

**SUBMISSION OF ERADICATION PROGRAMMES FOR CATEGORY B AND C
DISEASES OF TERRESTRIAL ANIMALS BASED ON GRANTING DISEASE-FREE
STATUS AT ESTABLISHMENT LEVEL**

Template in accordance with Article 10 of Commission Implementing Regulation (EU)
2020/2002

Name of the disease: Sheep and Goat Brucellosis

1. **Date of submission:** 31/05/2021
2. **Member State:** Greece
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 - c. Responsibility within the competent authority: Official veterinarian responsible for the programme.
4. **Territorial scope with a description and demarcation of the geographical and administrative areas covered by the eradication programme and the names of the zones and regions, if more than one region is included in the territorial scope of the programme:**

The programme for the eradication of Sheep and Goat Brucellosis is a compulsory programme in Greece including all ovine and caprine animals in the entire Greek territory.

Two different strategic approaches are implemented within the country, the one in the mainland and the islands of Evia, Lesbos and Thasos, hereon referred to as Vaccination Zone (VZ) and the second in the rest of the islands, hereon referred to Eradication Zone (EZ).

- In the framework of the first approach, because prevalence of brucellosis in sheep and goat flocks in the locations selected has been higher, the programme includes a) vaccinations of all female animals older than the age of (3) three months, as well as of young male animals of (3) three to (6) months old, b) annual serological testing of all unvaccinated male animals.

In total, for the year 2020, the Vaccination Zone (VZ) 53.129 establishments and 9.322.073 sheep and goats were to be under the programme.

- In the framework of the second approach which is applied in the rest of the Greek islands, where the disease shows low prevalence in sheep and goat flocks, the programme includes serological testing of all animals older than the age of six (6) months and slaughtering of those from which positive results are obtained within one (1) month since the positive result.

In total, for the year 2020, in the Eradication Zone (EZ) there were 24.423 establishments and 6.579.318 sheep and goats under the programme.

In Table 1, herebelow, Regions and Regional Units included in the vaccination and eradication zones are presented.

Programme	Region	Regional Unit
Vaccination Zone	Attica	Central Athens, North Athens, West Athens, South Athens, Piraeus, East Attica, West Attica, Islands
	Peloponnese	Arcadia, Argolida, Korinthia, Laconia, Messinia
	Western Greece	Ahaia, Etoloacarnania, Ilia
	Central Greece	Viotia, Evia, Evrytania, Fokida, Fthiotida
	Epirus	Arta, Ioannina, Preveza, Thesprotia
	Thessaly	Karditsa, Larisa, Magnesia, Trikala
	Central Macedonia	Halkidiki, Imathia, Kilkis, Pella, Pieria, Serres, Thessaloniki
	Western Macedonia	Florina, Grevena, Kastoria, Kozani
	Eastern Macedonia and Thrace	Drama, Evros, Kavala & Thasos, Rhodope, Xanthi
	Northern Aegean	Lesbos
Eradication Zone	Northern Aegean	Hios, Lemnos, Samos & Ikaria
	Southern Aegean	Cyclades, Dodecanese
	Crete	Hania, Iraklio, Lasithi, Rethymno
	Ionian Islands	Corfu, Ithaca, Kefalonia, Lefkada, Zakynthos
	Attica	Islands
	Central Greece	Skyros
	Thessaly	Sporades
	Eastern Macedonia and Thrace	Samothrace

Table 1. Regions and Regional Units included in the vaccination and eradication zones.



Map I. Administrative division of Greece in Regions



Map II. Administrative division of Greece in Regional Units.

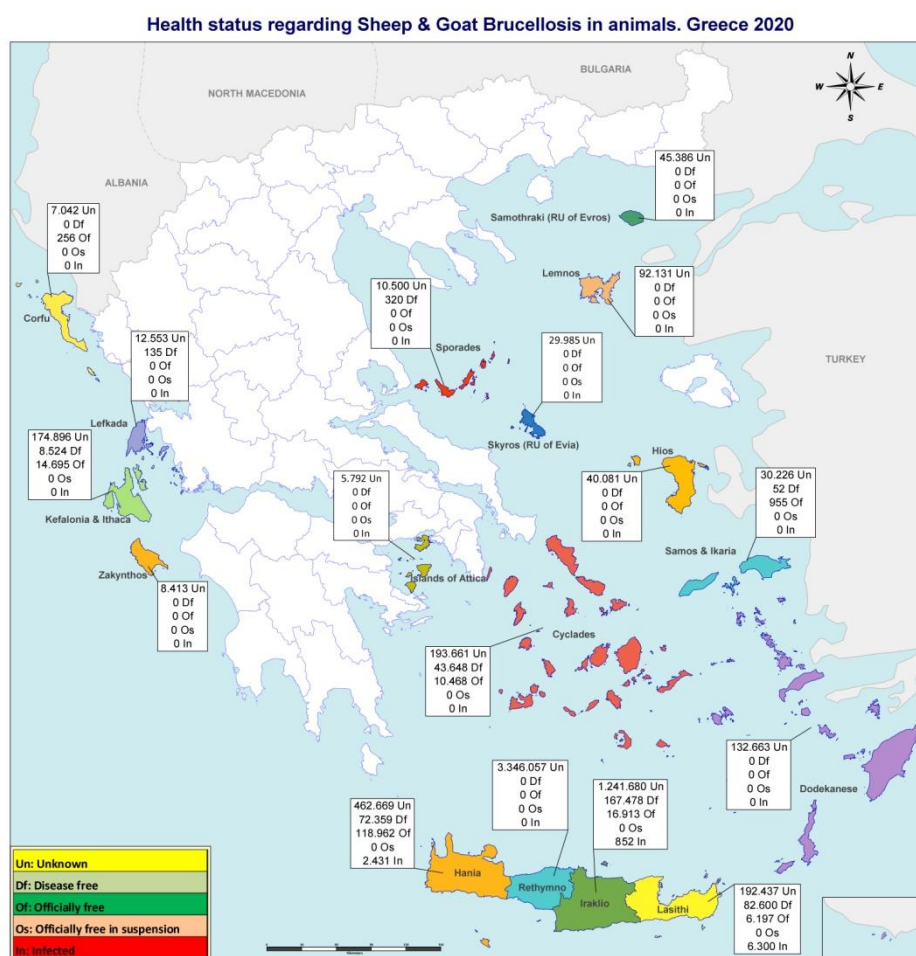
5. A description of the epidemiological situation for each zone or region, if more than one region is included in the territorial scope of the programme:

In the following table (**Table 2**) information regarding the health status of sheep and goats in regard to brucellosis is included.

Epidemiological situation for 2020 (Infection with <i>Brucella</i> spp.)										
Region	Health status (<u>Eradication Zone</u>)									
	Unknown		Disease free*		Officially free		Officially free in suspension		Infected	
	N.E.	N.A.	N.E.	N.A.	N.E.	N.A.	N.E.	N.A.	N.E.	N.A.
Attica	58	5.792	0	0	0	0	0	0	0	0
Central Greece	189	29.985	0	0	0	0	0	0	0	0
Thessaly	56	10.500	1	320	0	0	0	0	0	0
Eastern Macedonia and Thrace	257	45.386	0	0	0	0	0	0	0	0
Northern Aegean	1.062	162.438	1	52	6	955	0	0	0	0
Southern Aegean	2.784	326.324	608	43.648	48	10.468	0	0	0	0
Crete	16.670	5.242.843	849	322.437	498	142.072	0	0	24	9.583
Ionian Islands	1.208	202.905	37	8.659	67	14.951	0	0	0	0
Total	22.284	6.026.173	1.496	375.116	619	168.446	0	0	24	9.583

*All animals >6 months of age tested negative on the last test for brucellosis.

Table 2. Number of establishments (NE) and Number of sheep and goats (NA) and their health status in regard to brucellosis.



Map III. Sheep and Goat population in Greece, by health status as regards Brucellosis.

(d) Timeline with prevalence, incidence data and, where relevant, vaccination history covering at least the past 5 years:

Infection of establishments with <i>Brucella</i> spp.					
Year	Eradication Zone		Vaccination Zone		
	Prevalence	Incidence	Prevalence	Incidence	Vaccination with Rev-1 (establishments)
2016	1,25%	0,18%	5,86%	3,01%	26.213
2017	1,88%	0,35%	3,84%	2,19%	27.366
2018	2,59%	0,65%	3,91%	2,22%	24.642
2019	3,34%	0,81%	2,57%	1,96%	19.932
2020	1,91%	0,29%	2,26%	1,60%	16.677

Table 3. Prevalence, incidence data and vaccination history or at least the past 5 years

6. A description of the disease control strategy of the eradication programme in accordance with Article 16 of Commission Delegated Regulation (EU) 2020/689 including at least:

(a) the sampling schemes and diagnostic methods to be used in accordance with Annex IV to Delegated Regulation (EU) 2020/689:

for the granting of the disease-free status to establishments and the maintenance of that status:

- The official diagnostic methods for granting and maintaining infection-free status from *Brucella* are described in Section 1 of Annex III to Regulation (EC) No 2020/689/EU.
- The disease-free status is granted to an establishment, provided that:
 - a) during the past twelve (12) months there has been no confirmed case of infection with *Brucella abortus*, *B. melitensis* and *B. suis* in ovine or caprine animals kept in the establishment;
 - b) the entire ovine or caprine animals over six (6) months of age present in the establishment at the time of sampling have tested negative to serological tests, on two occasions as follows:
 - (i) the first test must be carried out on samples taken not earlier than three (3) months after the removal of the last confirmed case;
 - (ii) the second test must be carried out on samples taken not earlier than six (6) months and not later than twelve (12) months following the date of sampling referred to in point (i);
 - c) animals showing clinical signs consistent with infection with *Brucella abortus*, *B. melitensis* and *B. suis*, such as abortions, have been subjected to investigations with negative results;
 - d) since the beginning of the sampling referred to in point b.i) hereby, all ovine or caprine animals introduced into the establishment originate from establishments free from infection with *Brucella abortus*, *B. melitensis* and *B. suis* without vaccination or free from infection with *Brucella abortus*, *B. melitensis* and *B. suis* with vaccination and:
 - (i) originate from a Member State or a zone free from infection with *Brucella abortus*, *B. melitensis* and *B. suis* for the relevant animal population;
 - (ii) are entire ovine or caprine animals over six (6) months of age and have tested negative in a serological test on a sample taken
 - during the 30 days prior to their introduction into the establishment; or

- during the 30 days following their introduction into the establishment provided they have been kept isolated during this period;
- or
- (iii) are post-parturient females kept in isolation since their introduction into the establishment until they have tested negative in a serological test carried out on a sample taken not earlier than 30 days after parturition;
- and
- (iv) since the beginning of the sampling referred to in point (b)(i) here above,, all germinal products of ovine or caprine origin introduced into or used in the establishment originate from:
 - establishments free from infection with *Brucella abortus*, *B. melitensis* and *B. suis* without vaccination or free from infection with *Brucella abortus*, *B. melitensis* and *B. suis* with vaccination; or
 - approved germinal products establishments.
- for the maintenance of the disease-free status of infection with Brucella of an establishment, the procedures follow Section 2 of Chapter 2 of Part I of Annex IV of Reg (EU) 2020/689.
- The disease-free status of an establishment is suspended, even only one case of infection with *Brucella abortus*, *B. melitensis* and *B. suis* is suspected in an ovine or caprine animal kept in the establishment.
- For the restoration of disease-free status animals showing clinical signs consistent with infection with *Brucella abortus*, *B. melitensis* and *B. suis*, such as abortions, have been subjected to investigations with negative results;
The suspension of the officially-free status remains until the completion of two successive serological examinations of all the animals in the establishment within two (2) to four (4) months. If the results are negative, the establishment returns to the officially-free status. In case the second blood sampling is not performed, the establishment falls in the unknown status.
- For the granting of the officially brucellosis-free status to a zone or a department, as regards ovine and/or caprine population:
 - (a) 99,8 % of ovine and/or caprine establishments have been declared officially free (M4),
 - OR
 - (a) there has been no confirmed case of brucellosis in ovine and caprine animals in the last five years, and
 - (b) vaccination has stopped at least 3 years ago,
- With regard to the suspension and withdrawal of disease-free status;
The disease-free status of an establishment shall be suspended in case only one animal in the establishment is found positive for brucellosis. The suspension of the free status shall be maintained until two successive serological testing of all animals on the establishment have been completed, within two to four (2-4) months. If only the results are negative, the establishment shall regain the disease-free status.
- For the granting of the officially brucellosis-free status to a zone or a department without vaccination, as regards ovine and/or caprine population, the following points must be met:
 - (a) 99,8 % of ovine and/or caprine establishments have been declared officially free (M4),
 - OR
 - (a) there has been no confirmed case of brucellosis in ovine and caprine animals in the last five years, and
 - (b) vaccination has stopped at least 3 years ago.

(b) disease control measures to be applied in the event of a confirmed case:

The measures foreseen in flocks infected with brucellosis are the following:

1) Exit from and entrance in the affected premises of animals is prohibited, with the exception of those destined for slaughter; in this case, the procedure is verified with the appropriate documents (according to national legislation) for movement to the slaughterhouse, under “slaughter in the framework of eradication programme”, issued by the Local Veterinary Authorities and accompanying animals throughout transport.

i) In the Eradication Zone (EZ), in case that even only one of the animals kept in an officially-free establishment is found to be positive, all the other animals are serologically tested within ten (10) days after the confirmation of the disease. Infected animals are slaughtered. Serological testing is performed every three (3) to four (4) months, until all samples tested are negative. The establishment then regains the disease free status and the measures are lifted.

ii) In the Vaccination Zone (VZ), animals from which positive results have been obtained are put in quarantine from the rest of the flock until they are slaughtered. Blood samples are taken from a) all female unvaccinated animals, b) all adult female animals vaccinated at the age of three (3) to six (6) months, provided that at least twelve (12) months have elapsed from their vaccination date.

Negative unvaccinated animals are vaccinated as soon as possible.

Measures are lifted when all positive animals have been slaughtered, all negative unvaccinated animals have been vaccinated and the cleaning and disinfection procedures at the establishment have been completed.

2) Infected animals are marked with a "Δ" shape punch in the right ear and kept in isolation from the other animals until they are slaughtered.

3) An epidemiological investigation must be conducted, so that the source of infection is determined and the flocks linked with the outbreak are also located and investigated. The results are registered in the Certificate of Epidemiological Investigation.

4) Aborted fetuses, placenta, animals that were stillborn and/or died right after their birth are collected and destroyed according to the current legislation concerning the management of animal by-products. The appropriate parts of these carcasses are collected and sent to the National Reference Laboratory for Brucellosis so that the necessary laboratory tests can take place.

5) Regarding other animals of species susceptible to *Brucella*, if present (eg bovines, swines, dogs, horses), measures are applied as foreseen. More specifically, in case of suspicion in the targeted animal population, other animals of species susceptible are tested and, if positive, they are culled or euthanized.

6) If the percentage of ovine/caprine population that tested positively exceeds 50% of all animals in the establishment or if the prevalence of the disease is 0,1-1% among the establishments of a specific area or if an infected animal or establishment is placed in an officially free area, a stamping out of the animals of the establishments is suggested.

(c) biosecurity and risk mitigating measures to be implemented:

1) Milk coming from infected animals is prohibited to be used for human consumption. It must be collected in separate vessels and can be used only under the procedures of Reg.1069/2009.

2) Milk coming from non infected animals of the establishment can be used according to Reg. (EU) 853/2004 of the EU, annex III part IX ch. 1 par. 3-5.

3) Manure and bedding must be collected in a special place and sprayed with the relevant disinfectant unless covered with soil. It is forbidden to transport these materials outside the establishment. In case these are moved, they are characterized as category 2 materials and are treated according to the procedures of Reg. 1069/2009.

- 4) Materials which have come to contact with abortion and/or parturition materials, placentas or foetuses are disinfected by coiling or spraying or dipping in the suitable disinfectant.
- 5) All establishments in a radius of 500m from the infected one are tested in priority if they have not already been tested in the framework of the programme.
- 6) In case an infected flock uses a pasture, no other flock is permitted to move to it, until 60 days have passed since the departure of the positive flock.
- 7) The slaughter of infected animals must be carried out according to Reg. 2019/627 Section 4, Article 34, within maximum 30 days from the disease confirmation. Their transport to the slaughterhouse is carried out under all necessary measures.
- 8) The carcasses of infected animals undergo a detailed inspection.
- 9) One (1) to seven (7) days after the last infected animal has been culled, cleaning and disinfection of the premises and the equipment of the establishment takes place. At the latest fifteen (15) days after culling of the last positive animal and in at least seven (7) days after the completion of the first disinfection, the procedure is repeated.
- 10) The importance of the zoonoses for the establishment and for the public health is pointed out to the farmer. Compliance to the aforementioned measures is a necessary prerequisite for the successful implementation of the programme, as well as for compensating the farmers.

(d) type of vaccine(s) to be used and the vaccination scheme, if relevant:

Vaccination is performed in the mainland and the islands of Evia, Lesbos and Thasos, where prevalence of brucellosis in sheep and goat flocks has been higher, as the main tool of eradication of the disease. Vaccinations of young and adult female animals are vaccinated in the age of >3months old, as well as of young male animals (3-6 months old). For this purpose, the Rev1 vaccine is used. Further, annual serological testing of all unvaccinated male animals is carried out in order to detect possible infection. Due to the interference of the Rev-1 vaccine produced antibodies with the diagnostic tests, blood sampling and testing is not performed in the vaccinated animals.

(e) measures to be implemented as regards additional animal populations, if relevant:

Regarding other animals of species susceptible to *Brucella*, if present (eg bovines, swines, dogs, horses), measures are applied as foreseen. More specifically, in case of suspicion in the targeted animal population, other animals of species susceptible are tested and, if positive, they are culled or euthanized.

(h) targeted animal populations and when applicable, additional animal populations:

The targeted animal population for the eradication and vaccination programme is all sheep and goats in the entire Greek territory.

7. A description of the organisation, supervision and roles of the parties involved in the eradication programme including at least:

A) The Directorate of Animal Health of the Directorate General of Veterinary Services, of the Ministry of Rural Development & Food for the preparation and publication of the Joint Ministerial Decision on which the costs for the implementation of the programme are covered.

B) The Department of Zoonoses (DZ) of the Directorate of Animal Health, of the Directorate General of Veterinary Services of the Ministry of Rural Development & Food is responsible for:

- (i) programme planning,

- (ii)) the designation of the implementing authorities of the programme and the definition of the responsibilities regarding the needs of the programme,
- (iii) centralized control and coordination of all the relevant authorities involved in the implementation of the programme throughout the country,
- (iv) the provision of appropriate instructions and clarifications to the implementing authorities of the programme,
- (v) collecting the data and the results of programme, evaluating them and reporting to the competent authorities of the Commission of the European Union,
- vi) the timely supply of vaccines (Rev-1) and diagnostic reagents in collaboration with the Directorate General Of Financial Services of the Ministry of Rural Development & Food.

C) The Directorate of Animal Protection & Veterinary Drugs of the Directorate General of Veterinary Services, of the Ministry of Rural Development & Food is responsible for the implementation of the system of identification and registration of the establishments according to the Regulations (EC) 1760/2000 and 911/2004.

D) The Regional Veterinary Directorates are responsible for:

- (i) the coordination, monitoring and evaluation of the implementation of the programme in their region,
- (ii) the cooperation with the respective Veterinary Departments of their region and with the Department of Zoonoses of the Directorate of Animal Health,
- (iii) the collection of the Monthly Surveillance Certificates of the Sheep and Goats Brucellosis programme from the region of their jurisdiction in order to send them to the Department of Zoonoses of the Directorate of Animal Health.
- iv) support for the implementation of the programme to the Veterinary Services of the Regional Units of the country.

E) The Veterinary Services of the Regional Units are responsible:

- (i) to designate a veterinarian responsible for implementing and monitoring the programme,
- (ii) to carry out official activities (checking the marking of animals, the special marking of infected animals, checking the records of establishments, all the necessary bulletins relating to the implementation of the programme and the issuance of Health Certificates, for the movement of animals or flocks) and to cooperate with creoscopic veterinarians, for the needs of the programme, in the territory of their responsibility,
- (iii) for the proper implementation (vaccinations / blood sampling) and the evaluation of the implementation of the programme at the level of Regional Unit and in cooperation with the approved private veterinarians,
- (iv) for the dispatch of the required doses of vaccines, their receipt, proper keeping and their administration. Also, for the planning and information of the DZ at the end of the year regarding the annual needs for vaccines.
- (v) for the sending of the requested statistical data of the programme to the Veterinary Directorates of the Region and to the Department of Zoonoses of the Directorate of Animal Health, on a regular basis, as planned.
- (vi) for the completion and timely sending of the Monthly Surveillance Certificates of their Regional Unit,
- (vii) to monitor the implementation of the programme by approved private veterinarians,
- (viii) to inform and to cooperate with all stakeholders and other competent authorities (breeders, veterinarians, livestock and agricultural cooperatives, Public Health Authorities) in the framework of the implementation of the programme,

(ix) for the sanitation of infected establishments and the reinstatement of the health status of the establishments,

(x) for compiling of a list by health status for brucellosis of all establishments of the area of their responsibility and the notification of the Veterinary Directorate of their Region and the DZ, on a six-month and annual basis.

F) The NRL in Larissa (Directorate of the Veterinary Center of Thessaloniki - Department of Veterinary Laboratory of Larissa) has the following responsibilities:

(i) the approval of the results of the evaluation studies demonstrating the reliability of the tests used for the diagnoses of brucellosis,

(ii) the calibration of the secondary national reference serum standards (working standards) based on the primary national serum standard,

(iii) the cooperation within the EU network with the national reference laboratories for brucellosis,

(iv) the provision of scientific and technical assistance to the Directorate of Animal Health for the implementation of coordinated control plans,

(v) the collection of the semi-annual and annual results and statistical data from the laboratories participating in the program and their submission to the Directorate of Animal Health,

(vi) the coordination and the standardization of the diagnostic methods applied in the diagnostic laboratories for brucellosis of the country. For that reason:

1) plans the supply of diagnostic reagents,

2) checks the quality of all reagents and substrates,

3) performs bacteriological examinations (isolation of the bacterium, as well as serological examinations),

4) receives blood samples / milk samples and pathological material for bacteriological examinations from the Veterinary Departments of the Regional Units.

(viii) tests blood samples from other species of animals susceptible to brucellosis (eg. dogs, equidae),

(ix) the performing of the serological tests of the blood samples from the Veterinary Departments of the Regional Units of their area.

G) The Department of Pathological Anatomy, Histology, Microbiology and Physiopathology of the Breast, the Department of Veterinary Laboratory of Iraklio, the Department of Veterinary Laboratory of Rhodes and the Department of Veterinary Laboratory of Tripoli of Veterinary Institutes in Athens. The Department of Avian and Bee Pathology, Microbiology, Infectious Diseases and Brucellosis, the Department of Veterinary Laboratory of Ioannina and the Department of Veterinary Laboratory of Kavala of the Veterinary Institute of Thessaloniki are responsible for:

(i) the laboratory examination and the performance of the approved serological tests of blood samples from the Veterinary Departments of the Regional Units of their area in accordance to the instructions of the NRL. In case of a positive result, they inform the competent veterinary authorities within 24-48 hours.

(ii) the sending of statistical and financial data to the NRL and the DZ;

(iii) participation in the annual ring test organized by NRL.

H) The Laboratory of Microbiology and Infectious Diseases of the Aristotle University of Thessaloniki, as well as the Clinic of Veterinary Pathology of the Veterinary School of AUTH is responsible for the scientific support of the programme.

I) Private veterinarians working in livestock / agricultural cooperatives, dairy and cheesemaking industries may implement under certain conditions the programme for the

eradication of sheep and goats brucellosis, after the approval of an application for participation in the programme from the Department of Veterinary Medicine of the relevant Regional Unit. In case of approval, the private veterinarian must submit a weekly program with the names of the breeders and the codes of their establishments, the number of animals that will be vaccinated and the number of blood samples that will be collected, the exact dates of the above veterinary operations, as well as the exact number of vaccine doses required for each establishment.

J) The business operators of the Country are responsible to:

1) cooperate with the competent Veterinary Authorities of the Regional Units for the implementation of the programme. In particular, they are obliged to inform the Veterinary Services of the Regional Unit, in no later than 48 hours, in case of abortions,

2) cooperate with the Veterinary Authorities, to accommodate their work and to provide their assistance for the implementation of vaccinations, blood sampling, epizootiological researches and to comply with their instructions,

3) comply with the restrictive measures imposed on their establishment,

4) update the records of the establishment,

5) keep a file with all the necessary documents of the establishment,

6) follow biosecurity measures on their establishments in order to prevent a possible infection of the animals.

K) A Central Committee is set up for the coordination, control and effective implementation of the programme, which acts as an advisory body to the Department of Zoonoses.

The Central Brucellosis Committee (CBC) consists of:

1) the Head of the Directorate of Animal Health who is also the President,

2) the Head of the Department of Zoonoses Animal of the Directorate of Animal Health who is also the Vice President,

3) the responsible veterinarian of the programme from the Department of Zoonoses.

4) a veterinarian responsible for the Integrated Information System of the Directorate of Animal Protection, Medicines and Veterinary Applications of the Ministry of Rural Development and Food,

5) the veterinarian in charge of the National Brucellosis Reference Laboratory.

6) a professor specializing in Veterinary Pathology,

7) a professor specializing in Veterinary Microbiology,

8) a veterinarian - epidemiologist.

8. Estimated duration of the eradication programme:

The estimated duration of the eradication programme is ten (10) years (+/- two (2) years).