USDA Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Animal Health Status Review of Ireland

Classical swine fever, foot and mouth disease,
and swine vesicular disease

October 2019

1. Executive summary

The Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA), in collaboration with the Canadian Food Inspection Agency, reviewed the animal health status of the Republic of Ireland with respect to three highly contagious animal diseases: classical swine fever (CSF), foot and mouth disease (FMD), and swine vesicular disease (SVD). African swine fever (ASF) has never been reported to have occurred in Ireland and was not included in the scope of this review. APHIS currently recognizes Ireland as low risk for CSF as part of the APHIS-defined European CSF region, and as free of FMD and SVD. We conducted this review to determine whether these animal disease statuses that APHIS recognizes for Ireland remain appropriate. This review is based on information collected from the Government of Ireland and public sources. We did not conduct a site visit to Ireland as part of this review.

The information we reviewed indicates that the official veterinary services of Ireland have sufficient legal authority and resources to carry out animal health activities efficiently and effectively. The services are hierarchically organized and have clear lines of command and reporting. Roles and responsibilities are well defined. Training programs for new and established staff are in place. Export certification responsibilities and procedures are clearly documented. Animal health controls on trade from other EU Member States and imports from third countries are well developed, organized, and documented, and are supported by extensive EU and Irish legislative authority and infrastructure. The effectiveness of Ireland's import control systems is demonstrated by its continued freedom from CSF, FMD, and SVD.

Ireland has robust systems in place for animal identification, premises registration, and livestock movement controls. These systems allow rapid tracing of animals in the event of disease detection. The levels and methods of CSF, FMD, and SVD surveillance are appropriate to the disease risks in the country. Reporting requirements are well documented and supported by training and educational outreach to appropriate targets. Animal disease control and emergency response measures are well developed and documented at the EU and national levels.

In this review, we found no evidence that CSF, FMD, and SVD are present in Ireland. The information we reviewed indicates that Ireland has sufficient control measures in place to limit the risk of introduction of these diseases into Ireland, and the risk of their export to the United States should they be introduced. Ireland's disease surveillance and emergency response measures appear to be sufficient to ensure rapid detection and control in the event of disease incursion, and prompt notification of trading partners.

We recommend based on the findings of this review, and given APHIS' current approach to recognition of animal health statuses in Europe, that APHIS maintain the current CSF, FMD, and SVD statuses that it currently recognizes for Ireland, with the associated import risk mitigations currently in place.

2. Table of contents

3. Abbreviations

APHIS	Animal and Plant Health Inspection Service
ASF	African swine fever
BIP	Border Inspection Post
CSF	classical swine fever
CVRL	Central Veterinary Research Laboratory
DAFM	Department of Agriculture, Food, and the Marine
ELISA	enzyme-linked immunosorbent assay
EU	European Union
FMD	foot and mouth disease
OIE	World Organization for Animal Health
PCR	polymerase chain reaction
SVD	swine vesicular disease
USDA	United States Department of Agriculture

4. Introduction

APHIS regulates the importation of animals and animal products into the United States to guard against the introduction and spread of foreign animal diseases. In support of this goal, APHIS prohibits or otherwise restricts the importation of animals and animal products from regions that APHIS does not recognize as free of CSF, FMD, and SVD, among other diseases. These three highly contagious viral diseases are exotic to the United States, and CSF and FMD are among the World Organization for Animal Health (OIE)-listed diseases of concern for international trade [1-4]. Currently, APHIS recognizes the Republic of Ireland (Ireland) as low risk for CSF as part of the APHIS-defined European CSF region, and as free of FMD and SVD [5].

Periodically, APHIS reviews the APHIS-recognized animal health statuses of foreign regions to determine whether the conditions in the region support the continuation of APHIS' recognition of those statuses [6]. We conducted the current review of the CSF, FMD, and SVD statuses of Ireland as part of that review program. ASF has never been reported to have occurred in Ireland and was not included in the scope of this review [7]. Separately but in conjunction with this status review of Ireland, APHIS is evaluating the animal health statuses of 12 other European Union (EU) Member States; the African swine fever and CSF control measures in place in the EU and EU Member States; and APHIS' approaches to the recognition of animal health statuses in Europe and whether those approaches remain appropriate. Details and findings of those evaluations will be published separately from this report.

The primary objective of APHIS animal health status reviews is to determine, for each disease under evaluation, whether the region meets the overarching standards listed below, with respect to specified disease agents, referred to here as hazards:

1. The hazard is unlikely to be present in the region and/or commodities under review.
2. The hazard is unlikely to infect or contaminate commodities intended for export to the United States.
3. If the hazard were introduced into the region, the region would rapidly detect it; promptly notify the United States and/or the OIE of the introduction; and respond to the introduction to mitigate the risk of introduction of the hazard into the United States through importation of susceptible species and products of those species.

The sources of the information we evaluated in this review include the Government Ireland, the OIE website, and other public sources. We collected information from Ireland through use of a standardized questionnaire developed for APHIS animal health status reviews. We did not conduct a site visit to Ireland as part of this review.

The results of this review are expected to inform APHIS management decisions regarding the CSF, FMD, and SVD statuses of Ireland and whether to amend restrictions on the importation of relevant commodities from Ireland.

5. Scope of the review

The disease scope of this review is limited to CSF, FMD, and SVD. ASF has never been reported to have occurred in Ireland and was not included in the scope of this review [7]. CSF, FMD, and SVD all affect swine. FMD also affects other cloven-hoofed mammals such as cattle, sheep, and goats; however, this review is focused on swine, as part of a larger APHIS evaluation of the

swine health statuses of EU Member States. The hazards under consideration in this review are the viruses that cause CSF, FMD, and SVD.

The geographic scope of this review is limited to Ireland, an island country in northwestern Europe. It is bordered to the west by the North Atlantic Ocean, to the south by the Celtic Sea, and to the east by the Irish Sea. Its only land border is to the north, with the United Kingdom (Northern Ireland) (Figure 5-1) [8].

Figure 5-1. Map of Ireland.

6. Status of hazards under review in Ireland

CSF last occurred in Ireland in 1958 [9-11]. FMD last occurred in Ireland in 2001 [9, 12, 13]. SVD has never been reported to have occurred in Ireland [9, 14, 15].

Routine vaccination for CSF, FMD, and SVD in Ireland is prohibited [9, 16]. Emergency vaccination is permitted only under exceptional circumstances to prevent disease spread and only in accordance with established official disease eradication rules.

7. Veterinary control and oversight

7.1 Legal authority for animal health activities

The main legal instrument that provides authority for the official veterinary services in Ireland is the Animal Health and Welfare Act [17]. This Act provides the authorities necessary for prevention, control, and eradication of infectious animal diseases, including CSF, FMD, and SVD. The authorities granted by this Act are exercised through a variety of Statutory Instruments, such as orders, regulations, and rules. The scope of these include disease

notification; on-farm inspections; import, export, and internal movement controls; quarantine; disease surveillance; seizure, depopulation, and compensation; and animal disease emergency response. The full texts of Acts and Statutory Instruments are available on the website of the Government of Ireland [18].

As a Member State of the EU, Ireland is bound by all applicable EU Regulations, Decisions, and Directives, including those related to animal health and control of infectious animal diseases [19, 20]. The full texts of EU animal health legislation are available on the European Commission website [21].

7.2 Organizational structure of the veterinary services

The national animal health authority of Ireland is the Department of Agriculture, Food, and the Marine (DAFM), headquartered in Dublin [16, 22]. DAFM responsibilities include regulation of the agriculture, fisheries, and food industries, and monitoring and controlling animal and plant health and animal welfare [23].

Within DAFM, the State Veterinary Service, headed by the Chief Veterinary Officer, is responsible for official control of animal health and welfare, veterinary public health, and zoonoses, and for certification of animals and animal products for export [9, 24]. Its units include the Animal Health and Welfare Inspectorate, the Veterinary Public Health Inspection Service, and a unit that oversees Ireland's Border Inspection Posts. The National Disease Control Center is responsible for contingency planning and emergency response in the event of disease outbreak.

The Animal Health and Welfare Inspectorate offices include a headquarters in Dublin and 16 Regional Veterinary Offices distributed throughout the country [16, 24]. Each Regional Veterinary Office is headed by a Superintending Veterinary Inspector and staffed by veterinary inspectors, agricultural officers, and administrative and clerical staff. The responsibilities of the Regional Veterinary Offices include performing animal identification checks, certifying animals and products for export, performing destination checks on imported products, ensuring local implementation of disease control measures required by national programs, and collecting samples and conducting epidemiologic investigations for national disease control programs.

The Veterinary Public Health Inspection Service includes a headquarters staff and staff employed at plants producing food for human consumption [9]. Responsibilities include ensuring compliance with applicable food hygiene legislation, conducting ante- and postmortem inspections, checking animal identification, and collecting samples for disease surveillance.

Public services at the local and county levels, including enforcement and veterinary services, are provided by 31 local authorities [9, 17, 24, 25]. Most local authorities are headed by a Chief Executive; employees include a County Veterinary Officer, veterinary inspectors, and administrative support staff.

The Laboratory Services division of DAFM provides veterinary diagnostic, regulatory, and research and development services [26]. It consists of a central laboratory complex in County Kildare; six Regional Veterinary Laboratories located in Athlone, Cork, Kildare, Kilkenny, Limerick, and Sligo; a brucellosis laboratory in Cork; and two regional dairy science laboratories at Limerick and Cork [26]. The Central Veterinary Research Laboratory (CVRL), consisting of bacteriology, pathology, and virology divisions, is the national reference laboratory for CSF,

FMD, and SVD, among other diseases [9, 26]. Additional information about animal disease diagnostic testing by the CVRL is provided in section 9.2.

7.3 Infrastructure and financial resources

As of June 2019, DAFM employed 738 full-time veterinarians, of which 52 were employed at the central level and 686 at the regional level [9]. Ireland also had approximately 1,300 private veterinary practitioners [16]. Private veterinary practitioners are authorized to perform disease control, disease eradication, and meat inspection services for DAFM under contract, in accordance with applicable legislation. All veterinarians practicing in Ireland, including official veterinarians and temporary veterinary inspectors, must be registered with the Veterinary Council of Ireland [9]. Registration is contingent on annual completion of continuing veterinary education. Veterinary inspectors are required to declare conflicts of interest, and procedures are in place to prevent inspection certification by persons holding a conflict of interest. Performance of inspectors is monitored on an ongoing basis by supervisory inspectors.

Newly hired official veterinarians undergo induction training and on-the-job training [9]. Ongoing training for all official veterinarians includes specific technical and management courses, seminars, and refresher courses held by DAFM, occasionally in conjunction with the Food Safety Authority of Ireland. Training is conducted in accordance with a formal role profile established for each employee, which lists responsibilities, necessary skills and qualifications, and training requirements. Topics of routine training for headquarters and field staff include implementation of official veterinary controls. Several times per year, DAFM holds seminars on specific topics such as new legislation or changes in importing country requirements [9]. In addition, veterinarians are sent relevant DAFM notifications and publications on an ongoing basis [16].

The National Disease Control Center provides theory and practical training for DAFM staff, private veterinarians, farmers, and other stakeholders to raise awareness of exotic disease risks, clinical signs, reporting requirements, and what to do in the event of disease suspicion or confirmation [9]. Field exercises include training on biosecurity, sample collection, and emergency response [9].

DAFM staff have also participated in OIE training on international disease reporting, and more than 300 veterinarians from Ireland have participated in intensive training as part of the European Commission's Veterinary Emergency Team, which provides veterinary science, virology, wildlife, laboratory testing, risk management, and other support to affected regions as needed [9, 27]. The local authority veterinary services provide training, discussion, and meeting opportunities at the local and regional levels [24].

The official veterinary services of Ireland are funded primarily through the state budget [9]. In addition, EU funding is available for various national disease surveillance, control, and eradication programs.

7.4 Export controls

The responsibilities of the State Veterinary Service include ensuring that export certification requirements of trading partners are met [9, 24]. Veterinarians issuing certificates for export consignments must be official veterinarians of DAFM. Consignments for trade to another EU

Member State or export to a third country must comply with all applicable requirements of the EU, Ireland, and the receiving country.

Consignments for export are subject to veterinary inspection including visual and document checks [9, 16]. Containers are sealed at the point of dispatch and consignments must be accompanied by an export health certificate signed by a DAFM official that specifies the animal health status and other requirements of the receiving country. If the veterinary inspection reveals that the requirements specified in the certificate are not met, the certificate is not issued. The certificates are uniquely numbered and securely stored. DAFM maintains a record for each certificate of the commodity it accompanied, its destination, and who signed the certificate.

Inspection and certification procedures are documented, including lists of responsibilities and relevant legislation, a code of practice, checklists, and detailed procedures [16]. DAFM hosts multiple training sessions each year focused on specific topics related to export certification, such as changes in legislation or importing country requirements.

7.5 Conclusions

The information we reviewed indicates that the official veterinary services of Ireland have sufficient legal authority and resources to carry out animal health activities efficiently and effectively. The services are hierarchically organized and have clear lines of command and reporting. Roles and responsibilities are well defined. Training programs for new and established staff are in place. Export certification responsibilities and procedures are clearly documented.

8. Barriers to hazard entry into Ireland

Most of Ireland is surrounded by large bodies of water (Figure 5-1). Its only land border is to the north, with the United Kingdom, also an EU Member State.

8.1 Controls on intra-EU trade

Ireland has been a member of the EU since 1973 [28]. A key policy of the EU is the establishment and functioning of an internal market that provides for, among other things, the free movement of persons and goods, including agricultural products, among Member States [19].

In general, movement of animals and animal products among EU Member States cannot be limited or prohibited except when such restrictions have been imposed by the EU on animal or public health grounds [29, 30]. Swine, cattle, sheep, and goats for intra-EU trade must be identified in accordance with applicable legislation, be accompanied by a health certificate, not show clinical signs of disease, and not originate from a holding that is subject to animal disease-related restrictions [30-34].

To decrease the likelihood of spread of highly contagious animal diseases among EU Member States, the EU has developed measures that are disease-specific and applicable to affected Member States [35, 36]. In general, these procedures are added to the existing animal health control measures established for all EU Member States. The measures, and the Member States or regions of Member States to which they apply, are specified in Commission Decisions that are updated regularly as the disease situation in the EU changes. Among the measures are additional restrictions on movement of swine both to other Member States, and within affected Member

States; additional requirements for serological testing and clinical examination for disease; and additional animal health certification requirements.

8.2 Controls on imports from third countries

Ireland follows EU requirements for importation of animals and animal products from third countries [9]. EU legislation governing importation of animals and animal products into the EU from third countries is "designed to ensure that imported animals and products meet standards at least equivalent to those required for production in, and trade between Member States" [37]. In general, animals and animal products can be legally imported into the EU only from third countries or parts thereof that are approved for export to the EU by EU legislation, and only through EU-approved Border Inspection Posts (BIPs). In most cases, evaluation of a country's application for approval involves an on-site inspection by the audit unit of the EU Directorate-General for Health and Food Safety, to determine whether the animal health situation and relevant official services, legal provisions, control systems, and production standards meet EU requirements. Ireland has three BIPs, at Dublin airport and seaport and at Shannon airport [9, 38].

Animals and animal products for importation into the EU must be accompanied by a health certificate signed by an animal health official [37]. The certificate specifies the animal health conditions that must be satisfied, including required veterinary checks; these conditions are specific to each category of animal or product. Animals and animal products for import are subject to veterinary checks at the border, including document and identity checks [37, 39-42]. Physical checks are carried out based on the risk profile of the commodity and the results of previous checks. The veterinary checks are authorized by EU legislation to be performed only at BIPs approved for such checks by the EU. The BIPs are inspected regularly by European Commission veterinary experts, who review compliance with EU legislation on import controls at the BIPs. The scope of these inspections includes all aspects of implementation of EU legislation on veterinary import control, including infrastructure, equipment, and procedures. The requirements for entry or transit of animal commodities are clearly documented in EU legislation [39-42].

The competent authority in Ireland for control of animal and animal product imports is DAFM, which exercises this authority through the State Veterinary Service [24]. BIPs in Ireland are operated by DAFM in collaboration with the Customs Service [9]. This collaboration and the respective roles of DAFM and Customs are formally documented in a memorandum of understanding between DAFM and Customs [24]. Import procedures and guidance on legislation are documented in manuals and circulars, which are distributed to DAFM and Customs personnel.

Incoming consignments are flagged for veterinary inspection based on information gathered from common veterinary entry documents, manifest checks, a Customs Automated Entry Processing System, and spot checks [24]. DAFM notifies Customs of DAFM clearance of consignments through use of the common veterinary entry document. Customs carries out checks on personal luggage, including luggage of crew members disembarking from ships from non-EU countries, and on postal consignments sent to private individuals. International catering waste is disposed of at an approved landfill by waste disposal operators contracted under an annual license.

8.3 TRACES

All EU Member States are required to participate in the Trade Control and Expert System (TRACES), a multilingual electronic system developed and maintained by the European Commission for transmission, storage, and management of veterinary information relating to trade in animals and products of animal origin, for both intra-EU trade and imports from countries outside the EU [43-47]. Animal trade-related information available through TRACES includes animal health certificate, import and export certificate, and bovine identification data. Users include competent authorities for animal health and commercial entities in all Member States as well as more than 50 non-EU countries, including the United States.

8.4 Conclusions

Ireland is physically separated from potential sources of infection by large bodies of water to the south, east, and west. Animal health controls on trade from other EU Member States and imports from third countries are well developed, organized, and documented, and are supported by extensive EU and Irish legislative authority and infrastructure. The effectiveness of Ireland's import control systems is demonstrated by its continued freedom from CSF, FMD, and SVD.

9. Hazard detection, response, and notification

9.1 Livestock demographics and traceability

Livestock premises and herds in Ireland must be registered with DAFM [9, 16, 24]. Each herd or flock is assigned a unique herd number, which is issued to a registered keeper and linked to the relevant premises registration [24]. Each registration is subject to on-site inspection, including verification of the numbers and types of animals on the premises. Registration information is maintained in an electronic database. Compliance and enforcement checks are carried out by authorized DAFM Regional Veterinary Office staff, and penalties are issued for non-compliance [16].

Requirements for identification and registration of swine are specified in EC and Irish legislation [16, 48-50]. These requirements are implemented through use of a National Pig Identification and Tracing System [51]. All swine holdings must be registered with DAFM, and all swine must be identified prior to movement off the premises of origin. Swine are identified by herd registration number, except breeding swine, which are identified by herd number and individually. All swine moving off a premises must be accompanied by a dispatch document, which includes the names and addresses of the origin and destination premises. DAFM must be notified of all swine movements onto or off a premises. The movements are recorded in a farm register and in a central database. The farm register records must be maintained for 3 years and made available to authorized officers of DAFM upon request. Swine keepers must complete an annual swine census and return it to DAFM. Failure to return the census to DAFM results in inactivation of the herd registration and prohibition of swine movement onto or off the premises until the registration is reactivated.

In general, swine in Ireland are moved directly to slaughter. Swine are not moved through livestock markets or assembly centers, and little to no movement of swine occurs from farm to farm [16]. During movement from premises to premises, swine must be accompanied by a health certificate signed by a veterinary inspector. Issuance of the health certificate is contingent on

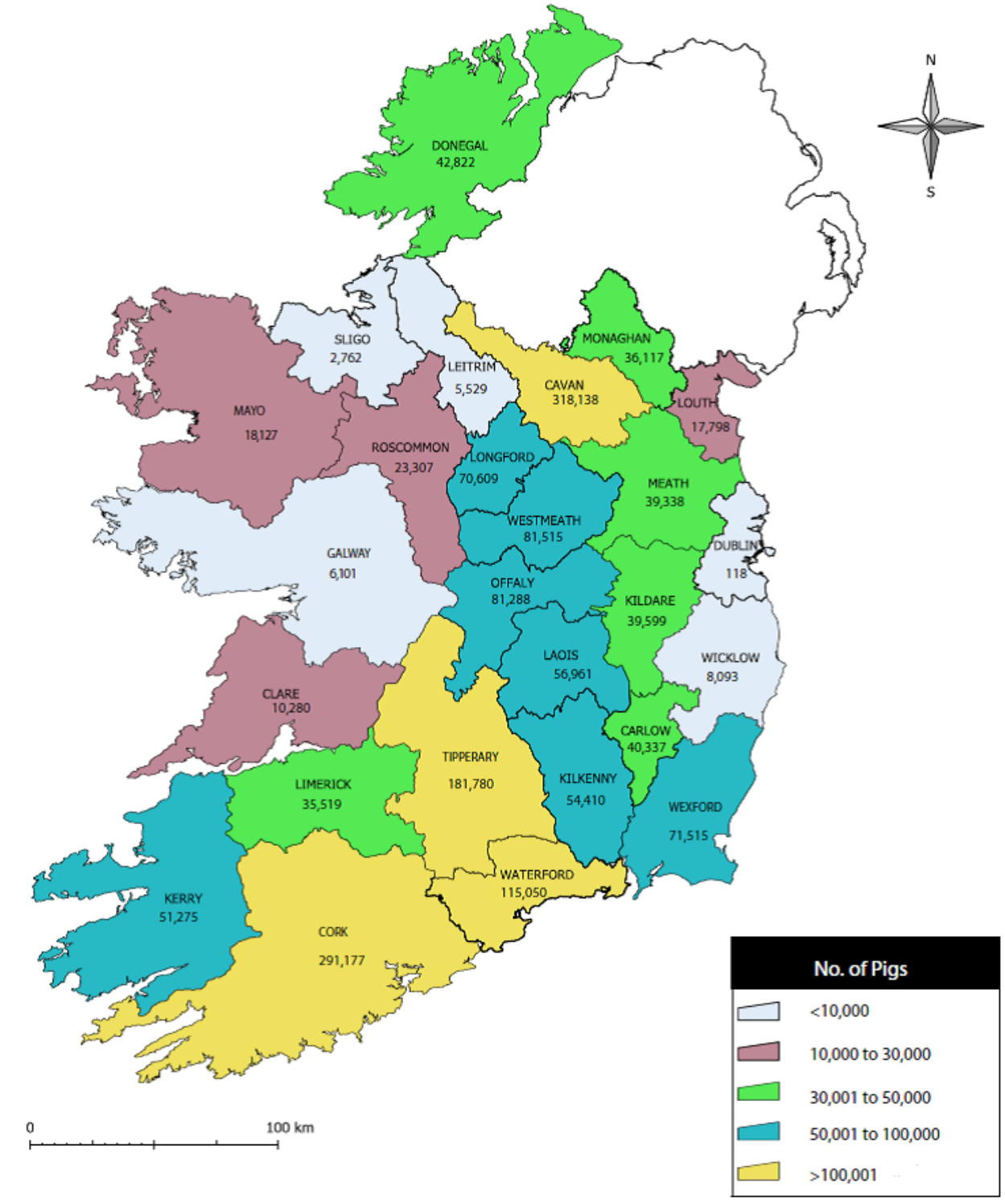
favorable completion of a health inspection at the premises of origin within 24 hours prior to movement.

Requirements for identification and registration of bovine animals are similarly specified in EC and Irish legislation [16, 24, 52]. These requirements are implemented through use of a national identification and traceability system that includes four components: tagging, bovine passports, on-farm herd registers, and an online Animal Identification and Movement database. All holdings including farms, slaughter establishments, cattle markets, and export points are registered with DAFM. All cattle must be ear tagged within 20 days of birth. Within 7 days of tagging, the birth details must be registered with the Calf Birth Registration Agency, from which information is transferred electronically to the Animal Identification and Movement database, which includes information on cattle origin, identity, and movements. Upon validation of birth registration, a bovine passport is issued to the animal keeper. This passport must accompany the animal during movement off the premises. All movements must be reported within 7 days. Animal keepers are required to maintain a register in which they record information about the animals and animal movements onto and off the premises.

Requirements for identification and registration of sheep and goats are similarly specified in EC and Irish legislation, and implemented through National Sheep Identification System [16, 53]. All flock owners must be registered with DAFM, all animals must be tagged, and all movements onto and off premises must be recorded in the system.

As of March 2019, Ireland had 1.7 million domestic swine in 1,674 herds [9]. Approximately 64 percent of herds had fewer than 6 swine, and 2.6 percent had more than 10,000 swine. A map of the geographic distribution of swine in Ireland by county is shown in Figure 9-1.

Figure 9-1. Map of geographic distribution of swine in Ireland by county.



Most swine are located in southern and central Ireland, with counties Cork, Waterford, Tipperary, and Cavan having the largest numbers of swine. Feral swine are occasionally sighted but are not known to be established in Ireland [9, 54, 55]. As of June 2018, Ireland had

approximately 7.3 million cattle, of which approximately 1.5 million were dairy cows; and 5.1 million sheep [16].

9.2 Disease detection

Laboratory testing for CSF, FMD, and SVD in Ireland is carried out by the Virology Division of the CVRL in County Kildare [9]. Tests available for CSF diagnostics include a CSF enzyme linked immunosorbent assay (ELISA) for detection of CSF antibodies, a CSF virus neutralization test for detection of CSF specific antibodies and discrimination of other panpestivirus infections, panpestivirus PCR and CSF discriminatory reverse transcription polymerase chain reaction (RT-PCR) tests, a CSF antigen ELISA, and virus isolation. Tests available for FMD diagnostics include FMD antibody and antigen ELISAs and real-time RT-PCR. Tests available for SVD diagnostics include antibody ELISA and RT-PCR.

Samples can be hand-delivered to the Virology Division from anywhere in Ireland within 4 hours [9]. ELISA and PCR results are generally available within 5 hours of sample receipt. Virus isolation and virus neutralization testing can take 4 days to 2 weeks. A system is in place for processing samples out of regular business hours. Results can be shared in real time online with the National Disease Control Center and veterinary inspectors in the field.

DAFM conducts active and passive surveillance for CSF, and passive surveillance for FMD and SVD [16]. For CSF, DAFM conducts serologic testing of culled sows in support of Ireland's OIE-recognized status as CSF free. DAFM also conducts serologic testing for CSF in boars prior to entry into and during their stay in approved semen collection centers, and serologic testing of swine prior to export in accordance with third country certification requirements. It also tests clinical samples from swine carcasses submitted for post-mortem examination. The surveillance results for CSF in Ireland for 2015-2018 are listed in Table 1.

Table 1. CSF surveillance results, 2015-2018.

Year	Number of samples		
	Culled sows[a]	Other[b]	
	Serologic	Serologic	PCR[c]
2015	2,125	1,788	65
2016	2,519	582	35
2017	2,080	430	48
2018	2,712	415	32

[a]Testing in support of Ireland's OIE-recognized status as CSF free.
[b]Testing at semen collection centers, for export purposes, or as part of disease investigations.
[c]Polymerase chain reaction.

In 2015-2018, DAFM conducted approximately 2,500 to 3,900 serologic and 32-65 PCR tests for CSF each year [16]. All results were negative.

Suspected cases of CSF, FMD, and SVD are investigated by DAFM in accordance with documented procedures [9]. In 2016-2018, a total of four suspected cases of FMD were reported. Each case was investigated, with negative results. No suspected cases of SVD were reported in the past 3 years.

Contingency plans for increasing laboratory testing capacity in the event of disease outbreaks, including CSF and FMD, are in place [16]. These plans are updated regularly to reflect changes in disease threats and laboratory resources. Increased capacity is also available through DAFM's participation in the International Animal Health Emergency Reserve, which provides for sharing of emergency response resources among participating countries during animal disease outbreaks.

9.3 Disease reporting

Reporting to DAFM of any suspected occurrence or diagnosis of any notifiable disease, including CSF, FMD, and SVD, in Ireland is mandated by law [9, 56, 57]. This reporting requirement includes animal owners and keepers, veterinary practitioners, laboratories, and third parties. Reports can be made to the DAFM local or central office. DAFM also operates a 24-hour emergency hotline for reporting suspected cases of disease.

The National Disease Control Center conducts ongoing informational campaigns and other activities to raise and maintain awareness about clinical signs and reporting requirements for exotic diseases, including CSF, FMD, and SVD [9]. These informational activities are targeted to relevant audiences and disease risks and are updated regularly. Recently targeted audiences have included DAFM staff working at slaughter facilities, Regional Veterinary Office staff, private veterinary practitioners, swine holdings, other interested stakeholders, and members of the public. Recent activities have included providing training courses on exotic diseases and contingency planning to DAFM staff working at slaughter plants and private veterinary practitioners, and distributing informational messages through informational leaflets and booklets, social media, direct mailings, and the DAFM website, and at agricultural special interest gatherings.

The National Disease Control Center is responsible for notifying the OIE of any outbreaks of CSF, FMD, SVD, or other OIE-listed disease within 24 hours and providing weekly updates [9]. In addition, DAFM notifies the European Commission via an electronic Animal Disease Notification System.

9.4 Conclusions

Ireland has robust systems in place for animal identification, premises registration, and livestock movement controls. These systems allow rapid tracing of animals in the event of disease detection. The levels and methods of CSF, FMD, and SVD surveillance are appropriate to the disease risks in the country. Reporting requirements are well documented and supported by training and educational outreach to appropriate targets. Animal disease control and emergency response measures are well developed and documented at the EU and national levels.

10. Conclusions and recommendations

In this review, we found no evidence that CSF, FMD, and SVD are present in Ireland. The information we reviewed indicates that Ireland has sufficient control measures in place to limit the risk of introduction of these diseases into Ireland, and the risk of their export to the United States should they be introduced. Ireland's disease surveillance and emergency response measures appear to be sufficient to ensure rapid detection and control in the event of disease incursion, and prompt notification of trading partners.

We recommend based on the findings of this review, and given APHIS' current approach to recognition of animal health statuses in Europe, that APHIS maintain the current CSF, FMD, and SVD statuses that it currently recognizes for Ireland, with the associated import risk mitigations currently in place.

11. References

1. OIE, *World Animal Health Information Database (WAHID) Interface. Animal health situation. United States*. 2018, World Organization for Animal Health: Paris.
2. OIE, *Notification of diseases, infections and infestations, and provision of epidemiological information*, in *Terrestrial Animal Health Code*. 2019, World Organization for Animal Health: Paris.
3. OIE, *Criteria for the inclusion of diseases, infections and infestations on the OIE list*, in *Terrestrial Animal Health Code*. 2019, World Organization for Animal Health: Paris.
4. OIE, *Diseases, infections, and infestations listed by the OIE*, in *Terrestrial Animal Health Code*. 2019, World Organization for Animal Health: Paris.
5. APHIS, *Animal health status of regions. Accessed August 18, 2019 at https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-and-animal-product-import-information/animal-health-status-of-regions*. 2019.
6. APHIS, *Animal health status review information. Accessed August 18, 2019 at https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/export/international-standard-setting-activities-oie/regionalization/ah-status-review*. 2019.
7. OIE, *World Animal Health Information Database (WAHID) Interface. Disease timeline. Ireland, ASF*. 2019, World Organization for Animal Health: Paris.
8. U.S. Central Intelligence Agency, *The World Factbook: Ireland. Accessed August 22, 2019 at https://www.cia.gov/library/publications/the-world-factbook/geos/ei.html*. 2019.
9. DAFM, *Ireland Department of Agriculture, Food, and the Marine response to APHIS questionnaire: Clarification of information requested for recognition of a region. March 28, 2019*. 2019.
10. OIE, *Handistatus II. Ireland, CSF*. 2019, World Organization for Animal Health: Paris.
11. OIE, *World Animal Health Information Database (WAHID) Interface. Disease timeline. Ireland, CSF*. 2019, World Organization for Animal Health: Paris.
12. OIE, *Handistatus II. Ireland, FMD*. 2019, World Organization for Animal Health: Paris.
13. OIE, *World Animal Health Information Database (WAHID) Interface. Disease timeline. Ireland, FMD*. 2019, World Organization for Animal Health: Paris.
14. OIE, *Handistatus II. Ireland, SVD*. 2019, World Organization for Animal Health: Paris.
15. OIE, *World Animal Health Information Database (WAHID) Interface. Disease timeline. Ireland, SVD*. 2019, World Organization for Animal Health: Paris.
16. DAFM, *Ireland Department of Agriculture, Food, and the Marine response to APHIS information request. June 19, 2019*. 2019.
17. Government of Ireland, *Animal health and welfare act*. 2013.
18. Government of Ireland, *Electronic Irish Statute Book. Accessed August 23, 2019 at http://www.irishstatutebook.ie/*. 2013.
19. Council of the European Union, *Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union and the Charter of Fundamental Rights of the European Union. Brussels, 12 November 2012. 6655/7/08, REV 7. Article 288*. 2012.
20. European Union, *Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, signed at Lisbon, 13 December 2007.* Official Journal of the European Union, 2007. **50**(C306): p. 1.
21. European Union Publications Office, *EUR-Lex. Accessed August 19, 2019 at https://eur-lex.europa.eu/*. 2019.

22. Government of Ireland, *Department of Agriculture, Food, and the Marine website. Contact us. Accessed August 23, 2019 at https://www.agriculture.gov.ie/contact/*. 2019.
23. Government of Ireland, *Department of Agriculture, Food, and the Marine website. Functions of the Department. Accessed August 23, 2019 at https://www.agriculture.gov.ie/aboutus/aboutthedepartment/#d.en.1119*. 2019.
24. European Commission Directorate General of Health and Food Safety, *Country profile: organization of official controls. Ireland. Ref. Ares(2018)2709936 - 25/05/2018*. 2018.
25. Government of Ireland, *Irish Local Government Management Agency website. Irish local government. Accessed August 23, 2019 at https://www.lgma.ie/en/irish-local-government/*. 2019.
26. Government of Ireland, *Department of Agriculture, Food, and the Marine website. Laboratory Services. Accessed August 23, 2019 at https://www.agriculture.gov.ie/animalhealthwelfare/laboratoryservices/*. 2019.
27. European Commission Directorate General of Health and Food Safety, *Veterinary Emergency Team webpage. Accessed August 25, 2019 at https://ec.europa.eu/food/animals/animal-diseases/emergency-team_en*. 2019.
28. Europa.eu, *Ireland. Accessed October 1, 2019 at https://europa.eu/european-union/about-eu/countries/member-countries/ireland_en*. 2019.
29. European Commission, *Treaty establishing the European Community (Nice consolidated version), Article 249.* Official Journal of the European Union, 2002. **C 55**: p. 33.
30. Council of the European Union, *Council Directive of 26 June 1990 concerning veterinary and zootechnical checks applicable in intra-Community trade in certain live animals and products with a view to the completion of the internal market (90/425/EEC). Consolidated version 01.11.2018.* Official Journal of the European Communities, 1990. **33**: p. 29.
31. Council of the European Union, *Council Directive of 28 January 1991 on animal health conditions governing intra-Community trade in ovine and caprine animals (91/68/EEC).* Official Journal of the European Communities, 1991. **34**: p. 19.
32. Council of the European Union, *Council Directive of 26 June 1964 on animal health problems affecting intra-Community trade in bovine animals and swine (64/432/EEC). Consolidated version 27.05.2015.* Official Journal of the European Union, 1964. **121**: p. 1977.
33. European Commission, *Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin. Consolidated version 01.01.2019.* Official Journal of the European Union, 2004. **47**: p. 55.
34. European Commission, *Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption. Consolidated version 01.01.2019.* Official Journal of the European Union, 2004. **47**: p. 206.
35. European Commission, *2013/764/EU: Commission Implementing Decision of 13 December 2013 concerning animal health control measures relating to classical swine fever in certain Member States. Consolidated version 28.10.2016.* Official Journal of the European Union; OJ L 338, 17.12.2013, 2013. **56**: p. 102.
36. European Commission, *2014/709/EU: Commission Implementing Decision of 9 October 2014 concerning animal health control measures relating to African swine fever in*

certain Member States and repealing Implementing Decision 2014/178/EU. Consolidated version 24.06.2019. Official Journal of the European Union, OJ L 295, 11.10.2014, 2014. **57**: p. 63.
37. European Commission, *General guidance on EU import and transit rules for live animals and animal products from third countries*. 2010.
38. European Commission, *2009/821/EC: Commission Decision of 28 September 2009 drawing up a list of approved border inspection posts, laying down certain rules on the inspections carried out by Commission veterinary experts and laying down the veterinary units in TRACES. Consolidated version 07.01.2019.* Official Journal of the European Union, OJ L 296, 12.11.2009, 2009. **52**: p. 1.
39. Council of the European Union, *Council Directive 97/78/EC of 18 December 1997 laying down the principles governing the organisation of veterinary checks on products entering the Community from third countries. Consolidated version 01.07.2013.* Official Journal of the European Communities, OJ L 24, 30.1.1998, 1997. **41**: p. 9.
40. Council of the European Union, *Council Directive 91/496/EEC of 15 July 1991 laying down the principles governing the organization of veterinary checks on animals entering the Community from third countries and amending Directives 89/662/EEC, 90/425/EEC and 90/675/EEC. Consolidated version 03.09.2008.* Official Journal of the European Communities, OJ L 268, 24.9.1991, 1991. **34**: p. 56.
41. European Commission, *Commission Regulation (EC) No 282/2004 of 18 February 2004 introducing a document for the declaration of, and veterinary checks on, animals from third countries entering the Community. Consolidated version 31.03.2004.* Official Journal of the European Union, OJ L 49, 19.2.2004, 2004(49): p. 11.
42. European Commission, *Commission Regulation (EC) No 136/2004 of 22 January 2004 laying down procedures for veterinary checks at Community border inspection posts on products imported from third countries. Consolidated version 03.06.2014.* Official Journal of the European Union, OJ L 21, 28.1.2004, 2004. **47**: p. 11.
43. European Commission, *TRACES: TRAde Control and Expert System. Web page. Accessed November 18, 2019 at https://ec.europa.eu/food/animals/traces_en*. 2019.
44. European Commission, *How does TRACES work. Web page. Accessed November 18, 2019 at https://ec.europa.eu/food/animals/traces_en*. 2019.
45. European Commission, *TRACES: Legal basis. Web page. Accessed November 18, 2019 at https://ec.europa.eu/food/animals/traces/legal-basis_en*. 2019.
46. European Commission, *TRACES: 2018 annual report. Accessed November 18, 2019 at https://ec.europa.eu/food/sites/food/files/animals/docs/traces_report_annual_2018_eng.pdf*. 2019.
47. European Commission, *2004/292/EC: Commission Decision of 30 March 2004 on the introduction of the Traces system and amending Decision 92/486/EEC.* Official Journal of the European Union, OJ L 94, 31.03.2004, 2014. **47**: p. 61.
48. Council of the European Union, *Council Directive 2008/71/EC of 15 July 2008 on the identification and registration of pigs.* Official Journal of the European Union, 2008. **51**: p. 31.
49. Government of Ireland, *S.I. No. 341/2002 - Diseases of Animals Act 1966 (National Pig Identification and Tracing System) Order 2002*. 2002.
50. Government of Ireland, *S.I. No. 470/2008 - European Communities (Identification and Registration of Pigs) Regulations 2008*. 2008.

51. Government of Ireland, *National pig identification and tracing system web page. Accessed October 6, 2019 at https://www.agriculture.gov.ie/animalhealthwelfare/animalidentificationmovement/nationalpigidentificationandtracingsystem/*. 2019.
52. Government of Ireland, *AIM bovine statistics report 2017. Department of Agriculture, Food, and the Marine*. 2017.
53. Government of Ireland, *National sheep identification system web page. Accessed October 6, 2019 at https://www.agriculture.gov.ie/animalhealthwelfare/animalidentificationmovement/nationalsheepidentificationsystem/*. 2019.
54. National Biodiversity Center, *Feral wild boar in Forest of Dean expand despite cull. A cautionary tale for Ireland. October 21. Accessed October 7, 2019 at http://www.biodiversityireland.ie/feral-wild-boar/*. 2016.
55. Rogan, A., *Pigs dumped in wild will turn into right swines. The Times. November 19. Accessed October 7, 2019 at https://www.thetimes.co.uk/article/pigs-dumped-in-wild-will-be-right-swines-q8m08ktrw*. 2018.
56. Government of Ireland, *S.I. No. 130/2016 - Notification and Control of Diseases affecting Terrestrial Animals (No. 2) Regulations 2016*. 2016.
57. Government of Ireland, *List of notifiable diseases. Accessed October 15, 2019 at https://www.agriculture.gov.ie/animalhealthwelfare/diseasecontrol/listofnotifiablediseases/*. 2019.