with those reported by the Member States in the framework of the eradication programmes

¹ First testing

² First and repeated testing

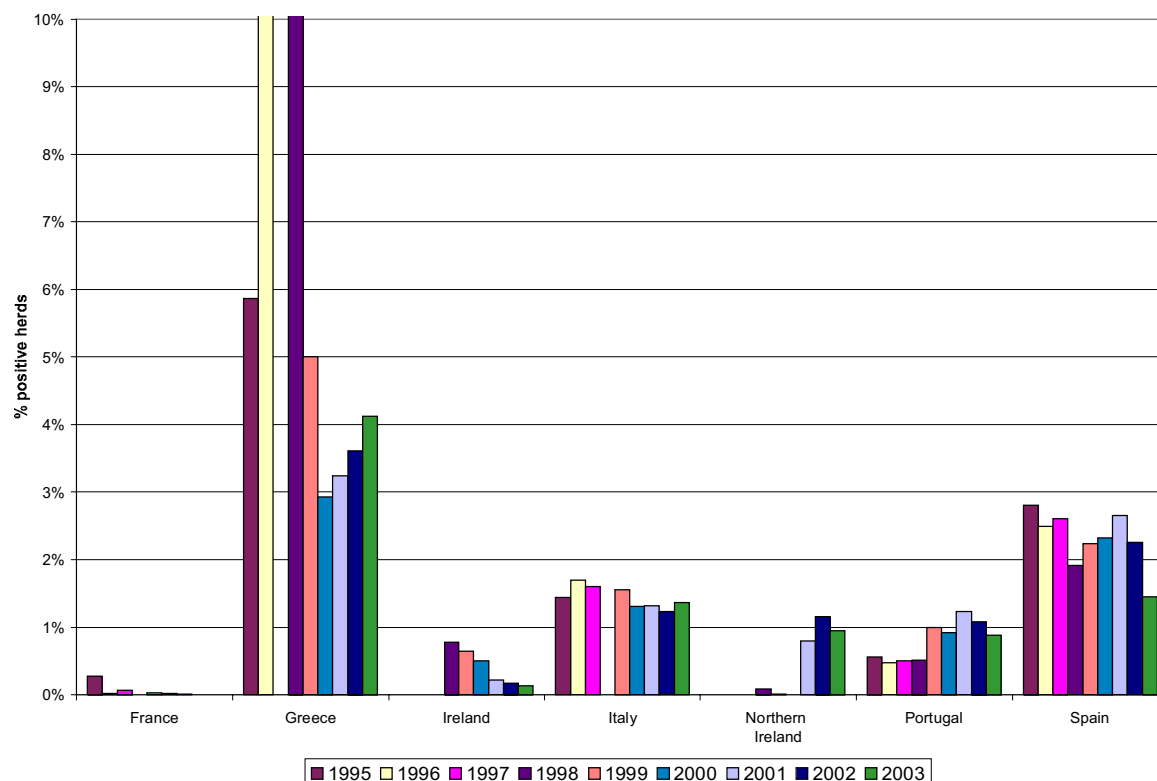
³ Estimate: Confirmed positive herds in repeated testing and positive herds in first testing not re-tested in relation to all herds tested in first testing

⁴ Only regions covered where an eradication campaign is run

Clinical findings

As in previous years, clinical cases (including abortion) were registered in Ireland (15 cases), Northern Ireland (58 cases) and Italy (3 cases) but not in Belgium and France. In all these countries, this is a reduction in number of cases. The other non-OBF countries (Greece, Portugal and Spain) did not provide data on this issue.

Figure BR 2. Bovine brucellosis: herds positive in routine testing in NON-OBF Member States 1994 – 2003



For Spain, in 2003 data from first testing are shown, in previous years first and repeated testing are shown

Animals slaughtered or destroyed

Similar to last years a considerable number of animals had been slaughtered or destroyed in 2003 due to brucellosis. When evaluating this data it has to be kept in mind, that in case a stamping out strategy is applied in the country, an increasing number of negative in-contact animals are slaughtered. In the non-OBF countries altogether 78379 positive or contact animals had been destroyed (Table BR 3). A considerable number of animals were destroyed or slaughtered in Spain, Italy, Ireland and Northern Ireland.

Other results

In the non-OBF countries results from other investigations (exports, AI Stations, imports and farms at risk) are usually not reported separately.

In Northern Ireland, 61 positive herds were identified during follow up investigations of infected herds, i.e. at lateral check testing and follow up tracing testing. 127 farms were confirmed on farms considered to be at risk.

Within the non-OBF countries, besides *B. abortus*, *B. melitensis* has been isolated 24 times from cattle in bacteriological examinations. This is in line with the results from previous years. In 2001, also a strain of *B. suis* had been isolated from cattle.

Table BR 3. Bovine animals destroyed or slaughtered due to bovine brucellosis

	2002			2003		
	Animals slaughtered or destroyed	Positives slaughtered or destroyed	Contacts slaughtered or destroyed	Animals slaughtered or destroyed	Positives slaughtered or destroyed	Contacts slaughtered or destroyed
France	438	216	220	414	165	249
Greece	5421	4132	-	4068	3306	-
Ireland	20764	1530	19234	14745	900	13845
Italy	9299	9102	197	10918	9208	1710
Northern Ireland	13045	1423	11622	12951	734	12217
Portugal	7724	5504	-	-	-	-
- Mainland	4538	2287	-	3206	1905	-
- Madeira	0	0	-	-	-	-
- Azores	3186	3217	-	3852	3085	-
Spain	24736	-	-	28167	19731	-

New Member States

Four new Member States provided voluntary data on brucellosis in cattle. In Latvia, Lithuania and Slovenia, no cases of bovine brucellosis were notified in 2003. In Cyprus, 10 positive herds out of 317 herds were infected with *Brucella abortus*.

2.1.2. Ovine and caprine brucellosis

On the basis of Directive 91/68/EEC 10 Member States and regions in 4 Member States are recognised officially brucellosis free (ObmF) (*B. melitensis*): Austria, Belgium, Denmark, Finland, Germany, The Netherlands, Ireland, Luxembourg, Sweden, the United Kingdom, 64 départements in France, 2 regions in Spain, 18 provinces in Italy and the autonomous region of the Azores in Portugal by the end of 2003. Norway is ObmF according to the EFTA surveillance authority's Decision 97/232/EC.

In 2003, 17 provinces in the regions Lombardia (11 provinces), Trentino-Alto Adige (1 province in addition to Bolzano), Toscana (1 province) and Sardinia (4 provinces) in Italy and the autonomous region of the Azores (Portugal) were recognised ObmF by Decisions 2003/44/EC, 2003/237/EC and 2003/732/EC respectively. An overview is given in Figure BR 3. In these countries, an annual monitoring program is carried out in accordance with requirements of Directive 91/68/EC to confirm the freedom from *B. melitensis*.

During 2003 approved Community co-financed eradication programmes for ovine and caprine brucellosis were implemented in France, Greece, Italy, Portugal and Spain (Decision 2002/943/EC).

Requirements for surveillance of brucellosis in sheep and goats are different for countries recognised ObmF and the other countries. Therefore, the epidemiological situation as regards ovine and caprine brucellosis is described separately in the following paragraphs.

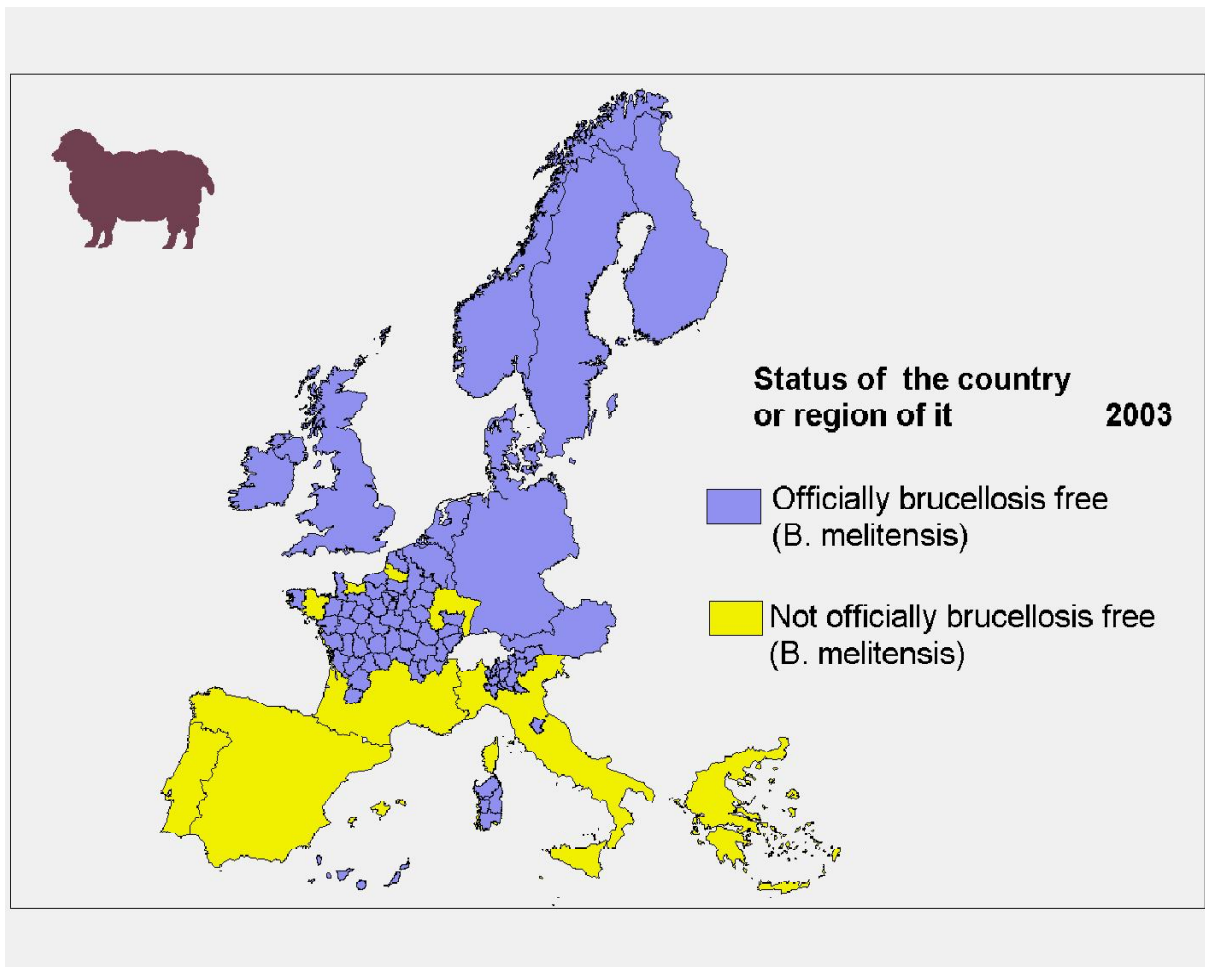
For countries, where only regions are recognised ObmF, the whole region is described in the section on the non-ObmF countries.

ObmF countries

No holdings infected with *B. melitensis* were reported in the ObmF Member States in the end of the year 2003.

A few suspicious cases were identified in the ObmF countries on the basis of routine testing, one case was finally confirmed to be positive by culture in Austria.

Figure BR 3. Ovine and caprine brucellosis in the European Union and Norway 2003



Non-ObmF Member States

Notification data

The information given by the **non-ObmF countries** is incomplete, as Greece did not provide this type of information.

In the non-ObmF Member States the share of ObmF holdings at year-end varied between 46 % (Spain) and 82 % (France).

No infected herds were recognised in Madeira. On the Azores 2 infected holdings and in France, 6 infected holdings were identified. In the other countries, up to 3,6 % of the holdings were infected with *Brucella*.

An overview of ovine and caprine brucellosis situation in non-ObmF Member States is given in Table BR 4.

Regular testing

There is no clear relationship between the trend observed on the basis of the notification system and the results on the basis of routine testing. This might reflect more targeted sampling in high risk areas and in consequence a higher proportion of positive results in routine testing within the population selected.

Table BR 4. Ovine and caprine brucellosis (*B. melitensis*) on the basis of notification, 2003

	Holdings under control	ObmF holdings	Notification at year end		Notification during year		
			% ObmF holdings	Holdings infected	% Holdings infected	Holdings infected	% Holdings infected
France	110602	90270	81,62	6	0,005	9	0,008
Greece ¹	118751	-	-	-	-	-	-
Italy	118335	95629	80,81	1851	1,56	959	0,81
Portugal	76335	51320	67,23	1351	1,77	168	0,22
- Mainland	68692	43713	63,64	1349	1,96	166	0,24
- Azores ²	3809	3807	99,95	2	0,05	2	0,05
- Madeira	3834	3800	99,11	0	0,00	0	0,00
Spain	130232	59379	45,59	4664	3,58	-	-

Figures given in this table do not necessary coincide with those reported by the Member States in the framework of the eradication programmes

¹ Only regions covered where an eradication campaign is run

² Received ObmF status in 2003

The rate of herds with positive reactors ranged between 0,02 % (France) and 5,6 % (Spain) in 2003. Again, on Madeira no positive reactors were identified. In France, only 0,02 % of the tested herds showed positive reactors on national level. There, an eradication programme is implemented only in few departments. Infection rates, clearly above 1 %, were reported in Greece, Italy, the mainland of Portugal and Spain as in previous years.

Results of routine testing of ovine and caprine herds for the years 2002 to 2003 are summarised in Table BR 5. The trend since 1994 is shown in Figure BR 4.

Table BR 5. Results of routine testing of holdings for ovine and caprine brucellosis in Member States not officially brucellosis (*B. melitensis*) free

	2002			2003		
	Holdings tested	Holdings positive	% Holdings infected	Holdings tested	Holdings positive	% Holdings infected
France	48898	17	0,03	49840	9	0,02
Greece ¹	2945	122	4,14	846	40	4,73
Italy	96522	2771	2,87	95622	2370	2,48
Portugal	60159	2717	4,52	69782	1351	1,94
- Mainland	59881	2717	4,54	68692	1349	1,96
- Azores	20	0	0,0	1056	2	0,19
- Madeira	258	0	0,0	34	0	0,00
Spain ²	121296	8711	7,18	122629	6843	5,58
Spain ³	130608	12144	9,30	-	-	-
Spain ⁴	121296	4408	3,63	-	-	-

Figures given in this table do not necessary coincide with those reported by the Member States in the framework of the eradication programmes

¹ Data referring to the eradication programme implemented in Greek islands. Only regions covered where an eradication campaign is run

² First testing

³ First and repeated testing

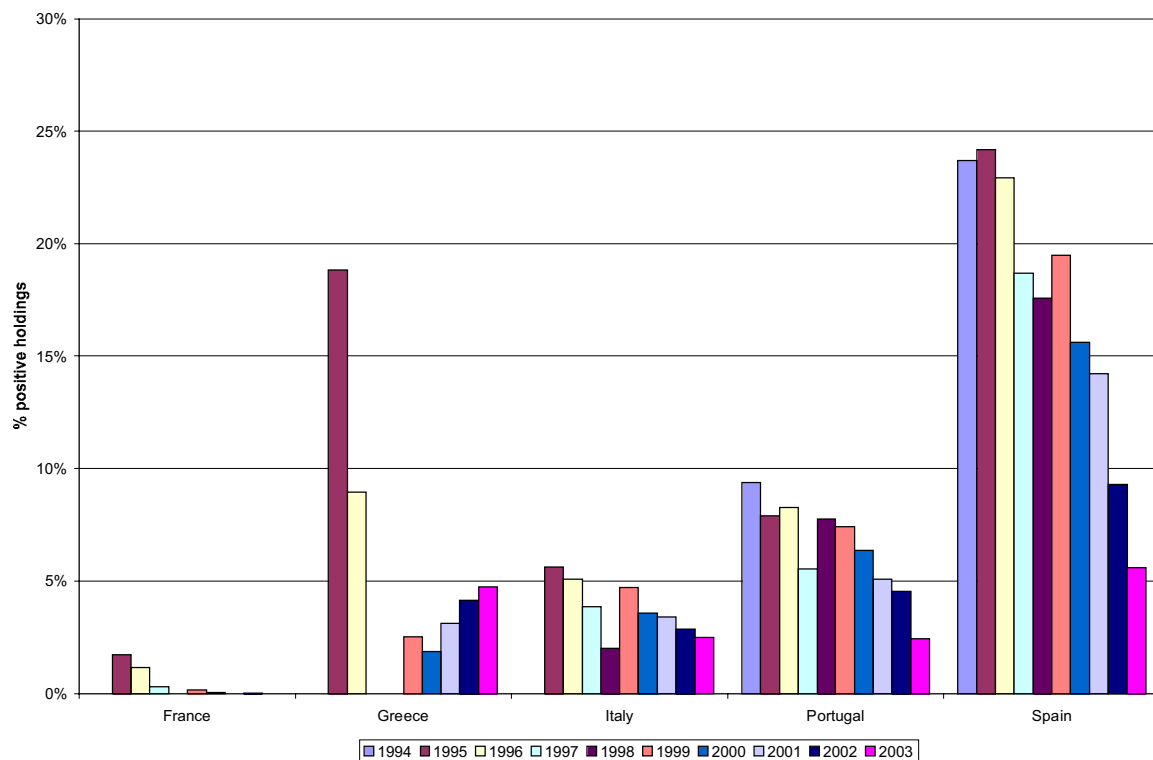
⁴ Estimate: Confirmed positive flocks in repeated testing and positive flocks in first testing not re-tested in relation to all flocks tested in first testing

In routine testing linked to the eradication programme implemented in Greek islands (except Evia), the share of infected holdings increased to 4,7 % in 2003. The high prevalence within

the eradication zone is mainly due to the significant increase of positive reactors reported in Lesvos and Dodekanissa. But the number of holdings tested was also reduced. The level of activity was low, about 5 % of the total number of flocks were tested in 2003. On the Greek mainland vaccination of adults and young animals is in use. On the island of Lesvos mass vaccination is being implemented from 2003. In addition, mass vaccination has been planned and will be implemented during 2005 in Nomos of Dodekanissa excluding the Island of Kos (low risk area). There, no testing is carried out.

In Italy, Spain and Portugal, the decreasing tendency has continued for several years now.

Figure BR 4. Ovine and caprine brucellosis (*B. melitensis*): Positive holdings in routine testing in NON-ObmF Member States, 1994 - 2003



Animals slaughtered or destroyed

Similar to last years a considerable number of sheep and goats had been slaughtered or destroyed in 2003 due to brucellosis. When evaluating this data it has to be kept in mind, that in case a stamping out strategy is applied in the country, an increasing number of negative in-contact animals are slaughtered. In the non-ObmF countries altogether 325705 positive or contact animals had been slaughtered or destroyed (Table BR 6). This is considerable comparable to the previous year.

Table BR 6. Number of sheep and goats slaughtered or destroyed due to ovine and caprine brucellosis (*B. melitensis*)

	2002			2003		
	Animals slaughtered or destroyed	Positives slaughtered or destroyed	Contacts slaughtered or destroyed	Animals slaughtered or destroyed	Positives slaughtered or destroyed	Contacts slaughtered or destroyed
France	516	444	72	3437	311	3126
Greece	3251	3251	-	1696	1696	-
Italy	111738	105509	6229	113630	105913	7717
Portugal	45759	25676	-	-	-	-
- Mainland	45759	25676	-	30491	20744	-
- Madeira	0	0	-	0	0	-
- Azores	0	0	-	0	0	-
Spain	187723	-	-	176451	145834	-

- No information available

New Member States

Four New Member States provided some information on the situation as regards ovine and caprine brucellosis. In Latvia, Lithuania and Slovenia no brucellosis was confirmed in sheep and goats during 2003. In Cyprus, 140 (3,5 %) infected holdings were notified at the end of 2003, 66 of them were identified during the year.

2.1.3. Brucellosis in pigs

In all EU countries and Norway boars are subject to pre-entry testing and regular control every 18 months at the AI station as well as before the leave of the station. Breeding pigs and animals for export are examined serologically in Belgium, The Netherlands and Norway. In Finland, there are permanent monitoring programmes for sows and fattening pigs at slaughterhouses. In Norway, boars are also tested serologically in connection to import.

False positive serological reactions are sometimes found without any clinical evidence of brucellosis. These are usually due to a *Yersinia enterocolitica* O:9 infection.

In 2003, *Brucella* findings in pigs were reported in Austria, Spain and Portugal. As far as specified, all these findings were *B. suis*. In 2001, besides *B. suis*, *B. abortus* and *B. melitensis* had been isolated from pigs.

B. suis had not been reported in pigs in Belgium since 1969, in The Netherlands since 1973, and never in Finland, Sweden, the United Kingdom and Norway. In Denmark, *Brucella* has not been detected in pigs since 1999.

In some Member States the main source of *B. suis* infection in pigs is believed to be wild boars.

In Germany, 9 isolates from wild boars typed at the National Reference Laboratory were identified as *B. suis* biotype 2.

Data available are summarised in Table AN – 2.1.3. in the Annex.

2.1.4. Brucellosis in other animals

As in previous years, *Brucella* findings were reported in some other animal species.

In Italy, *Brucella* was isolated from dogs. Portugal reported *Brucella* findings in other animal species not further specified.

Data available concerning 2003, sorted by country, are given in Table AN – 2.1.3. in the Annex.

2.2. *Brucella* in food

Milk was tested for *Brucella* in Greece, Italy, Norway and Portugal (Table AN - 2.2. in the Annex). In 2003, some positive findings were reported in Greece and Italy but not in Portugal. In Portugal, *Brucella melitensis* had been isolated from raw milk in 2002.

2.3. Human brucellosis

Human brucellosis is notified in all countries with the exception of Luxembourg.

Altogether 1094 human cases were notified (13 MS and Norway) in 2003 compared to 2386 cases (14 MS and Norway) in 2002. Thirteen Member States and Norway reported on both years. Within these countries, there was a clear reduction of the number of cases in 2003. This is especially true for Greece, Portugal and Spain where the situation continued to improve. For Italy, where a major increase had been observed in 2002, no data were submitted for 2003.

Data presented by the Member States is summarised in Table BR 7. Figures given from Austria, Germany, Greece, Sweden, Great Britain and Norway include also the imported cases. Altogether, 30 imported cases have been reported in these countries. It should be noted that in some Member States where brucellosis is a notifiable disease, cases derived from abroad are not notified.

The situation in livestock and the number of reported human cases is summarised in Figure BR 5. In Figure BR 6, the overall trend and the development in some selected countries where eradication programmes in the livestock population are still in place is given.

As in previous years, only very few human cases occurred in those Member States, which have acquired OBF and/or at least ObmF status. In these countries, domestic sources are considered negligible and most human patients are supposed to be infected abroad or by imported contaminated foodstuffs. In contrast to this, in some of the non-OBF or non-ObmF countries, the relevance of brucellosis as zoonosis is still high. The infection results mainly from direct animal contact and consumption of dairy products made from raw milk.

Information on the *Brucella* species involved in human disease is limited, within those specified cases caused by *B. melitensis* are dominating. In Germany, all cases fully characterised at the National Reference Laboratory were due to *B. melitensis*. 11 isolates of biotype 2 and 3 isolates of biotype 1 were confirmed. In Denmark, data are based on serological findings. The majority of cases were positive for *B. abortus* and *B. melitensis*. In previous years predominantly cases due to *B. abortus* had been observed.

The age and gender distribution for all brucellosis cases, and for the *Brucella* species separately, is given in Figure BR 7. For Portugal, data available from the notification system by physicians and from confirmed laboratory results (INSA) are depicted in separate graphs. As in previous years, mainly male adults between 25 and 65 years are affected. In Northern Ireland 10 of 14 cases were acquired occupationally.

New Member States

Four new Member States of the European Union provided on a voluntary basis data on human brucellosis. No cases have been notified in Latvia and Lithuania and 1 case in Slovenia, reflecting a similar pattern as observed in other countries having a favourable situation in livestock. In Cyprus, five cases of *B. melitensis* infection in humans were notified in 2003.

Figure BR 5. Human brucellosis and the situation in livestock, 2003

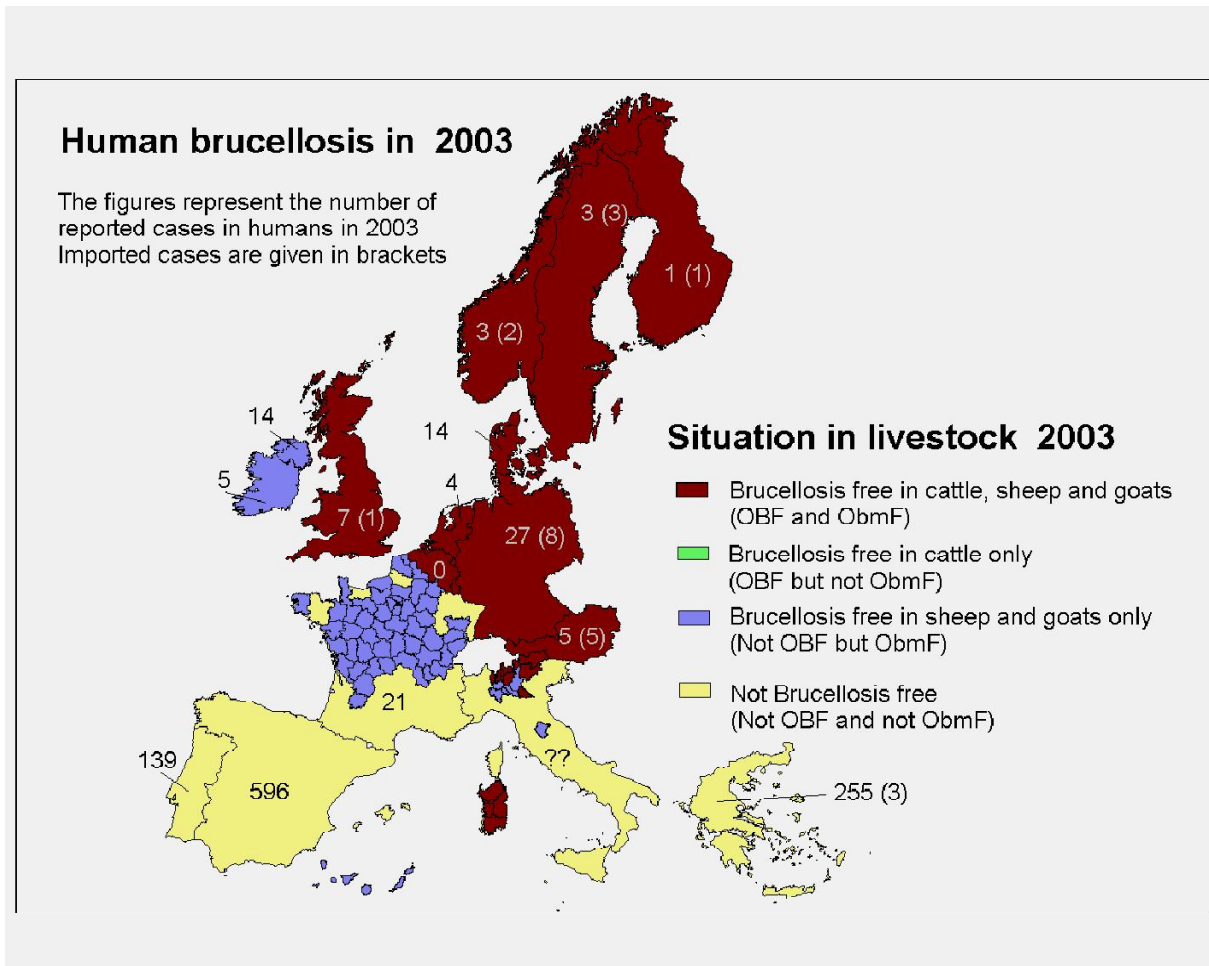


Figure BR 6. Trend in human brucellosis

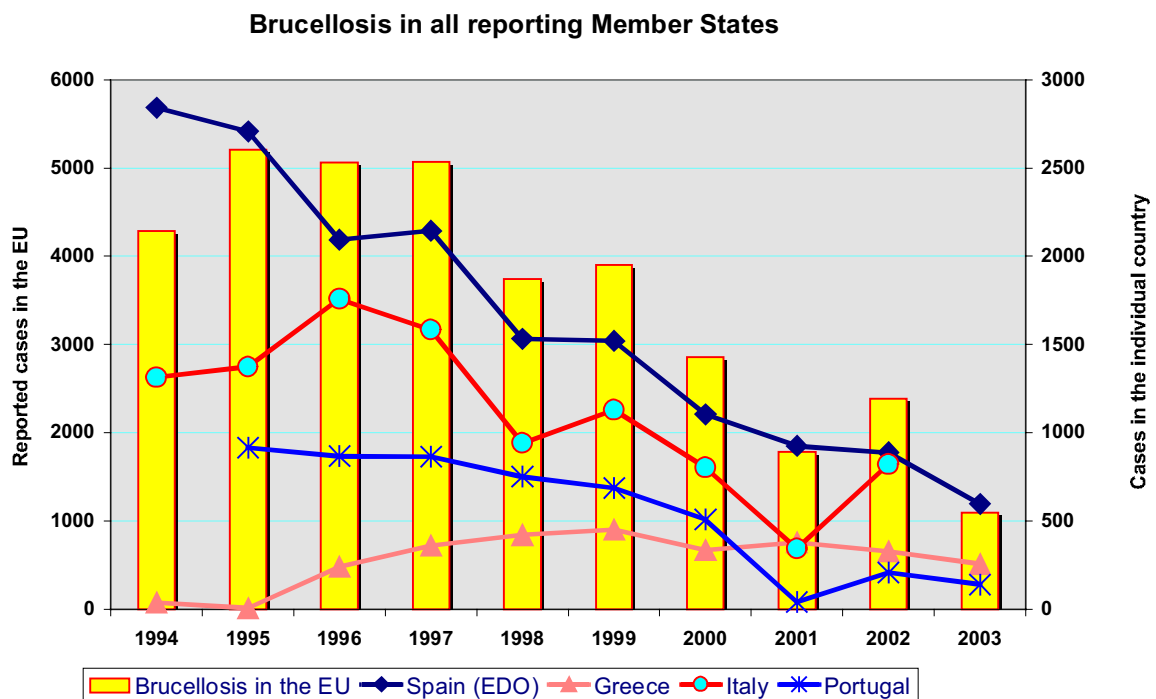


Table BR 7. Human brucellosis

Country	Brucellosis cases						
	1997	1998	1999	2000	2001	2002	2003
Countries which are OBF and ObmF							
Austria ²	4	1	2	2 (2)	2 (2)	4	5 (5)
Belgium	-	-	-	0	1	1	0
Denmark ¹	-	-	-	-	18	16	14
Germany ²	25 (15)	31 (14)	21 (15)	27 (15)	25 ⁵ (12)	35 (16)	27 (8)
Finland ²	0	1 (1)	0	0	1 (1)	0	1 (1)
Sweden ²	3 (3)	2 (2)	0	1 (1)	2 (2)	5 (5)	3 (3)
The Netherlands ²	3	2	1	3 (3)	1 (1)	5 (4)	4
Great Britain ²	6	7	9	5 (5)	6	9	7 (1)
Norway ²	-	-	1 (1)	1 (1)	2 (2)	3 (3)	3 (2)
Member States which are ObmF							
Ireland	1	18	19	15	14	4	5
Northern Ireland	0	1	6	14	21	28	14
Member States which are non-OBF and non-ObmF							
France ⁴	77	31	56	44	-	37	21
Greece ²	358	419	451	334	379	327 (2)	255 (3)
Italy	1582	941	1129	801	343	820	-
Portugal	864	751	686	507	40	206	139
Spain ³	2145	1533	1519	1104	924	886	596

¹ Notification not mandatory

² Data on imported cases are given in brackets

³ According mandatory notification

⁴ Brucellosis is a notifiable disease (Decree 10/06/1986)

⁵ New case definition since 2001: Confirmed on clinical symptoms and by laboratory diagnosis

Figure BR 7. Age distribution of brucellosis in human, 2003
Countries which are at least free of brucellosis in sheep and goats (ObmF)

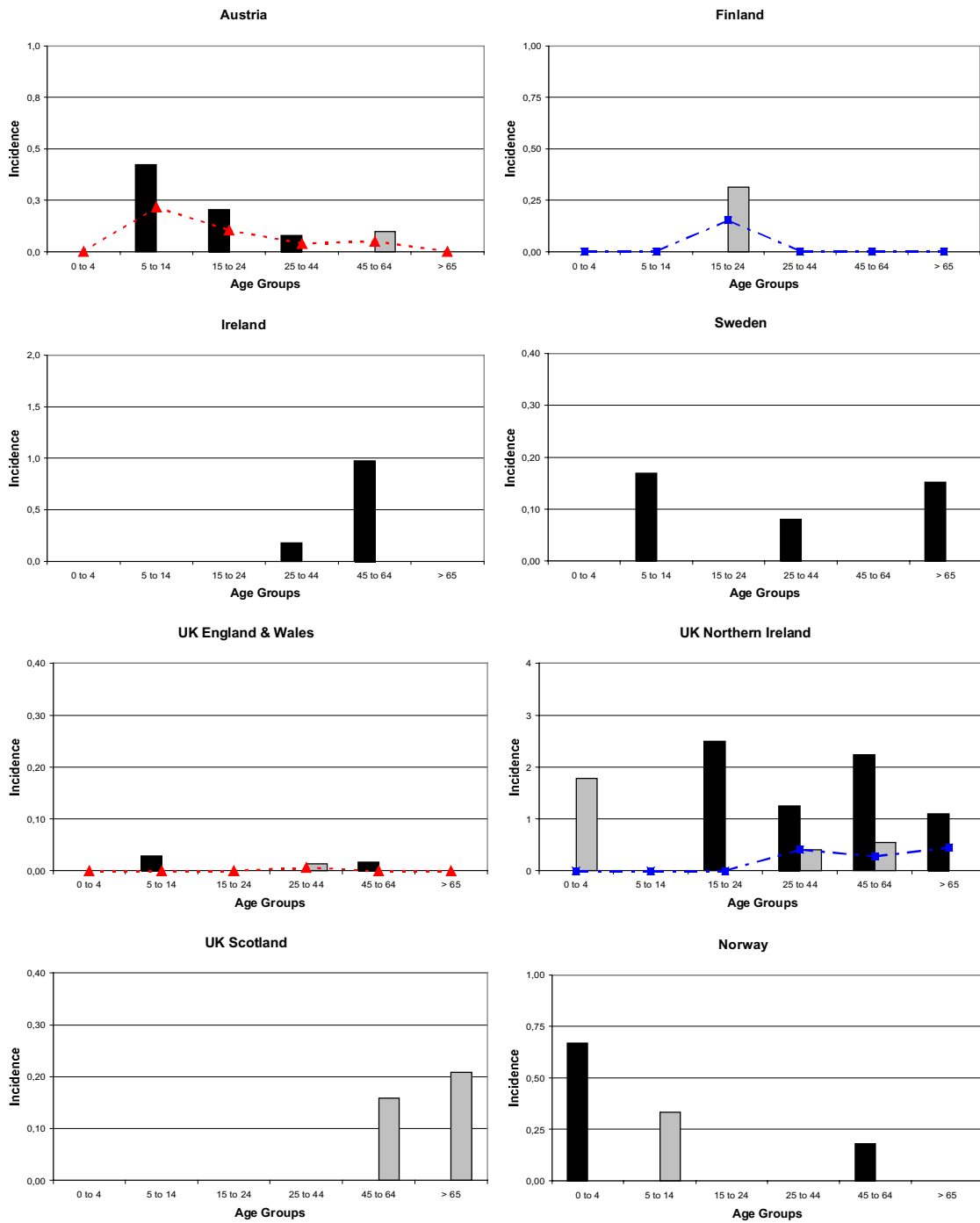


Figure BR 7. Age distribution of brucellosis in human, 2003 – continued

Member States which are non-ObmF

