APHIS Evaluation of the Status of Latvia Regarding Classical Swine Fever, Swine Vesicular Disease, and Foot and Mouth Disease

Animal and Plant Health Inspection Service

Veterinary Services

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Abbreviations

APHIS	Animal and Plant Health Inspection Service
BIP	Border Inspection Post
CMR	Cabinet of Ministers Regulation
CSF	Classical Swine Fever
CVED	Common Veterinary Entry Document
EC	European Commission
EU	European Union
EU-15	Fifteen EU Member States prior to the 1 May 2004 accession
FMD	Foot and mouth disease
FVS	Food and Veterinary Service
OIE	World Organization for Animal Health
SVD	Swine Vesicular Disease
SVMDC	State Veterinary Medicine Diagnostic Center

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Executive summary

The Republic of Latvia submitted requests to the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) in 2004 and 2005 to be considered free of classical swine fever (CSF), swine vesicular disease (SVD), and foot and mouth disease (FMD). The Latvian government would like to afford producers in their country the option of exporting swine and ruminant commodities to the United States, although there currently appear to be no specific plans to export. Upon receipt of the request, APHIS initiated an evaluation of Latvia's status with regard to CSF, SVD, and FMD in order to assess the risk of opening trade with this country.

On 1 May 2004, Latvia and nine other countries became new Member States of the European Union (EU). As part of the accession process, Latvia adopted the decisions and directives of the European Commission (EC) regarding animal health, welfare, and identification, including those pertaining to CSF, SVD, and FMD. These decisions and directives became the basis for new standard operating procedures by the time of accession. Latvia also adopted the harmonized EC legislation regarding import, export, and trade of live animals, meat, and animal products.

This report represents APHIS' evaluation of the status of Latvia with regard to the infrastructure and control measures in place for these three diseases and includes an assessment of disease surveillance measures, import practices, laboratory capacity, emergency response procedures, and other factors that could influence the risk of disease introduction and spread. Since a previous APHIS analysis of the EU prior to accession of the 10 new Member States concluded that the EC control measures for CSF are effective (APHIS 2000), the CSF evaluation focuses in large part on the implementation of EC controls in Latvia.

Supporting documentation for this evaluation consists of documentation provided by Latvia, observations of a site visit team, information from the OIE, peer-reviewed articles, reports of missions conducted by the Food and Veterinary Office of the European Commission, and other technical sources. APHIS considered information provided by Latvia before, during, and after the site visit. APHIS used all of the information gathered during the evaluation process to identify risk factors that may require further mitigation.

This risk analysis was conducted according to OIE guidelines and therefore includes a hazard identification section, a release assessment, an exposure assessment, a consequence assessment, and a risk estimate. The hazards under consideration are the CSF, SVD, and FMD viruses. The documentation provided by Latvia indicates that FMD and CSF have been eradicated in that country. Latvia has not reported a case of FMD since 1987 and the last case of CSF was reported in 1996; SVD has never been reported in the country. Based on the release assessment, APHIS has no evidence that any of these hazards currently exist in Latvia.

However, the release assessment identified several pathways by which CSF, SVD, and/or FMD virus could be introduced into Latvia from other EU Member States and affected third countries, thereby potentially resulting in risk to the United States in opening trade. Specifically, the following pathways for disease introduction into Latvia are of interest to APHIS: (1) natural movements of wild boar; (2) import and trade of live swine; (3)

import and trade of swine products; (4) incoming vehicular and human traffic; and (5) agricultural commodities for personal consumption.

Release assessment

Of the pathways assessed, migrating wild animals and smuggled agricultural commodities appear to present the greatest risk for disease introduction into Latvia when existing mitigation measures are considered. Latvia shares common land borders and trades with regions that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD, and some important pathways for disease introduction cannot be well controlled (e.g. movement of wild boar).

Introduction of CSF or SVD into Latvia by the assessed pathways would only affect export risk to the United States if a susceptible domestic swine population – either breeding animals as in a semen collection center or production animals raised for slaughter – became infected and this infection was not detected prior to export. As discussed in the release assessment, commercial production and biosecurity practices substantially mitigate the export risk to the United States.

Harmonized EC legislation imposes less stringent restrictions on sourcing of imported ruminants and swine, as well commodities derived from these species, than is the case for the United States. Current EC import requirements substantially reduce the risk of introducing CSF, SVD, or FMD into Latvia. However, additional mitigation measures may be necessary to restrict sourcing of swine, ruminants, and derived products for export to the United States and to prevent commingling of these commodities with those from regions that APHIS regards as affected or of unknown risk for these diseases.

Sufficient information is available from Latvia and other EU Member States for APHIS to conclude that there is little substantive difference in the way trade is conducted among these entities. APHIS regards the 15 Member States comprising the EU prior to the May 2004 accession (the EU-15) as low risk with respect to CSF. In addition, APHIS considers large portions of the EU free of SVD and FMD but subject to certain import restrictions based on the existence of common land borders with regions that APHIS does not consider free of these diseases, and/or importation of live animals or animal commodities from such regions.

Based on this evaluation, APHIS considers the export risk from Latvia to be equivalent to that of the EU-15. The EU-15 is subject to the import conditions specified in 9 CFR 94.11 for meat and meat products from ruminants and swine; 9 CFR 94.13 and 94.24 for pork and pork products; 9 CFR 94.24 for breeding swine; and 9 CFR 98.38 for swine semen. Latvia has fully implemented EC control measures at a level equivalent to that of the EU-15. Applying the provisions of 9 CFR 94.11, 94.13, 94.24, and 98.38 to Latvia would address the majority of the outstanding risk issues identified in the release assessment.

Exposure assessment

APHIS assessed the probability of exposure of susceptible animal populations in the United States to CSF, SVD, or FMD viruses carried by meat or meat products, live animals, and genetic material imported from Latvia. The assessment concluded that the likelihood of exposure of susceptible animals to these viruses via waste feeding was low,

based on studies of the U.S. waste-feeding sector. Although the unmitigated potential for exposure to infective virus via live animals or genetic material was comparatively high, APHIS concluded that the likelihood of exposure of susceptible U.S. livestock via meat or meat products, live animals, or genetic material from Latvia was low. The mitigation measures in 9 CFR 94.24 for horizontal transmission and 9 CFR 98.38 for artificial insemination would further limit the risk of exposure to CSF or (indirectly) SVD viruses.

Consequence assessment

APHIS also assessed the biologic and economic consequences of introducing CSF, SVD, or FMD viruses into the United States. This assessment concluded that both CSF and FMD viruses have the potential to cause significant distress and suffering in affected animals, whereas SVD infection usually follows a more mild course. The economic costs of control and eradication of any of these diseases would be substantial, and export losses due to restrictions imposed by trade partners on animals and products susceptible to these diseases could run into billions of U.S. dollars. An extensive foreign animal disease outbreak could also result in severe psychosocial effects on farmers and farming communities.

Risk estimate

In summary, although a CSF, SVD, or FMD outbreak in the United States would likely have severe animal health and economic consequences, APHIS considers the risk of infected live swine and ruminants, or commodities derived from these species, entering the United States from Latvia and exposing U.S. livestock to be low. This risk is further mitigated if Latvia is subject to the same mitigations measures as are specified in 9 CFR 94.11, 94.13, 94.24, and 98.38for other EU Member States.

Hazard identification

The hazards under consideration in this analysis are CSF, SVD, and FMD viruses.

1. Classical swine fever virus

CSF, also known as hog cholera, is a contagious and economically damaging viral disease of domestic swine and wild boar with worldwide distribution. It is caused by the CSF virus of the family Flaviviridae, genus *Pestivirus* (Wengler et al 1995). CSF virus is quite hardy, being stable between pH 4 and 10 (Depner et al 1992) and also stable at low temperatures (Harkness 1985). The virus would likely remain viable even after carcass maturation, and is unlikely to be destroyed by transport or cold storage. Laboratory confirmation of infection, essential during an outbreak situation, is complicated by the close antigenic relationship of the CSF virus with bovine viral diarrhea virus and border disease virus (Wengler et al 1995).

The incubation period for CSF is 2-14 days (OIE 2005a). The virus multiplies in the epithelial crypts of the tonsils and may be carried to local lymph nodes and into the bloodstream for distribution throughout the body (Trautwein 1988). Blood and all tissues, secretions and excretions of sick and dead animals are sources of virus (OIE 2005a). CSF virus has been recovered from muscle and lymph nodes of infected pigs, and high titers of virus have been isolated from bone marrow (Wood et al 1988). The disease may also be introduced or spread via infected semen (Elber et al 1999).

CSF can spread in an epidemic form as well as establish enzootic infections in domestic swine and wild boar populations. Infection generally spreads directly from pig to pig, but products including fresh, frozen, or cured pork can remain infectious to other pigs via the oral route (Edwards 2000). Imported pig products are frequently implicated in the introduction of CSF virus into previously disease-free regions, primarily through the practice of swill feeding (Fritzemeier et al 2000). Dahle and Liess (1992) demonstrated that the oral infectious dose of CSF virus is very low. Indirect transmission may occur via movement of people, wild animals, and inanimate objects such as live-haul trucks (Elbers et al 2001).

The role of wild boar as a virus reservoir and possible source of infection for domestic swine is well known and epidemiological links between CSF virus infection in wild boar and domestic swine have been reported repeatedly in recent years (Biagetti et al 2001; Laddomada et al 1994). In countries that are free of CSF in domestic swine, epidemics in wild boar are often started by feeding of infected food waste (EC 1999). Abnormal mortality and sometimes obviously sick animals are the first indicators of CSF introduction into a wild boar population (EC 1999).

Four distinct clinical forms of CSF have been described, including acute, chronic, congenital, and mild manifestations (Moennig et al 2003; Paton and Greiser-Wilke 2003). The acute form involves a disease progression of 2-4 weeks and is characterized by high fever, generalized illness, hemorrhagic lesions, immunosuppression with secondary infections, and high mortality. The chronic form may last 30-90 days before death and usually involves older swine or congenitally infected piglets. Congenitally infected piglets may develop symptoms of chronic CSF within 3-6 months, or may never develop symptoms but continuously shed virus. Mild CSF is typically seen only in sows and may

result from exposure to a low virulent strain. Infected sows may show no overt clinical signs but continuously shed virus to their young and to other swine they contact.

2. Swine vesicular disease virus

SVD is a contagious and economically damaging disease of domestic swine and wild boar. The disease has historically been recorded in Hong Kong, Japan, and several European countries; however, in 2004 the disease was primarily limited to Italy and Portugal (OIE 2005a). The SVD virus belongs to the family Picornaviridae, genus *Enterovirus* (Wengler et al 1995). SVD virus is particularly hardy, resistant to pH changes between 2.5 and 12 (Herniman et al 1973), and is very stable under cold conditions (Dawe 1974). The virus is therefore unlikely to be destroyed by the post-mortem decrease in muscle pH that accompanies carcass maturation. SVD virus is also resistant to fermentation and smoking processes, and may remain in hams for 180 days, sausages for over a year, and processed intestinal casings for over two years (OIE 2005a).

The incubation period for SVD is 2-7 days. The intestinal tract is the primary site of infection; however, all tissues contain virus during the viremic period. Blood and feces of sick animals, as well as epithelium from vesicles and vesicular fluid, are good sources of virus. Although SVD virus does not appear to have a tropism for skeletal muscle cells, it is easily isolated from muscle tissue from infected animals after slaughter and bleeding out. SVD may be introduced into a herd by feeding garbage containing infected meat scraps, by introducing infected animals, or by contacting infected feces (e.g., an improperly cleaned truck) (Hedger and Mann 1989; USAHA 1998). After the initial introduction the disease spreads through contact of susceptible pigs with infected pigs and infected feces.

The clinical signs of SVD are easily confused with those of FMD and include fever, sudden lameness, and vesicles with subsequent erosions along the snout, feet, and teats. Morbidity rates may be low throughout a whole herd but high in certain pens. SVD causes essentially no mortality, and recovery usually occurs within 1 week (up to 3 weeks). Persistence of infection with SVD is rare (Lin et al 2001); however, some strains produce only mild clinical symptoms or are asymptomatic, and are detected only through laboratory surveillance (OIE 2005a). For example, a 2002 outbreak of SVD in Italy involved subclinical infection in all but one of 10,312 affected pigs (Brocchio et al 2002).

3. Foot and mouth disease virus

FMD is a contagious and economically damaging disease of cloven-hoofed animals, including domestic ruminants and pigs, as well as over 70 wildlife species (Coetzer et al 1994). The disease is endemic in large areas of Africa, Asia, and South America, and outbreaks are not uncommon in previously free areas throughout the world (Alexandersen et al 2003). The FMD virus belongs to the family Picornaviridae, genus *Apthovirus*, and 7 distinct serotypes with indistinguishable clinical effects have been identified: O, A, C, SAT1, SAT2, SAT3, and Asia1 (Belsham 1993). FMD virus is stable under cold conditions (Bachrach et al 1957; Cottral 1969).

The incubation period for FMD is 2-14 days (OIE 2005a). The virus initially multiplies in the pharyngeal area and is then carried to the regional lymph nodes and the bloodstream for distribution throughout the body (Burrows et al 1981; Alexandersen et al 2003).

Subsequent viral amplification occurs within the cornified stratified epithelium of the skin, particularly on the feet, mammary gland, and tongue, as well as in the myocardium of young animals. Saliva, feces, urine, and breath are sources of the virus, and virus may be present in milk and semen up to 4 days before clinical signs appear (OIE 2005a).

Other sources of viable virus are meat and meat products in which the pH has remained above 6.0, as well as convalescent animals, exposed vaccinates, and carrier animals, particularly cattle and water buffalo. The FMD virus survives in lymph nodes and bone marrow at neutral pH, but is destroyed in muscle when the pH is less than 6.0 (OIE 2005a). Pig meat does not consistently reach as low an ultimate pH during carcass maturation as beef, so the inactivation of FMD virus in pig meat may not be as complete as that occurring in beef (Farez and Morley 1997). Virus inactivation has not been examined in detail in small ruminant meat (Alexandersen 2003). The virus can persist in contaminated fodder and the environment for up to 1 month, depending on the temperature and pH conditions.

Susceptible livestock may be infected with FMD virus as a result of direct or indirect contact with infected animals or an infected environment (Alexandersen et al 2003). Indirect transmission may occur via movement of people, wild or domestic animals, or inanimate objects (vehicles, farm implements, clothing), and long-range airborne transmission is also possible. Transmission of FMD virus via meat or meat products is well documented. For example, a review of 627 known sources of FMD outbreaks throughout the world from 1870-1993 found that 411 of the outbreaks (66%) were attributable to infected meat, meat products, or garbage (APHIS 1994).

Laboratory confirmation is essential during outbreak situations, since FMD cannot be distinguished from other vesicular disease such as SVD, vesicular stomatitis, and vesicular exanthema of swine on the basis of clinical findings (Alexandersen et al 2003). The classical form is characterized by fever and vesicles with subsequent erosions in the mouth, nares, muzzle, feet, or teats. However, serological field surveys and experimental investigations have shown that FMD in small ruminants may be clinically inapparent in a significant proportion of animals (Barnett and Cox 1999; Donaldson and Sellers 2000), and certain strains of the virus may be of low virulence in some species (Donaldson 1998). FMD generally causes low mortality in adult animals but mortality may be high in young animals due to myocarditis.

Release assessment

A release assessment describes the biological pathway(s) necessary for an importation activity to introduce pathogenic agents into a particular environment and estimates the probability of that occurring (OIE 2005b). This release assessment addresses the 11 factors described in 9 CFR 92.2 for evaluation and regionalization of countries for foreign animal disease status. Risk factors and issues of concern, which may directly or indirectly affect the risk estimate, are identified and discussed at greater length in Section 12, including risk mitigation measures currently existing in Latvia.

APHIS evaluated the current status of CSF, SVD, and FMD in Latvia as well as pathways for disease introduction into Latvia with the potential to impact the assessed status. Since Latvia has not reported a rinderpest outbreak since 1921 (OIE 2006), and the disease is currently confined to certain geographic regions outside of the European Union (EU), we are proposing to recognize Latvia as free of rinderpest.

1. Authority, organization, and infrastructure of the veterinary services

1.1 Legal authority for animal health activities

The Ministry of Agriculture's Veterinary and Food Department (VFD) is responsible for promulgating all legislation affecting the Food and Veterinary Service (FVS), the official veterinary services, including transposition of EC legislation (APHIS 2005). The main legal authority for the animal health activities of the official veterinary services in Latvia resides in the Law on Veterinary Medicine (FVS 2004a). This law regulates the main tasks and responsibilities of the official veterinary services, ensures access by government officials to private property, and gives the official services powers of inspection and enforcement.

Animal owners, caretakers, and veterinarians are obliged under the Law on Veterinary Medicine to report suspicions of CSF, SVD, and FMD to the FVS (APHIS 2005). The "Instruction on Notification of Highly Dangerous Animal Infectious Diseases" specifies actions to be taken in the event that one of these diseases is suspected or confirmed, including notification of the EC, the World Organization for Animal Health (OIE), and other national and international entities (Annex 4 of FVS 2004a).

Commission Decisions and Regulations have not been transposed into Latvian legislation, since these became directly applicable on 1 May 2004 (FVS 2004b). The Latvian parliament instead passed a law listing all pieces of Latvian legislation that lost their binding effect on 1 May 2004 due to the EC provisions entering into force. Article 68 of the Latvian Constitution provides for the delegation of sovereign powers to supranational organizations, as laid out in respective treaties such as the accession treaty (FVS 2004b). Latvian authorities are obliged to apply Commission Decisions and Regulations without further transposition.

Council Directives, which bind Member States to the objectives to be achieved within a certain timeframe but leave the means to the national authorities, are implemented in Latvian legislation. Each EC directive is transposed into a Council of Ministers Regulation (CMR); Latvian officials indicated that transposition of EC directives takes considerable time – from 3 months to several years, depending on the level of contention

generated (APHIS 2005). Affected parties are notified of new legislation via publication on the FVS website and in the official legislative journal. Current Latvian legislation is also posted on an intranet system for FVS officials.

The primary articles of EC legislation pertaining to control of CSF, SVD, and FMD are listed in Table 1.1 with the corresponding transposition of EC Directives into Latvian legislation. Transposition of EC legislation concerning FMD was not complete at the time of the site visit (APHIS 2005); however, official veterinarians appeared familiar with the essential provisions of EC and Latvian legislation concerning the FMD, as well as CSF, and SVD (APHIS 2005).

Table 1.1: Transposition of critical EC legislation regarding CSF, SVD, and FMD

Disease	EC legislation	Latvian legislation
CSF	Council Directive 2001/89/EC of 23 October 2001 on Community measures for the control of classical swine fever (as amended)	Latvia CMR No. 991 adopted 30 November 2004 "Procedures for liquidation and prevention of classical swine fever."
	Commission Decision 2002/106/EC of 1 February 2002 approving a Diagnostic Manual establishing diagnostic procedures, sampling methods and criteria for evaluation of the laboratory test for the confirmation of classical swine fever (as amended)	Directly applicable to Member States
SVD	Council Directive 92/119/EEC of 17 December 1992 introducing general Community measures for the control of certain animal diseases and specific measures relating to swine vesicular disease (as amended)	Latvia CMR No. 127 adopted 19 March 2002 "Procedures for liquidation and prevention of danger of epizootic outbreaks" (VFD 2002).
	Commission Decision 2000/428/EC of 4 July 2000 establishing diagnostic procedures, sampling methods and criteria for the evaluation of the results of laboratory tests for the confirmation and differential diagnosis of swine vesicular disease	Directly applicable to Member States
FMD	Council Directive 2003/85/EC of 29 September 2003 on Community measures for the control of foot-and-mouth disease repealing Directive 85/511/EEC and Decisions 89/531/EEC and 91/665/EEC and amending Directive 92/46/EEC	Latvia CMR project "Procedures for liquidation and prevention of foot and mouth disease." *In the Cabinet of Ministers for adoption.*
	Commission Decision 91/42/EEC of 8 January 1991 laying down the criteria to be applied when drawing up contingency plans for the control of FMD, in application of Article 5 of Council Directive 90/423/EEC	Directly applicable to Member States

According to Commission Regulation (EC) 1774/2002, which is directly applicable in Latvia, feeding of animal by-products and processed products, including catering waste or feed material containing or derived from catering waste, to farmed animals other than

fur animals is prohibited. Latvian legislation calls for inspection of all farms annually by an approved private veterinarian and inspection by an official veterinarian at least once every five years (APHIS 2005); however, this goal is not attained in all regions (FVO 2004b; APHIS 2005). Inspections are guided by a detailed checklist that veterinary officials indicated includes waste-feeding practices. Noncompliance with the waste-feeding ban is reportedly rare, but officials noted that many small holders likely feed kitchen waste to their pigs.

1.2 Organization of the official veterinary services

1.2.1 Central competent authority

The FVS is responsible for herd and animal registration, disease surveillance, and control of animal infectious diseases, as well as phytosanitary inspection and food safety control. The Director General of the FVS is the Chief Veterinary Officer (CVO) of Latvia. The FVS headquarters offices in Riga are divided into 5 main departments: veterinary surveillance, food surveillance, informatics, research, and administration (see Figure 1.1) (FVS 2004a). Other entities under control of the CVO are the State Veterinary Medicine Diagnostic Center (SVMDC), the Quality Department, the Internal Control Division, the Sanitary Border Inspection (SBI), and the regional FVS offices.

1.2.2 Local veterinary authority (administrative unit)

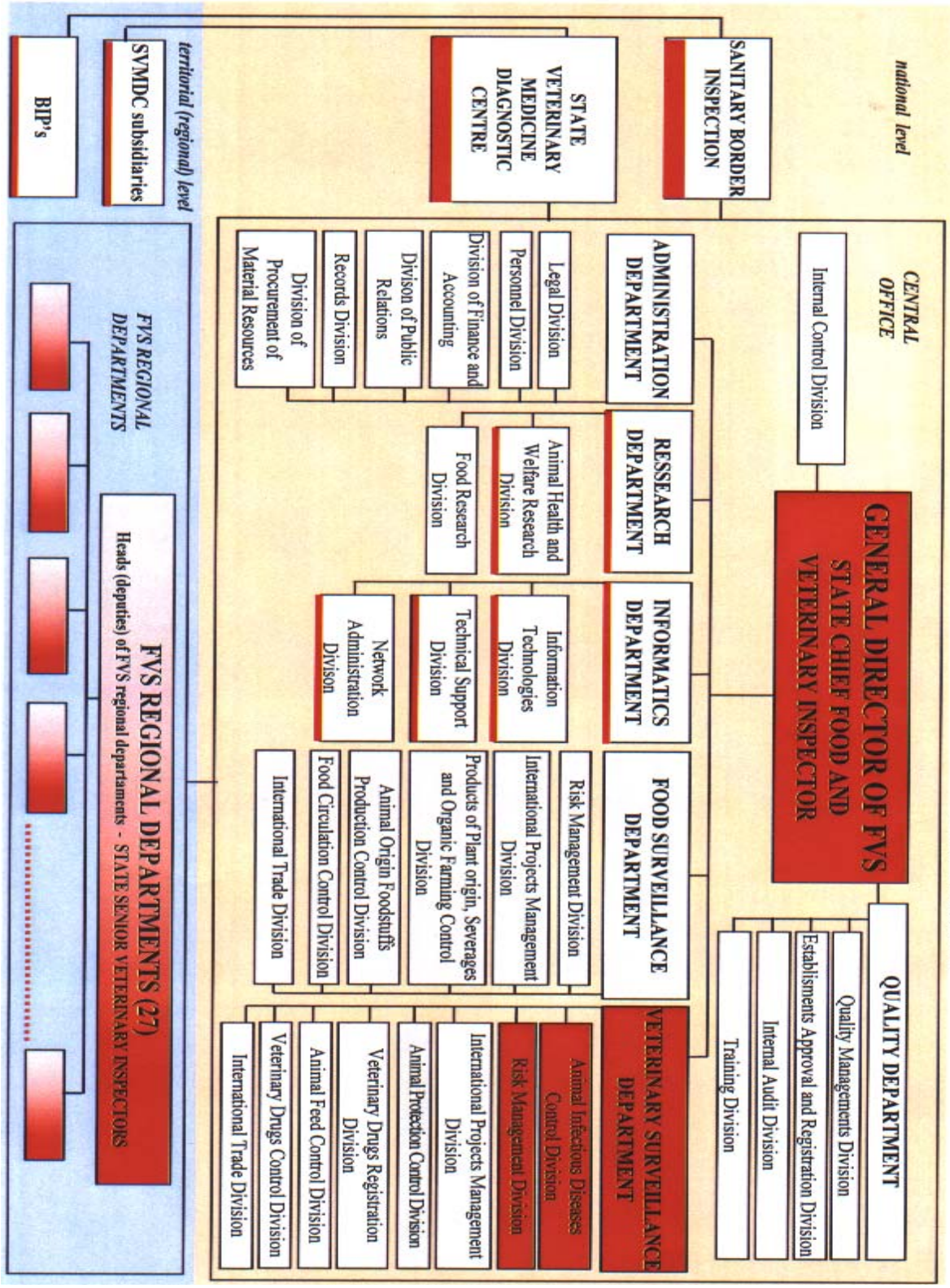
There are local FVS offices in 26 districts (*rajons*; singular *rajon*) and the City of Riga (FVS 2004a). Each district is regarded by APHIS as an "administrative unit," or the smallest administrative jurisdiction that has effective oversight of normal animal movements into, out of, and within that jurisdiction, and that, in association with national authorities, if necessary, has effective control over animal movements and animal diseases locally (APHIS 2005a). This is the smallest unit to which APHIS can effectively regionalize for animal disease status under its current regulations.

The local units are responsible for disease prevention activities and public health supervision measures as dictated by existing regulations and the central FVS. Each local unit consists of veterinary surveillance division headed by a State Senior Veterinary Inspector and a food surveillance division headed by a State Senior Food Inspector. These officials report to their respective headquarters representatives, and can issue binding orders that apply only to their district.

1.2.3 Border veterinary inspection

The SBI coordinates the activities of the border inspection posts (BIPs) and controls the transport of commodities subject to veterinary supervision (APHIS 2005). Each BIP has divisions for veterinary, phytosanitary, and food safety inspection; the head of operations for each BIP reports to deputy directors of the respective divisions, who in turn report to a director at the headquarters level. There are currently 8 EC-approved BIPs – 3 road ports, 2 rail ports, and 3 seaports – as well as a Customs warehouse at the Baltmarine Terminal (Commission Decision 2001/881/EC). Border security and movement controls are described in more detail under Section 7.

Figure 1: Organizational scheme of the Food and Veterinary Service



1.2.4 Diagnostic laboratory services

The laboratory system consists of the SVMDC in Riga and a network of peripheral laboratories and sample collection points. The SVMDC is the national reference laboratory for CSF, SVD, and FMD (FVS 2004a). Within the SVMDC there are 4 main departments, including the Animal Diseases Diagnostic Laboratory, which contains separate units for serology, virology, and pathology. The peripheral laboratories report to the SVMDC, and the director of the SVMDC reports to the CVO. The diagnostic laboratory system is discussed in more detail in Section 10.

1.2.5 Internal and external audit systems

Internal auditing – An internal audit unit for the FVS was established in 2002 which conducts quality system audits and state administration audits (FVO 2004a; APHIS 2005). Fifty-two persons throughout the FVS have been trained to perform quality audits. Audits are carried out at all levels of the FVS, including the laboratories. In addition, a documented monthly internal audit system is in place in each BIP and two regular inspections of each BIP are planned annually (FVO 2004a; APHIS 2005).

External auditing – The Food and Veterinary Office (FVO) of the EC's Health and Consumer Protection Directorate-General conducts audits of all Member States that include the provisions of any of the agreements on sanitary measures applicable to trade in live animals and animal products with third countries. Under Commission Decision 98/139/EC, the audited Member State must investigate and correct any identified sources of noncompliance within a given timeframe or may face sanctions applied by the EC.

The FVO conducted numerous animal health, animal welfare, and food safety inspections in Latvia prior to accession. Although the majority of these reports has not been made public and was not made available for this assessment, no derogations were made for animal health issues at the time of accession. Under Commission Decision 98/139/EC the EC has the authority for post-accession auditing actions necessary to ensure uniform compliance with the provisions of Community legislation.

1.3 Infrastructure of the official veterinary services

1.3.1 Physical infrastructure

The FVS offices visited by the site visit team appeared sufficient for the needs of the veterinary services, including computers with internet and intranet connections (APHIS 2005). The BIPs visited were relatively new with extensive and comprehensive facilities. The diagnostic section of the SVMDC was recently remodeled and well equipped (APHIS 2006a).

1.3.2 Personnel infrastructure

There are 1,008 FVS employees in total, with 117 at the headquarters level, 506 at the local level, 105 in the SBI, and 280 at the SVMDC (APHIS 2005). Of these, approximately 60% are veterinarians. There are also 665 approved private veterinarians who contract with the FVS to conduct certain official activities, including monitoring the animal health and welfare status on farms, inspecting animals at slaughter, and collecting samples for disease surveillance. Local FVS officials contract with approved

veterinarians via an authorization agreement and supervise their official activities. All veterinarians must be licensed to practice.

Training activities for official and approved private veterinarians consist of one-time activities such as diagnostic videos, training abroad, and simulation exercises (FMD in 2001, CSF in 2002, HPAI in 2004); regular training including sessions at the Latvian University of Agriculture, seminars in former OIE List A diseases, and professional courses for approved veterinarians every 2 years; and specific training courses in prevention and eradication of former List A diseases for FVS personnel, offered according to the National Training Concept approved by the CVO on 24 January 2003 (FVS 2005b).

The Training Division of the Quality Department carries out training for new BIP inspectors, after which they undergo a probationary period. This division also provides continuing education for established staff. Veterinary inspectors undergo annual training which includes current legislation and disease recognition for former List A diseases, though not all diseases are covered each time. The central FVS assesses the need for additional training based on legislative and procedural changes.

1.3.3 Financial resources

About 75% of the FVS budget is allocated from the State budget (APHIS 2005). The remaining portion comes from paid services through the SBI, meat inspection, registering and approving feed establishments, and laboratory diagnostic services. Latvia has also received funding through the EC for various projects, primarily now for vaccine testing. No EC financing is received for surveillance of CSF, SVD, or FMD, since these diseases have not been seen in several years and are not considered problematic.

In an outbreak situation, indemnity would be paid in accordance with the Latvia CMR No. 293 “Procedures for granting compensation and payment of damages to animal owners in connection with epizooties” (FVS 2004a).

1.4 Discussion

The official veterinary services are hierarchically organized and appear to have clear lines of command and reporting. The responsibilities of personnel at each level are well defined. The official veterinary services have sufficient legal authority and personnel to carry out most animal health monitoring and disease control activities quickly and efficiently, although financial resources are limited. Official veterinarians demonstrated a good working knowledge of Latvian and EC legislation concerning CSF, SVD, and FMD, and appear capable of effectively implementing the provisions thereof. Training is in place to enhance disease recognition among official and approved private veterinarians. The Latvians are very serious about quality control; although new, the FVS quality management system is effective in identifying and correcting problem areas.

Waste feeding to swine is prohibited and official veterinarians are stringent in monitoring compliance. However, official veterinarians indicated that small holders likely continue to feed kitchen waste to their pigs, which is an issue of concern. The impact of this issue on the risk of disease introduction into Latvia and the export risk to the United States is discussed in Section 12.

2. Disease status in the region

Rinderpest was last diagnosed in Latvia in 1921 (OIE 2006).

2.1 Classical swine fever

Latvia last reported a CSF outbreak in April 1996 which involved 16 domestic swine in the Tukums district (see Figure 2.1) (FVS 2004a; APHIS 2005; OIE 2006). The source was most likely blood contamination from a hunted wild boar brought onto the farm by a hunter in residence (in violation of the regulations then and now). An outbreak also occurred in February 1996 in the neighboring Talsi district, involving 10 domestic swine (OIE 2006). In both outbreaks, a quarantine zone with strict movement controls was imposed that was designed to include farms considered to be at risk through direct or indirect contact. All surviving animals on the index farms were killed and the carcasses incinerated on the farm, then the farms were cleaned and disinfected. All other pigs in the quarantine zones were vaccinated.

No CSF cases in wild boar have been reported in recent years (APHIS 2005; OIE 2006). The FVS did not conduct surveillance for CSF in wild boar following the Tukums outbreak, although a vaccination program against CSF in wild boar was carried out from 1997 – 2001 (APHIS 2005) (see Section 4).

Figure 2.1: Map of Latvia and adjacent regions

2.2 Swine vesicular disease

SVD has never been reported in Latvia (FVS 2004a; OIE 2006).

2.3 Foot and mouth disease

FMD was last reported in Latvia in 1987 (FVS 2004). FMD has never been reported in susceptible free-ranging species such as wild boar or deer (APHIS 2005). The OIE lists Latvia as a FMD-free country where vaccination is not practiced (OIE 2006).

2.4 Discussion

Almost 10 years have passed since the last reported outbreak of CSF in Latvia, and over 15 years since the last reported outbreak of FMD. Both time periods far exceed those recommended by the OIE for disease freedom (OIE 2006). SVD has never been reported in either domestic swine or wild boar in Latvia. Current surveillance practices for CSF, SVD, and FMD are discussed in Section 9.

3. Disease status of adjacent regions

Latvia borders to the west with the Baltic Sea, to the north with the Gulf of Riga and Estonia, to the east with Russia, and to the south with Belarus and Lithuania (see Figure 2.1). APHIS regards all of the neighboring countries as unknown risk for CSF and SVD, although the status of Lithuania and Estonia was under evaluation at the time this report was written. With the exception of Estonia, APHIS regards the neighboring countries as unknown risk for FMD, although Lithuania was under evaluation. APHIS considers any region affected until the agency has completed an evaluation showing otherwise. An evaluation is initiated when veterinary authorities of the foreign country request, which the third countries bordering Latvia have not done.

3.1 Classical swine fever

Lithuania last reported a CSF outbreak in domestic swine in 1992 in the Klaipėda district, which borders on Latvia and the Baltic Sea (OIE 2006). Estonia last reported a CSF outbreak in January 1994 (OIE 2006). Active CSF surveillance is carried out in both countries. Farther abroad, CSF infection is endemic in wild boar populations in the EU Member States of Germany and Slovakia (OIE 2006) and has historically proven very difficult to eradicate (EC 1999). Infected wild boar constitute a reservoir for exposure of domestic swine and outbreaks have historically occurred outside of established control zones within the EU Member States (OIE 2004a).

Belarus last reported a CSF outbreak in August 1995 and maintains a vaccination program in domestic swine (OIE 2006). CSF is endemic in parts of Russia and outbreaks continue to occur, most recently in January 2005 in the Vladimir region located just east of Moscow (OIE 2006). Russia also maintains a vaccination program against CSF.

3.2 Swine vesicular disease

SVD has never been reported in Lithuania, Estonia, Belarus, or Russia (OIE 2006).

3.3 Foot and mouth disease

Lithuania last reported an FMD outbreak in cattle in 1982; FMD has never been reported in susceptible wild species such as wild boar or deer (OIE 2006). Estonia reported an outbreak in December 1982 (OIE 2006). The OIE considers both countries free of FMD without vaccination. APHIS considers Estonia free of FMD under 9 CFR 94.1, with restrictions as described under 9 CFR 94.11[1].

Belarus last reported an outbreak of FMD in 1982 (OIE 2006). No surveillance data have been reported to the OIE, and APHIS has little knowledge of disease detection or

[1] Regions listed under 9 CFR 94.11 are in a special category for FMD because, even though APHIS has determined that the region is free of FMD, one or more of the following conditions occur: (1) the region supplements their national meat supply through the importation of meat from ruminants or swine from regions that are not designated in 9 CFR 94.1 as free of FMD; (2) they share a common land border with regions that are not designated as free of FMD; or (3) they import ruminants or swine from regions that are not designated as free of FMD under conditions less restrictive than would be acceptable for importation into the United States. The text of 9 CFR 94.11 is provided in Annex 2.

vaccination practices in this country. Sporadic FMD outbreaks continue to occur in Russia, most recently in the far eastern Amur region and territory of Khabarovsk (December 2005), and the Chita region bordering China (January 2006) (OIE 2006). All outbreaks were virus type Asia 1. Russia maintains a vaccination program for FMD.

3.4 Discussion

3.4.1 Classical swine fever

The existence of common land borders with potentially CSF-affected regions is an issue of concern for CSF introduction into Latvia (see Sections 6 and 7). APHIS regards all of the countries bordering Latvia as unknown risk for CSF, although Estonia and Lithuania were under evaluation at the time this report was written. No neighboring region has reported a CSF outbreak in either domestic swine or wild boar in over 8 years; however, APHIS has little knowledge of surveillance and reporting practices, particularly in Belarus and Russia. In addition, the third countries vaccinate for CSF in domestic swine, which could potentially mask the presence of the disease. CSF outbreaks outside of established control zones within affected EU Member States where CSF is endemic in wild boar pose a risk of disease spread prior to detection and containment.

3.4.2 Swine vesicular disease

APHIS regards all of the countries bordering Latvia as unknown risk for SVD, although Estonia and Lithuania were under evaluation at the time this report was written. However, SVD has never been reported in any of these countries. While the potential for introduction of SVD from neighboring countries cannot be ruled out in the absence of additional information on surveillance and reporting practices, APHIS considers the likelihood to be very low.

3.4.3 Foot and mouth disease

The existence of common land borders with potentially FMD-affected regions is an issue of concern for introduction of FMD into Latvia (see Sections 6 and 7). APHIS regards all of the countries bordering Latvia except for Estonia as unknown risk for FMD, although Lithuania was under evaluation at the time this report was written. No region directly bordering Latvia has reported an FMD outbreak in a susceptible species in the last decade; however, APHIS has little knowledge of surveillance and reporting practices in third countries such as Belarus and Russia. In addition, Russia vaccinates for FMD, which could potentially mask the presence of the disease.

4. Extent of an active disease control program

4.1 General information

At the time of the APHIS site visit, Latvian veterinary officials considered their country free of all former OIE List A diseases (FVS 2004a; APHIS 2005). Rinderpest was eradicated in 1921 and contagious bovine pleuropneumonia was eradicated in 1922 (FVS 2004a). Neither disease is endemic to the European region. Programs are in place for control and eventual eradication of rabies and enzootic bovine leucosis, both former OIE List B diseases.

4.2 Discussion

Active disease control programs do not exist in Latvia for CSF, SVD, or FMD, since these diseases have not been reported for many years (see Section 3). Surveillance for these diseases is discussed in more detail in Section 9.

5. Vaccination status of the region

5.1 General information

Latvian veterinary officials last vaccinated against CSF in domestic swine in 1998 (FVS 2004a). Prior to then, 580,300 domestic swine were vaccinated in 1996 and 432,993 swine were vaccinated in 1997. Eighty thousand doses of oral vaccine were distributed in 2000 for vaccination of wild boar against CSF (in two installments of 40 thousand doses), and 100 thousand doses were distributed in 2001. Vaccination against CSF, SVD, and FMD is now prohibited. The official contingency plans for CSF and FMD, described in greater detail in Section 11, allow for emergency vaccination in an outbreak situation if sanctioned by the EC.

5.2 Discussion

Vaccination against CSF, SVD, and FMD is officially prohibited in Latvia. Since the last vaccination against FMD occurred well before vaccination was prohibited, the probability of a vaccine titer interfering with FMD surveillance is very low. However, the potential exists to detect vaccine titers during CSF surveillance in wild boar and domestic swine.

6. Separation from adjacent regions of higher risk

6.1 General information

Natural barriers to disease transmission include the Baltic Sea to the west and the Gulf of Riga to the north. There are few natural barriers to human or animal movement along the majority of the borders with Estonia, Russia, Belarus, or Lithuania (APHIS 2005).

6.2 Discussion

Without natural barriers, few impediments exist to introduction of CSF, SVD, or FMD via natural movement of wild animals or human traffic. The primary wild animals in Latvia and neighboring countries that are susceptible to FMD are wild boar, deer, and roe deer. Wild boar are also susceptible to CSF and SVD. None of these species is considered migratory in nature, but individual animals are known to travel substantial distances in search of food, during mating season, or in response to hunting or other habitat disruptions. Moreover, CSF is known to exist in wild boar in the greater EU region (see Section 3). Factors influencing the likelihood of disease introduction via natural movement of wild animals are discussed in Section 12.

7. Movement control and biosecurity from higher risk regions

7.1 Border inspection ports

7.1.1 Infrastructure

The SBI is responsible for conducting veterinary inspections at BIPs on the outer EU border and also for inspection and monitoring of customs warehouses. Latvia currently has eight EC-approved ports with veterinary inspection. Road ports are located at Terehova and Grebneva on the border with Russia, and at Patarnieki on the border with Belarus (Commission Decision 2001/881/EC). Latvia has EC-approved seaports at Riga and the Baltmarine Terminal on the Gulf of Riga, and at Ventspils on the Baltic Sea. The Baltmarine Terminal is also an approved customs warehouse according to Council Directive 97/78/EC.

In addition, Latvia has an EC-approved rail port at Rēzekne, which is situated where two rail lines converge, 59 km from the Russian border crossing at Zilupe for trains from Moscow and 49 km from the Russian border crossing at Karsawa for trains from St. Petersburg (Commission Decision 2001/881/EC). A second EC-approved rail port is located at Daugavpils, 68 km from the border with Belarus, which covers a single rail line. There are no station stops or rail junctions between the rail ports and the borders.

All of the approved BIPs were built or remodeled to meet EC specifications as described by Annex II of Council Directive 97/78/EC and Commission Decision 2001/812/EC. Veterinary inspection of live ungulates, other live animals, products of animal origin for human consumption, and products of animal origin not for human consumption occur in separate sectors (APHIS 2005). The live animal sectors have appropriate facilities for animal restraint and housing, and the product sectors have adequate room for offloading, examination, sampling, and storage at ambient, refrigerated, or freezing temperatures.

Most of the approved BIPs are open 24/7 with 5-7 veterinary inspectors on staff (APHIS 2005). Customs inspections occur 24 hours per day at all BIPs. There are currently 43 veterinary inspectors but few administrative or technical staff. All BIPs are fully computerized and veterinary inspectors have access to TRACES, the EC's Rapid Alert System for Food and Feed (RASFF), VetLex, an FVS intranet system, and a database listing all consignments inspected at the BIP in the past 18 months. There is also an accounting program used to issue invoices and send weekly reports to the central FVS office. Veterinary inspectors at Rēzekne and Daugavpils have access to APOVS, a non-EU system developed with Russia and Belarus (in Russian) that identifies all cargos passing through the rail ports.

The volume of inspection at the BIPs visited by the APHIS team in June 2005 was quite light and the facilities were operating well within the scope of their resources. The veterinary inspectors appeared knowledgeable of the pertinent EC and Latvian legislation and were confident in their job skills. All BIPs are audited twice yearly by the central FVS and are periodically audited by the FVO. The road ports at Terehova and Patarnieki are the only BIPs approved for live animals, and only Patarnieki accepts ungulates such as swine, cattle, sheep, goats, and wild and domestic solipeds. Latvia officials indicated that Patarnieki had received companion animals, horses, and circus animals since

accession, but no swine or ruminants. This BIP is fully equipped for cleaning and disinfection of transit vehicles, as well as destruction of animals and carcasses.

7.1.2 Biosecurity

Employees must pass through a clean room to enter any inspection sector of the BIP facilities, with changing facilities on entry and exit (APHIS 2005). Each sector is cleaned and disinfected after unloading and reloading, as are the storage rooms if used. Cleaning and disinfection is carried out by the maintenance people with supervision by the inspectors. Transit vehicles from neighboring countries are cleaned and disinfected according to Latvian legislation implementing Council Directive 91/628/EEC. The chief of each facility has the authority to stop movement of animals and products through the BIP, and each BIP has a contingency plan to follow in the event that an infectious animal disease is suspected (APHIS 2005).

Latvia has procedures in place for disinfection of live-haul trucks from third countries at BIPs with veterinary inspection, although disinfection of vehicular traffic is not carried out at other border crossings in the absence of a reported outbreak (APHIS 2005). EC legislation requires that all live-haul trucks and rail cars be cleaned and disinfected at the point of destination. Such vehicles from third countries must be accompanied by a certificate indicating that they were disinfected prior to loading.

A large incineration facility is located outside of Riga for disposal of off-loaded waste collected at BIPs. No off-loading is allowed at any seaports in Latvia (APHIS 2005). Several BIPs have small capacity incinerators that are approved for high risk material, including catering waste, in accordance with EC Regulation 1774/2002.

7.2 Import controls

7.2.1 Legislative controls

Most live animals, meat, meat products, and genetic materials are harmonized commodities under EC legislation, which means that the requirements for importation from third countries are standardized across all of the Member States. Council Decision 79/542/EEC lists third countries from which live animals and fresh meat may be imported into the EC. Other legislation specifies third countries from which milk, meat products, meat preparations, wild game meat, and genetic products may be imported from third countries.

Council Decision 79/542/EC permits import of live swine from Switzerland, Chile, Canada, New Zealand, and Iceland. APHIS considers all of these countries free of SVD, with or without restrictions under 9 CFR 94.13[2], and all but Switzerland free of CSF, with restrictions on Chile under 9 CFR 94.25. In this regard, the veterinary authorities of Switzerland have not requested that APHIS evaluate the CSF risk of that country. APHIS

[2] Regions listed under 9 CFR 94.13 are in a special category because, even though APHIS has determined that the region is free of SVD, one or more of the following conditions occur: (1) the region supplements its national pork supply with fresh, chilled, or frozen pork from regions that are not designated in 94.12 as free of SVD; (2) it shares a common land border with regions that are not considered to be free of SVD; or (3) it has trade practices that are less restrictive than are acceptable to the United States. The text of 9 CFR 94.13 is provided in Annex 2.

therefore has little knowledge of the CSF surveillance and reporting practices in Switzerland, except that it reported CSF in wild boar in 1999 and is bordered by Member States with endemic CSF infection in wild boar.

APHIS also considers these five countries to be free of FMD, with restrictions on Switzerland and Chile under 9 CFR 94.11[3]. However, EC legislation permits import of live ruminants from several countries that APHIS has not evaluated and regards as unknown risk for FMD, including Bulgaria, Croatia, and Romania.

Council Decision 79/542/EC also allows importation of fresh pork and pork products derived from domestic swine from Belarus and several other regions that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD, and permits some of these regions to export fresh meat from wild boar to EU Member States. Importation of meat and meat products from both domestic and wild ruminants is permitted from several countries that APHIS considers of unknown risk for FMD. However, slaughter establishments, cutting plants, and cold storage units in third countries must be inspected and approved for export to the EC. The inspection process is stringent, although the EC may grant provisional approval prior to inspection if the exporting country can provide sufficient guarantees that the required conditions have been met.

Commission Decision 2004/639/EC specifies the import conditions for bovine semen, including the animal health and veterinary requirements, and lists both authorized third countries and approved semen collection centers. Import of bovine semen is permitted from approved semen collection centers in Australia, Canada, Switzerland, New Zealand, Romania, and the United States. Commission Decision 92/471/EEC permits importation of bovine embryos from these countries and also from Argentina, Bosnia-Herzegovina, Croatia, Israel, and the Former Yugoslav Republic of Macedonia. APHIS has not evaluated many of these countries and considers them of unknown risk for FMD.

Bovine semen collection centers must be approved by the EC in accordance with Council Directive 88/407/EEC as amended. Animals must be isolated for 28 days prior to entry into the center and the isolation facility must be located in a region that has been free of FMD for 3 months with no outbreaks within a 20 km radius for at least 30 days. Importation of bovine embryos is similarly controlled by EC legislation, including a list of authorized third countries, veterinary certification requirements, and a list of approved embryo collection teams.

Commission Decision 2002/613/EC specifies the import conditions for swine semen, including authorized third countries, the veterinary requirements, and approved semen collection centers. No third countries are currently listed under Commission Decision 94/63/EC as authorized to export swine ova or embryos. Import of swine semen is permitted from approved collection centers in Canada, New Zealand, the United States, and Switzerland. Swine semen collection centers must be approved by the EC in accordance with Council Directive 90/429/EEC, which was amended by Commission Decision 1999/608/EC in response to the 1996-97 CSF outbreaks in domestic swine involving two semen collection centers.

[3] See footnote on page 18.

Swine semen collection centers must be inspected by official veterinarians of the exporting country at least twice per year. Under the amended regulations, swine admitted to a semen collection center must originate from a herd that is not situated in an area restricted due to disease in domestic swine and must be quarantined for at least 30 days prior to entry. In the case of Switzerland, boars must test negative for CSF within the 30 days prior to quarantine and, to maintain approval, routine testing for CSF must be carried out on 25% of the animals in the center every 3 months or on all animals leaving the center within 1 year of admission. All animals must be tested at least once while at the center and at least every 12 months if their stay exceeds 1 year.

7.2.2 Certification

EC certification requirements for import of live animals and animal products from third countries are generally comprehensive with respect to OIE guidelines and must be signed by an official veterinarian of the country of origin. Commission Decision 2004/212/EC lays out models of veterinary certificates for live ruminants, swine, fresh meat from domestic ruminants and swine, and fresh meat from wild suidae and solipeds. Model veterinary certificates for embryos, semen, meat products, and related commodities are provided in other Commission Decisions.

The specific certificate used depends on the commodity for export, the exporting country and, in the case of live animals, the purpose for which they are exported (breeding, production, or direct slaughter). BIP inspectors can download country and commodity specific certificates from a website maintained by the EC (VetLex).

For live animals, an official veterinarian must certify that the exporting region is free of FMD, CSF and/or SVD as appropriate, that the animals have remained in the region at least 3 months (slaughter animals) or 6 months (breeding or production animals) prior to export, and that they have not been exposed to any imported cloven-hoofed animals in the 30 days prior to export. The veterinarian must also certify that the animals have not been vaccinated, have remained at a designated holding or assembly center for 40 days prior to export, and that no outbreaks have occurred within a 20 km radius in the preceding 40 days. In addition, swine for breeding and/or production from Switzerland, Chile, or Iceland must test negative for CSF and SVD in the 30 days preceding export.

An official veterinarian must certify similar statements regarding disease freedom for meat and meat products exported to the EU, although meat from ruminants may be accepted from some regions in which vaccination against FMD is practiced. Certain regions must provide additional certification regarding carcass maturation, pH testing, and deboning of fresh meat. Similarly, certain regions must provide additional certification regarding swill feeding to domestic swine. One provision would require laboratory testing for CSF of fresh meat from feral swine, but this provision is not currently applied to any region.

For bovine semen, an official veterinarian must certify that the exporting country has been free of FMD without vaccination during the 12 months prior to semen collection, and that the semen collection center is approved by the EC and operates under the conditions required for approval (Commission Decision 2004/639/EC). Similarly, an official veterinarian of the exporting country must certify that swine semen originated

from donor boars in an approved collection center, in a region free from FMD, CSF, and SVD for at least 12 months without vaccination (Commission Decision 2001/613/EC).

7.2.3 Veterinary inspection

Veterinary inspection and laboratory analysis protocols at BIPs follow EC requirements as described in Council Directives 91/496/EEC, 97/78/EC, and other regulations (APHIS 2004). Veterinary documents for incoming shipments, including animal health certificates and the common veterinary entry document (CVED) required by EC legislation, must be submitted to the BIP by fax or email at least one working day prior to entry. The information is entered into a central database.

Once the shipment arrives, there are three stages of control for both live animals and products: (1) a document check to confirm that the health certificate is correct according to EC requirements and that it has been signed by an official veterinarian of the exporting country; (2) an identity check or visual confirmation of correct ear tags, chips, tattoos, or codes; and (3) a general physical examination with a percentage of the shipment singled out for a more thorough examination. Per Latvian officials, all shipments are subject to 100% document and identity control (APHIS 2005).

Physical checks and sampling of products occur according to a plan set annually by the SBI, which is based on traffic through the port in the previous year (APHIS 2005). Inspectors conduct a physical check of 100% of incoming live animals. Inspectors also check with RASFF each day to guide product sampling. All sampling is recorded in a journal kept for this purpose and signed/stamped by the inspector. Samples are hand-carried to the laboratory in Riga, and a duplicate sample is given to the owner for verification in case of dispute. Officials indicated that the most commonly encountered violation is improperly completed paperwork (APHIS 2005).

If the veterinary inspection is satisfactorily completed, an official veterinarian completes and signs the CVED, then passes it to the Customs Service (APHIS 2005). Customs officers meanwhile inspect the conveyance if appropriate. The original of the CVED accompanies the shipment to the point of destination. Livestock shipments must follow an approved route plan to their destination. Imported live swine and cattle must be isolated at a previously approved destination facility, where they are checked once per week by an approved veterinarian. After 3 weeks, the animals are eligible for any additional required testing. If the shipment is refused, the appropriate information is entered on the CVED and all other EU BIPs are notified of the actions taken.

7.3 Transit and transshipment controls

Control of products transiting between third countries occurs according to Commission Decisions 2002/349/EC and 2000/208/EC (APHIS 2005). Seals are applied to the conveyance at the point of origin in the third country, although officials at the point of departure from the country can break and replace the seal for inspection purposes. A Latvian customs officer records the seal number and breaks the seal upon arrival at the BIP point of entry, and veterinary inspectors perform document and identity checks. A veterinary inspection seal and customs seal are applied for transit, a route plan is approved, and a specific destination point is designated (APHIS 2005).

If the consignment is simply transiting the country, the BIP at the point of exit is notified of the transit shipment, records the exit, and sends confirmation back to the BIP at the point of entry (APHIS 2005). Consignments may also be stored at the customs warehouse, in which case the CVED is presented on arrival. A new CVED is issued when the consignment leaves the warehouse, on which the incoming CVED number is noted. A full veterinary inspection is performed on consignments residing in the warehouse for over 20 days. Shippers are allowed 30 days between entry into the country and arrival at the customs warehouse, and between departure from the customs warehouse and exiting the country.

7.4 Controls on intra-Community trade

Trade in live animals and animal products within the EU is primarily governed by a series of Council Directives that were transposed into Latvian legislation prior to accession. Shipments to EU markets that cross Member State borders must originate from an assembly center and animals are required to remain on the assembly center premises for an observation period prior to trade. Each lot of animals must appear healthy and be separated by gender. At the time of the site visit there were 77 official veterinarians authorized to issue health certificates for intra-Community trade (APHIS 2005).

An official veterinarian supervises the loading and unloading of animals for welfare reasons. The shipment is entered into TRACES and the server informs the point of destination as well as any border crossing points. An official veterinarian at the point of destination confirms the arrival. Council Directive 90/425/EEC allows for spot checks to be carried out at the points of origin and destination to ensure that consignments are in compliance with the guarantees provided by the health certificates.

As an EU Member State, Latvia is free to engage in intra-Community trade with any other Member State as governed by Council Directives that were transposed into Latvian legislation prior to accession. All live animals and animal products must be accompanied by the appropriate certificate as specified in EC legislation. Intra-Community trade in swine and swine products, including semen and embryos, from CSF-affected regions of the Member States of Germany, Slovakia, France, and Luxembourg is prohibited under various Commission decisions. Intra-Community trade in swine and swine products from SVD-affected regions of Italy is also prohibited. There are currently no reported outbreaks of FMD in the EU and therefore no trade restrictions based on this disease.

Slaughterhouses, cutting plants, cold storage units, milk processing plants, and semen collection centers must be approved by the Member State in which they reside according to criteria equivalent to those for exporting establishments in third countries. The veterinary services of the pertinent Member State and the FVO conduct periodic audits to monitor compliance with approval criteria and certification requirements.

7.5 Volume and type of imports

Latvia is a net importer of live swine, live ruminants, and their derived products (GTA 2006; FVS 2005b). Trade patterns did not change substantially with accession to the EU.

7.5.1 Swine and swine products

Latvia has historically received live swine primarily from Estonia and Lithuania, most of which were for slaughter (see Annex 1) (GTA 2006; FVS 2005b). APHIS considers

Estonia to be free of FMD with restrictions under 9 CFR 94.11; Lithuania was under evaluation for FMD-free status at the time this report was written, and both countries were under evaluation for CSF- and SVD-freedom. Latvia also received small numbers of breeding swine from EU-15 Member States such as Denmark, Belgium, and France (GTA 2006; FVS 2005b). APHIS considers the western European countries from which Latvia has imported live swine to be (1) low risk for CSF under 9 CFR 94.9 and 94.10, with restrictions as stated under 9 CFR 94.24[4] and 98.38[5]; (2) free of SVD under 9 CFR 94.12 with restrictions under 9 CFR 94.13; and (3) free of FMD under 9 CFR 94.1 with restrictions under 9 CFR 94.11.

In recent years, Latvia has received pork meat and swine by-products primarily from Poland, Germany, and Estonia (see Annex 1) (GTA 2006; FVS 2005b). Latvia has also imported small quantities from Lithuania and Belarus. APHIS considers portions of Germany to be affected with CSF, although trade from regions under EC restrictions for this disease is prohibited (see Section 7.4). APHIS has not evaluated Belarus and regards this country as unknown risk for CSF, SVD, and FMD.

7.5.2 Ruminants and ruminant products

Latvia has historically received live cattle for breeding or slaughter primarily from Lithuania and Estonia, but also in small numbers from Denmark, Sweden, and Germany (see Annex 1) (GTA 2006; FVS 2005b). Beef meat and cattle by-products were imported primarily from Lithuania, but also from Estonia, Poland, and some EU-15 Member States. Live sheep were imported from Estonia and Russia (3 breeding sheep in 2003), and sheep meat was imported in very small quantities from Australia, Denmark, Lithuania, France, and Estonia (GTA 2006; FVS 2005b). No goats or goat products were imported from 2000-2004. APHIS considers most of these countries to be free of FMD under 9 CFR 94.1, with or without restrictions as described under 9 CFR 94.11, except for Russia. Lithuania was under APHIS evaluation for FMD-free status at the time this report was written.

7.6 Veterinary control of passenger traffic

Per FVS officials, there are no uncontrolled border crossing points into Latvia, but there are several crossings for passenger traffic and local transport that do not have veterinary inspection per se (APHIS 2005). All passengers from third countries must pass customs inspection, which is performed according to Commission Regulation 2454/93 and Council Regulation 2913/92. There is a considerable volume of local traffic between Latvia, Lithuania, Estonia, Russia, and Belarus.

Commission Regulation 745/2004, which is directly applicable to all Member States, dictates that posters to promote public awareness of prohibited meat, milk, and meat and

[4] 9 CFR 94.24 restricts the sourcing of pork, pork products, and breeding swine to regions where CSF has not been known to exist, and prohibits commingling with such commodities from CSF-affected regions. The text of this regulation is provided in Annex 2.

[5] 9 CFR 98.38 restricts the source of imported swine semen to boars in approved collection centers that have not lived in CSF-affected regions or commingled with other swine from such regions, and stipulates certain isolation, observation, and transportation requirements. The text of this regulation is provided in Annex 2.

milk products be prominently posted at all border crossings. Under this Regulation, personal consignments of meat, meat products, milk or milk products from the Faeroe Islands, Greenland, Iceland, Liechtenstein, and Switzerland with a combined total weight not exceeding 5 kilograms are permitted entry, as well as personal consignments of these commodities from Andorra, Norway, and San Marino. APHIS has not evaluated many of these countries and considers them of unknown risk, although none have reported an outbreak of CSF, SVD, or FMD in recent years, if ever.

Individuals attempting to cross the border with consignments of agricultural products at one of the Customs-controlled checkpoints are redirected to a BIP with veterinary inspection. However, Latvian veterinary officials indicated that only a small percentage of prohibited food and beverage items are likely confiscated and the SBI is working with the Customs Service to rectify this situation. The site visit team observed posters listing restricted items at some border ports, but not all (APHIS 2004). The team also observed prominently placed amnesty bins, which may serve to decrease the amount of illegal animal products carried across the border unintentionally.

The SBI currently delegates some veterinary inspection duties at purely passenger crossings to the Customs Service, for which activities the Customs officers have received additional training. As a result, pet animals can move through all 18 external BIPs, whether or not official veterinary inspection is present.

7.7. Discussion

The BIPs visited by the APHIS team were operating well within their resources. Latvian officials transposed EC legislation concerning veterinary controls on export and trade in live animals and animal products into Latvian legislation prior to accession. Deficiencies noted on previous FVO audits, particularly concerning export certification, largely appear to have been addressed. The veterinary inspectors were knowledgeable of relevant import control legislation and confident in implementing inspection procedures. Both electronic and paper records were well organized and readily accessible. Each BIP is inspected at least annually by the FVS and periodically audited by the FVO.

Based on the information presented above, the following pathways for disease introduction are of interest to APHIS: (1) import and trade of live animals; (2) import and trade of animal products; (3) incoming vehicular traffic; and (4) agricultural commodities for personal consumption. These pathways are discussed briefly below and in more detail in Section 12.

7.7.1 Import and trade of live animals

EC legislation imposes less stringent restrictions on sourcing of imported ruminants and swine than do APHIS requirements, which could result in a comparatively greater risk of FMD or CSF introduction into Latvia. Latvian import practices to date appear to have been somewhat protective concerning CSF, SVD, and FMD in that many of the source countries are considered by APHIS to be free of these diseases, and there has been relatively little import traffic in live swine and ruminants for breeding purposes. EC import policies and the restricted scope of SVD infection worldwide limit the risk of introducing this disease into Latvia.

Similarly, APHIS considers the risk of introducing FMD or SVD into Latvia via intra-Community trade in live animals to be very low at present time, although trade on the internal common market poses a greater risk for CSF introduction. Although standard control measures limit the movement of live swine from restricted areas, CSF outbreaks have occurred outside of established control zones within Member States where CSF is endemic in wild boar, posing a risk to the common and export markets until detected.

However, risk mitigation measures currently in place substantially reduce the risk of disease introduction into Latvia via import or trade in live animals. These measures include a mandatory observation period and veterinary inspection prior to shipment, certification of disease status by an official veterinarian, and isolation procedures with veterinary spot-checks at the point of destination. Imported animals also undergo veterinary inspection at the port of entry into Latvia.

EC certification requirements are generally comprehensive with regard to international standards and also reduce the risk of disease introduction. Country and commodity specific certificates are readily available to veterinary inspectors on the internet and the inspectors appeared familiar with the content and governing regulations. The observation periods and veterinary inspection required for certification greatly increase the likelihood of disease detection but depend in large part on the extent of clinical signs and the ability of the observers to recognize the diseases of concern. Serological testing for CSF, SVD, or FMD is generally not required for import or trade.

7.7.2 Import and trade of animal products

Latvia has historically been a net importer of pork, beef, sheep meat, and swine and cattle by-products, and has imported substantial quantities of commodities that could carry CSF, SVD, or FMD viruses from third countries that APHIS does not consider to be free of these diseases, most notably Belarus.

As an EU Member State, harmonized EC legislation allows Latvia to import fresh pork and pork products, as well as fresh meat from wild boar, from third countries that APHIS does not recognize as free of CSF, SVD, and/or FMD (countries of unknown risk). Latvia can also import fresh meat and meat products from domestic and wild ruminants from third countries that APHIS regards as unknown risk for FMD. In addition, EC legislation permits import of swine semen from Switzerland, which APHIS has not evaluated and considers of unknown risk for CSF, as well as bovine semen and embryos from regions that APHIS regards as unknown risk for FMD.

Intra-Community trade in most animal products is prohibited from regions affected by CSF or SVD, which substantially limits the risk to the common market; however, CSF outbreaks occurring outside of established control zones pose a risk to the common and export markets during the time that they remain undetected.

Risk mitigation measures currently in place include approval of establishments for export or trade, veterinary certification requirements, and veterinary spot-checks at the point of destination. Imported products must also originate from authorized third countries and undergo veterinary inspection at the point of entry. Although veterinary inspection of imported animal products at the port of entry is comprehensive, testing for CSF, SVD, or FMD is generally not required. Consequently, veterinary inspection would likely detect

irregularities in documentation or identity, but the physical examination would not detect virus if present.

However, EC certification requirements for meat, meat products, and genetic material are generally comprehensive with regard to international standards and must be signed by an official veterinarian of the country of origin. The certificate used depends on the commodity for export and includes specific guarantees for products from certain countries. Approval of exporting establishments substantially limits exports from authorized third countries, particularly for genetic material.

7.7.3 Incoming vehicular or human traffic

As discussed in Section 3, Latvia shares land borders with several countries that APHIS has not evaluated and regards as unknown risk for CSF and SVD, and there is considerable local passenger traffic to and from these countries. None of the regions directly on the Latvian border have reported outbreaks of these diseases in several years and the likelihood of such diseases in domestic animal populations is relatively low. However, APHIS has little knowledge of the disease surveillance and reporting practices in some of these regions, particularly Belarus and Russia.

Latvia has standard biosecurity measures in place for disinfection of live-haul trucks and other vehicular traffic entering from neighboring third countries at a BIP with veterinary inspection, and requires disinfection of live-haul trucks after each transport (APHIS 2005). Officials indicated that, if an outbreak were reported in a neighboring region, biosecurity measures would be put in place such as disinfecting the undercarriage of all vehicles. Such measures are not currently in place at border crossings without veterinary inspection. Additional biosecurity measures would be enacted for airline passengers from affected regions in the event of an outbreak further abroad.

7.7.4 Agricultural commodities for personal consumption

The majority of border crossings are controlled by the Customs Service, without veterinary control per se. EC legislation permits personal consignments of products that could carry live CSF, SVD, or FMD virus from countries that APHIS has not evaluated and considers of unknown risk for these diseases. More importantly, there is considerable local passenger traffic, as well as some commercial traffic, to and from neighboring third countries that APHIS does not consider to be free of CSF, SVD, or FMD. It appears that a relatively small percentage of the total passenger traffic is given a thorough inspection for prohibited agricultural commodities in the absence of a reported disease outbreak in the source country. In fact, Latvian officials appear to be expending too many resources checking a minimal amount of cargo traffic, while missing a much larger volume of passenger traffic.

8. Livestock demographics and marketing practices in the region

8.1 Livestock demographics

8.1.1 Ruminant census

Latvian agriculture has traditionally included dairy-beef husbandry (FVS 2005d). Cattle and small ruminants are distributed throughout the country; there are few sheep or goats in Latvia and these are mostly distributed in small numbers on individual farms (FVS 2005d). Cows are kept for milk production, and beef is produced by fattening bull calves and culling low-producing cows. Biosecurity measures on the dairy, sheep, and goat farms included perimeter fencing, and sometimes footbaths and overalls for workers; these measures would limit but not prevent contact with wildlife or live virus on clothing or vehicles (APHIS 2005).

As of 1 January 2005, there were 204,982 dairy cattle on 67,714 holdings; 30,913 sheep on 3,372 holdings; and 6,759 goats on 1,699 holdings (see Table 8.1) (APHIS 2005). The average number of cattle or goats per holding was 4, whereas the average number of sheep per holding was 6. Most holdings had only 1-5 animals of any one species. Maps of ruminant densities per district as of 1 January 2004 are shown in Annex 3 (FVS 2005c).

Latvian officials indicated 29 cattle operations with over 700 head that would be most likely to export to the United States (FVS 2005d). These herds range in size from 700 – 1,800 head of cattle, with an average of 975 head per herd.

Table 8.1: Ruminant and swine demographics per district (January 2004)

No.	Region	Size of Region, km^2	Number of animals				Number of animals/km^2			
			Cow*	Pig,**	Sheep**	Goat**	Cow	Pig	Sheep	Goat
1	Aizkraukles	2567	13960	8666	594	370	5.44	3.38	0.23	0.14
2	Alūksnes	2246	8659	2979	980	197	3.86	1.33	0.44	0.09
3	Balvu	2381	10682	4945	985	85	4.49	2.08	0.41	0.04
4	Bauskas	1881	13308	20226	690	545	7.07	10.75	0.37	0.29
5	Cēsu	3062	17289	10597	1448	343	5.65	3.46	0.47	0.11
6	Daugavpils	2526	20693	16026	1607	178	8.19	6.34	0.64	0.07
7	Dobeles	1631	14690	24829	153	169	9.01	15.22	0.09	0.10
8	Gulbenes	1877	9620	4270	1009	225	5.13	2.27	0.54	0.12
9	Jelgavas	1605	13469	7970	670	241	8.39	4.97	0.42	0.15
10	Jēkabpils	2998	15546	36519	549	148	5.19	12.18	0.18	0.05
11	Krāslavas	2288	12929	9960	2137	228	5.65	4.35	0.93	0.10
12	Kuldīgas	2500	13628	13861	419	131	5.45	5.54	0.17	0.05
13	Liepājas	3594	26366	32431	1454	596	7.34	9.02	0.40	0.17
14	Limbažu	2580	13595	6416	756	177	5.27	2.49	0.29	0.07
15	Ludzas	2412	8257	14577	1044	184	3.42	6.04	0.43	0.08
16	Madonas	3349	17807	7014	2669	648	5.32	2.09	0.80	0.19
17	Ogres	1843	12430	9576	958	248	6.74	5.20	0.52	0.13
18	Preiļu	2042	19704	20143	3885	341	9.65	9.86	1.90	0.17
19	Rēzeknes	2655	18522	10812	1511	323	6.98	4.07	0.57	0.12
20	Rīgas	3059	13131	48958	1031	629	4.29	16.00	0.34	0.21
21	Saldus	2182	17526	39060	1390	684	8.03	17.90	0.64	0.31
22	Talsu	2748	13496	19054	673	289	4.91	6.93	0.24	0.11
23	Tukuma	2447	18888	5997	241	310	7.72	2.45	0.10	0.13
24	Valkas	2440	14681	11765	416	266	6.02	4.82	0.17	0.11
25	Valmieras	2373	17376	10240	1001	104	7.32	4.32	0.42	0.04
26	Ventspils	2462	7372	7703	296	92	2.99	3.13	0.12	0.04
27	Rīgas pilsēta	307	79	60	50	18	0.26	0.20	0.16	0.06
	Total:	64055	383703	404654	28616	7769	5.99	6.32	0.45	0.12

8.1.2 Domestic swine census

As of 1 January 2005, there were 340,296 pigs on 2,543 holdings (see Table 8.1) (APHIS 2005). Latvian officials indicated 22 large swine operations with over 3,500 pigs that would be most likely to export to the United States (FVS 2005d). These holdings average approximately 8,500 pigs per herd; seven holdings have over 10,000 pigs, and one holding in the Jekabpils district has over 30,000 pigs. Maps of swine density per district are provided in Annex 3 (FVS 2005a).

The larger swine holdings are primarily confinement operations with restricted access, internal housing, and perimeter fencing. The site visit team noted biosecurity measures such as limiting or excluding vehicular traffic onto the farm, disinfecting any entering vehicles, limiting entry of nonessential personnel and visitors, and requiring a change of clothing when entering the production areas (APHIS 2005). Some larger operations allow employees to raise pigs of their own. Smaller holdings exhibited less attention to biosecurity and disease exclusion; however, veterinary officials indicated that swine on small holdings are often raised entirely indoors.

Table 8.2: Wild boar demographics per district (April 2005)

District	Size (km^2)	No. wild boar	No. boar/km^2
Aizkraukle	2,567	2,342	0.91
Alūksne	2,246	1,378	0.61
Balvi	2,381	1,141	0.48
Bauska	1,881	865	0.46
Cēsis	3,062	2,314	0.76
Daugavpils	2,526	942	0.37
Dobele	1,631	1,503	0.92
Gulbene	1,877	870	0.46
Jēkabpils	2,998	2,049	0.68
Jelgava	1,605	670	0.42
Krāslava	2,288	1,216	0.53
Kuldīga	2,500	2,835	1.13
Liepāja	3,594	3,841	1.07
Limbaži	2,580	1,464	0.57
Ludza	2,412	1,335	0.55
Madona	3,349	3,120	0.93
Ogre	1,843	756	0.41
Preiļi	2,042	950	0.47
Rēzekne	2,655	858	0.32
Rīga	3,059	1,443	0.47
Saldus	2,182	2,086	0.96
Talsu	2,748	3,492	1.27
Tukuma	2,447	2,369	0.97
Valkas	2,440	1,816	0.74
Valmieras	2,373	2,381	1.00
Ventspils	2,462	2,825	1.15
Total	**63,748**	**46,861**	**0.74**

8.1.3 Wild boar census

In 2005, there were an estimated 46,861 wild boar in Latvia (see Table 8.2) (FVS 2005d). The greatest numbers of wild boar were located in the Liepāja, Talsu, and Madona districts. Five districts had a wild boar density of 1.0 or higher per square kilometer; the Talsu district had the highest wild boar density at 1.27 boar per square kilometer.

8.2 Animal identification system

Farm registration for holdings with cattle, sheep, goats, and pigs was introduced in Latvia by the "Provisions of Animal and Herd Registration" of 13 January 1998 (FVO 2001). Farm and animal registration is now conducted in accordance with the Law on Veterinary Medicine and CMR No. 712 from 16 December 2003 "The registration of animals, herds, and holdings, and marking of animals."

Animal identification with individually numbered ear tags was introduced for cattle in 1999 and for sheep and goats in 2001 (FVO 2001). Ruminants must have an ear tag in each ear with a unique code that indicates the farm of origin and individual animal identification. Newborn ruminants must receive ear tags within 20 days of birth. The identification number consists of the holding number, a species code, and a 4-digit individual identification number. Cattle must have passports in which the farm of origin and all significant events are recorded. A group marking system was introduced for swine in 2001; all pigs leaving a holding must have an ear tag or tattoo with the farm identification number.

Animal holdings, slaughterhouses, and quarantine places are registered in a database maintained by the Agricultural Data Center. This database incorporates registered herds and animals, veterinary activities, and pedigree activities. In addition, every holding must maintain a register which contains individual information on the number and type of animals present (APHIS 2005). New events must be entered into the farm register within 3 days, and the central database notified via an event notification form within 7 days.

Local FVS officials carry out inspections for holding registration, animal identification, and movement control (APHIS 2005). The percentage of inspections varies between districts. Officials indicated that animal identification is a work in progress with variable compliance; officials also indicated that all of the approximately 70,000 farms in Latvia are registered (APHIS 2005). However, a recent FVO report noted significant delays in reporting of events and movements; although there is a legal basis for the application of penalties, comparatively few have been imposed (FVO 2004b).

8.3 Internal movement controls

Animal movements are documented at the farm level and in the central database (APHIS 2005). There is an official form called an animal movement declaration that has four carbon copies – two each for the seller and buyer – which contains information on the place of origin, place of destination, number of animals in the shipment, identification numbers, etc. The form is signed by the owner and the purchaser must countersign indicating that a veterinarian has been informed of the new arrivals. Both parties are responsible for sending one copy of the movement declaration to the central database for notification of animal movement.

Compliance may be monitored on the farm, on the roads, or at slaughter. Movement control is a separate inspection item on the farm inspection checklist. A farm suspected of noncompliance may be subject to repeated inspections or unannounced checks. Sanctions include fine, whole or partial movement restrictions, market prohibitions, and disposal of animals (APHIS 2005).

8.4 Marketing practices

Latvian officials indicated that there are no large marketing centers in Latvia, and that the sale of animals generally takes place directly through the owner or at small local markets (FVS 2004). Some districts have EC-approved assembly centers, although there is currently little export or trade in ruminants or swine (see Section 7 and Annex 1).

8.5 Discussion

Latvian veterinary officials conduct a rigorous schedule of on-farm inspections, each of which is guided by a comprehensive checklist that includes waste feeding, herd registration, and animal identification and movement control. Noncompliance with the waste-feeding ban is reportedly low, although officials indicated that noncompliance with animal identification requirements is not uncommon. The central database is comprehensive and is used to target on-farm inspections. Official and approved private veterinarians appear to have good working relationships with animal owners and caretakers, which increases the likelihood of timely disease detection and reporting.

Small holdings predominate in Latvia, which presents a challenge in terms of monitoring and enforcing compliance with existing legislation, as well as implementing and maintaining national animal identification systems. The large swine operations that are housed internally with perimeter fencing and restricted access are well protected from contact with wild boar. Biosecurity measures on the facilities visited by APHIS serve to minimize potential exposure to CSF, SVD, or FMD viruses via other routes as well. Pigs on smaller holdings are less protected and interaction with wild boar is possible, considering the distribution and overlap of the two species; however, the majority of pigs on small holdings are raised indoors.

Employees of some of the larger operations may keep swine of their own. If such a herd became infected, the employee could theoretically transmit the virus to the larger operation via a vehicle or clothing. Transmission by this route would require a lapse in biosecurity measures on the confinement operation. Incursion of a foreign animal disease would likely be more quickly detected on a large swine operation, since most employ a private veterinarian and are closely monitored by the official veterinary services.

In contrast, biosecurity measures on ruminant operations are generally not sufficient to prevent direct and/or indirect contact with wildlife, or contact with live virus on clothing or vehicles. However, exports to the United States will likely be derived from relatively large cattle operations, which are closely monitored by the official veterinary services.

9. Disease surveillance in the region

9.1 General information

National surveillance plans are in place for CSF and SVD in domestic swine and for CSF in wild boar. Latvia does not conduct SVD surveillance in wild boar. No FMD surveillance has been conducted in Latvia since 2003 (APHIS 2005). New surveillance plans are issued annually by the central FVS that dictate the number of samples to be taken in each district. Mandatory testing is financed through the SVA for hunted wild boar and most surveillance in domestic swine; producers are required to pay for mandatory annual testing of breeding boars (APHIS 2006a). Samples are usually taken by official veterinarians but approved private veterinarians may take samples as well. No field suspicions of CSF, SVD, or FMD have been reported in recent years, although foreign animal disease investigations have been carried out based on laboratory test results (APHIS 2005; APHIS 2006a; FVS 2005d).

9.2 CSF surveillance

The national surveillance plan for 2005 called for sampling of 1,000 domestic swine, as well as annual testing all boars in semen collection centers (APHIS 2005). Veterinary officials indicated that the number of samples taken in each district is usually determined by the number of swine in the district; sampling occurs quarterly in February, May, August, and November. Regional risk considerations, such as proximity to an international border, are rarely taken into account.

District officials determine which holdings are sampled each year: some districts target larger operations, whereas others target small farms. District veterinary officials indicated that they usually sample 2-3 pigs per holding (APHIS 2005). An official veterinarian completes a sample collection form for each sample and the samples are couriered to the nearest state laboratory.

Overall surveillance results for 2003 – 2005 are shown in Table 9.1 and detailed results are provided in Annex 4 (FVS 2005d; APHIS 2006a). In 2004, 10 swine were positive on ELISA; epidemiologists visited the farm of origin and collected more samples, resulting in a total of 14 virus neutralization (VN) tests with 8 positive results (APHIS 2006a). The epidemiological investigation determined that these were older animals that had been vaccinated against CSF during the outbreak in 1996. Similarly, 7 swine were positive on ELISA in 2005: an investigation yielded 2 positive results out of 19 VN tests conducted; these were again determined to be older vaccinated pigs (APHIS 2006a).

Table 9.1: Summary CSF surveillance in domestic swine and wild boar 2003 – 2005

Year	Domestic swine				Wild boar			
	ELISA		Virus Neutralization		ELISA		Virus Neutralization	
	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive
2003	1,217	22	22	0	358	22	22	0
2004	1,327	10	14	8	369	0	0	0
2005	1,177	7	19	2	324	5	23	0

The national surveillance plan for 2005 called for sampling of 400 wild boar (APHIS 2005). Veterinary officials indicated that the number of samples required in each district is based on the estimated number of wild boar. Sampling occurs from October through January. Overall surveillance results for 2003 – 2005 are shown in Table 9.1. In 2005, 5 animals were positive on ELISA; additional wild boar in the district were tested, resulting in 23 VN tests of which none were positive (APHIS 2006a).

The FVS works with the State Forestry Service to target sampling efforts; there is no risk-based sampling per se, although some districts preferentially sample older animals (APHIS 2005). Official veterinarians meet with the hunting associations prior to each hunting season to discuss wild boar testing for the coming year. Hunters take samples of blood and/or kidney, liver, and spleen, and bring the samples to the district FVS office. An official veterinarian issues a certificate which accompanies the sample to the laboratory. Hunters are obligated to report all wild boar found dead; however, veterinary officials indicated that this does not occur in all districts (APHIS 2005).

9.3 SVD surveillance

Latvia does not conduct surveillance for SVD in wild boar. However, SVD has never been reported in wild boar in Latvia. The SVD surveillance plan in domestic swine is set each year at the central level. Sampling of herds is similar to that for CSF. Summary numbers for 2000 – 2003 are shown in Table 9.2 and more detailed results are provided in Annex 4 (FVS 2005d; APHIS 2006a); no confirmed positive samples were reported. No surveillance was conducted in 2004. In 2005, 15 out of 161 samples tested using ELISA were positive (APHIS 2006a). Epidemiologists visited two implicated farms and collected more samples, resulting in a total of 28 VN tests with no positive results. Tissues for virus isolation were not collected.

Table 9.2: Summary SVD and FMD surveillance testing 2000 – 2005

Year	SVD	FMD	
		Cattle	Pigs
2000	395	507	-
2001	638	317	408
2002	907	325	258
2003	830	297	250
2004	No surveillance conducted		
2005	161	No surveillance conducted	

9.4 FMD surveillance

FMD surveillance was conducted in domestic swine and cattle, although not in small ruminants or susceptible wild species, through 2003 (FVS 2005d; APHIS 2005; APHIS 2006a). Summary sampling numbers for 2000 – 2003 are shown in Table 9.2 with more detailed results in Annex 4 (FVS 2005d; APHIS 2006a); no confirmed positive results were reported. Surveillance is no longer conducted in domestic swine or cattle, which is not in accordance with EC obligations prescribed under Council Directive 64/432/EEC.

9.5 Discussion

Ample CSF surveillance is conducted in domestic swine and wild boar, although the sampling scheme is not risk based. Most surveillance is based on serology for antibodies to the CSF virus, as is common throughout the world. Since antibodies occur late in CSF infection, serological surveillance would likely miss an early infection (e.g. first 21 days). Training and national simulation exercises as discussed in Section 1 aid in passive surveillance for CSF by developing and maintaining the ability to quickly detect these diseases. Passive surveillance is likely sufficient to detect overt clinical signs of CSF, but detection may be delayed in the case of moderate or low virulent strains.

SVD surveillance was conducted in domestic swine through 2003 and then restarted at a very low level in 2005. The Latvians do not consider SVD an important disease in terms of allocation of surveillance funding, even though the disease is endemic in Italy and has made historical incursions into other EU Member States. However, the SVMDC conducted two foreign animal disease investigations for SVD in 2005 (see Section 10). Surveillance for FMD has been discontinued since 2003 because it is not believed necessary.

Latvia relies heavily on passive surveillance for detection of SVD and FMD, although the low level serological surveillance for SVD would eventually detect the historical presence of the disease. Consequently, detection may be delayed in the absence of overt clinical signs. If an outbreak is suspected, the SVMDC would forward samples to the Pirbright laboratory for confirmatory diagnosis (see Section 10). All of these factors influence the timeframe for outbreak detection and the export risk to the United States, as discussed in Section 12.

10. Diagnostic laboratory capacity

10.1 General information

The SVMDC in Riga is the National Reference Laboratory for CSF, FMD, and SVD, among other diseases. Within the laboratory system there is one central laboratory in Riga, four regional laboratories in Rezekne, Valmiera, Saldus and Jelava, some smaller branch laboratories within these regions, and several sample reception points (APHIS 2006a; FVS 2004; FVS 2005a). Only the Animal Diseases Diagnostic Laboratory of the Riga facility does laboratory surveillance and diagnosis for CSF, SVD, and FMD.

The Riga laboratory was built in 1979 and consists of an older wing in some physical disrepair that houses administration, and a recently remodeled wing in very good physical state which houses the laboratories (APHIS 2006a). There are two biosecurity level 3 units in the laboratory wing, one of which is used for virus isolation. The laboratory has only 10 people involved in laboratory testing for CSF, SVD, and FMD (APHIS 2006a).

The SVMDC is accredited by the Latvian Accreditation Bureau, which is recognized by the International Laboratory Accreditation Cooperation that harmonizes laboratory practices globally (APHIS 2006a). The entire laboratory is ISO 17025 accredited; a quality management division performs continuous internal audits, and the accrediting agency conducts audits on an annual basis. Laboratory personnel receive training through seminars and courses organized in EU reference laboratories, supported by EC-funded programs as well as bilateral agreements with other EU Member States (FVS 2004). The laboratories also participate in inter-laboratory testing and proficiency testing annually.

10.2 Classical swine fever

The SVMDC performs the following tests for CSF (APHIS 2006a):

1. Serology for monitoring: Antibody (Ab) ELISA using a commercial test kit.
2. Serology for confirmation: neutralization peroxidase linked assay (NPLA).
3. Virus isolation in PK-15 cells with immunoperoxidase staining for antigen using monoclonal antibody-linked conjugates.
4. Antigen detection: Antigen (Ag) ELISA using a commercial test kit.
5. Reverse transcriptase polymerase chain reaction (RT-PCR) to detect pestiviruses or a specific nucleic acid sequence.

If CSF virus were isolated, the SVMDC would report a confirmed positive result to the CVO and then the OIE. The viral isolate would also be sent to the OIE CSF Regional Reference Laboratory in Hanover, Germany, for sequencing, genotyping, and creation of phylogenetic trees for molecular epidemiology.

10.3 Swine vesicular disease

The SVMDC performs serology for SVD using the Ceditest SVD virus Ab ELISA by Cedi Diagnostics; sera positive to ELISA are tested by VN using IBRS-2 (APHIS 2006a). No tests are available for antigen or nucleic acid detection. Virus isolation may be attempted in IBRS-2 cells, but the SVMDC does not have a detection system for SVD virus when isolated in cell culture.

10.4 Foot and mouth disease

The SVMDC is able to conduct the following tests for FMD (APHIS 2006a):

1. Serology in order of use: (1) Ag ELISA commercial test kit for type O; (2) Ab ELISA test kit for 3ABC nonstructural protein (group test for all serotypes); and (3) Pirbright Liquid Phase Blocking Ab ELISA to serotypes O, A, and C.
2. Antigen detection: Pirbright Ag ELISA for serotypes O, A, C and Asia 1.

The Riga laboratory does not perform virus isolation for FMD and does not have the capability to perform nucleic acid detection tests like RT-PCR (APHIS 2006a). Samples would be sent to the Vesicular Diseases World Reference Laboratory in Pirbright, UK.

10.5 Discussion

The SVMDC has well-trained and enthusiastic scientific, technical, and administrative staff, and provides a full range of diagnostic tests for the diagnosis and confirmation of CSF. Tests have all been validated and include well-regarded commercial test kits used in many countries and tests developed in-house that are performed using standard methodology. Excellent quality control and quality assurance programs are in place. APHIS concludes that an index case of CSF would be diagnosed by this laboratory if proper samples at the proper stage of infection were submitted.

The SVMDC also provides a partial range of diagnostic tests for the diagnosis of SVD and FMD. This laboratory would likely be able to make a presumptive diagnosis based on clinical signs and the results of serology, but samples would be sent to Pirbright for confirmatory testing, resulting in a slight delay.

11. Emergency response capability

11.1 General information

Latvia has in place a general contingency plan with supporting legislation for outbreaks of animal infectious diseases, as well as specific contingency plans for CSF, SVD, and FMD outbreaks. The contingency plans are supplemented by official instructions and guidelines detailing procedures for disease notification and confirmation, sampling methods, diagnostic procedures, humane killing of animals, and cleaning and disinfection of the affected premises (FVS 2004). The plans conform closely to the provisions of EC legislation.

A central element is the establishment of national and local disease control entities subordinate to the FVS, which in Latvia are the State Emergency Situations Operation Committee (SESOC) and the Territorial Emergency Situations Operation Committee (TESOC). The SESOC manages the outbreak response at the national level, coordinating and allocating the resources of state and regional governments, as well as local communities and establishments (FVS 2005a). The TESOC coordinates control and eradication measures in the affected district or city under the supervision of an FVS Territorial Working Group, which directs and controls the response measures.

The contingency plans stipulate a stamping out policy with destruction of all susceptible animals on the affected premises. Carcasses would be collected and transported to a processing plant, although burning or burial on the spot could be done in exceptional cases. All live animals and animal products that moved off the affected premises during the time between disease introduction and detection of the outbreak would be traced and destroyed. Protection and surveillance zones of 3 km and 10 km radius from the affected premises, respectively, would be established and any animal products allowed out of these zones would be marked for national consumption only.

11.2 Classical swine fever

The emergency response policies and regulations formulated by the central FVS reflect control measures established in Council Directive 2001/89/EC and Commission Decision 2002/106/EC (FVS 2005b). The CSF contingency plan, titled “Instructions on eradication of classical swine fever,” was approved by the EC under Commission Decision 2004/431/EC. The plan reflects control measures outlined in the Latvia CMR No. 991 adopted 30 November 2004, titled “Procedures for liquidation and prevention of classical swine fever.”

The CSF contingency plan details measures to be taken in case of suspicion or confirmation of CSF on a holding or in a slaughterhouse, market, or means of transport; notification procedures; epidemiological investigation procedures; required actions in the protection and surveillance zones; killing of animals and disposal of carcasses; repopulation; measures in case of suspicion or confirmation of CSF in wild boar; plans for eradication of CSF from the wild boar population; and emergency vaccination of wild boar and domestic swine (FVS 2005b).

EC legislation and the Latvian CSF contingency plan allow removal of CSF restrictions in protection zones as early as 30 days after completion of preliminary cleaning and disinfection measures on the infected holding (21 days in surveillance zones). Measures

are lifted after clinical examinations and serology indicate that the pigs remaining in the zones are free of CSF.

11.3 Swine vesicular disease

The emergency response policies and regulations formulated by the central competent authority reflect control measures established in Council Directive 92/119/EEC and Commission Decision 2000/428/EC. The SVD contingency plan was developed by the central FVS and has not yet been translated into English (APHIS 2005); EC approval is not required for SVD contingency plans.

According to Latvian officials, the SVD contingency plan is modeled on the general contingency plan and reflects control measures outlined in the Latvia CMR No. 127 adopted 19 March 2002, "Procedures for liquidation and prevention of danger of epizootic outbreaks" (VFD 2002). The plan details measures to be taken in case of suspicion or confirmation of SVD on a holding, including epidemiological investigation practices; establishment of protection and surveillance zones and control measures in these zones; diagnostic procedures; cleaning and disinfection practices; and repopulation practices (APHIS 2005).

11.4 Foot and mouth disease

The emergency response policies and regulations formulated by the central competent authority generally reflect control measures established in Council Directive 2003/85/EC (FVS 2005c). The FMD contingency plan, titled "Instructions on eradication of foot and mouth disease," was formulated according to the criteria established in Commission Decision 91/42/EEC and approved by the EC in June 2002. Latvian officials indicated that the plan will be updated once Council Directive 2003/85/EC is fully transposed into national legislation (FVO 2004b; APHIS 2005).

The FMD contingency plan details measures to be taken in case of suspicion of FMD on a holding; actions upon confirmation in the affected area, protection zone, and surveillance zone; killing of animals and disposal of carcasses; repopulation; actions in a slaughterhouse or market in case of suspicion or confirmation of FMD; measures in case of FMD in wild animals; and emergency vaccination (FVS 2005c).

11.5 Indemnity and compensation

Indemnity for destroyed animals is paid from state budget resources according to the CMR No. 293 (FVS 2005a). The Law on Veterinary Medicine describes procedures for allocation of state budget resources and reimbursement of owners (Article 33), as well as procedures for allocation and receipt of reimbursement (Article 35). The general contingency plan contains a comprehensive valuation and compensation schedule.

In addition, the EC provides partial indemnity in case of an outbreak of CSF or SVD, and in the past has passed critical legislation to financially support eradication of FMD outbreaks in Member States. Commission Decision 90/424/EEC describes the conditions under which the EC would support a financial contribution for emergency control and eradication of CSF or SVD, most of which are covered in the respective Latvian contingency plans and supporting legislation.

11.6 Discussion

The contingency plans for CSF, SVD, and FMD are comprehensive and reflect control measures developed and promulgated by the EC. Equally important, official veterinarians appeared to be familiar with the provisions of the contingency plans and the initial actions required of them in the event of suspicion and/or confirmation of an outbreak. Training and national simulation exercises as discussed in Section 1 aid in developing and maintaining the ability to quickly detect and contain these diseases. The contingency plans are not adapted at the district level to contain contact information for farm owners or veterinarians, or specifics on the location and extent of individual holdings, but this information appeared readily available from other sources.

APHIS is concerned that 30 days following a CSF outbreak is insufficient to ensure that an area where an outbreak has occurred is no longer affected by the disease. CSF has recurred in several areas of the EU shortly after EC restrictions were removed from those areas and the movement of swine commenced. For example, in December 2001 a CSF outbreak was confirmed in Osama, Spain, 22 days after release of EC movement restrictions and 83 days after depopulation on the affected holding (APHIS 2004). Similarly, a CSF outbreak in August 2002 in Luxembourg was epidemiologically linked to an outbreak that occurred in June 2002 (APHIS 2004). The August outbreak occurred 27 days after release of EC movement restrictions and 56 days after depopulation.

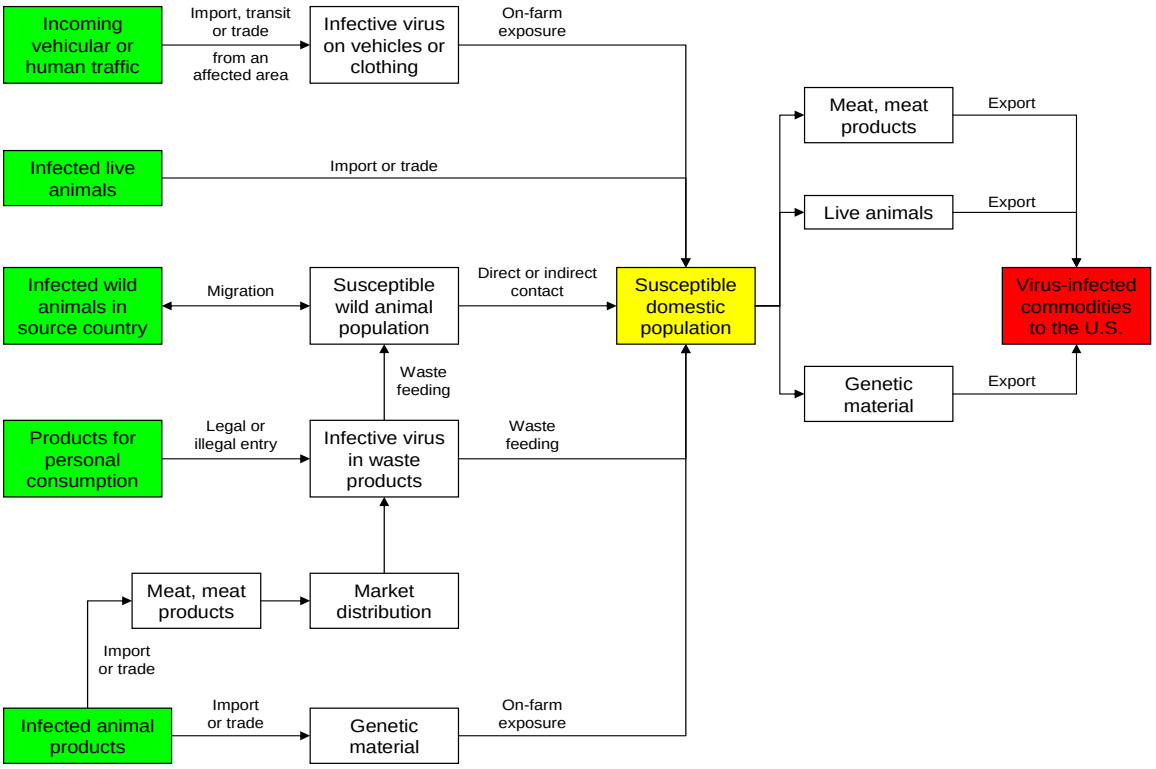
These observations suggest that 30 days may be an insufficient duration for restrictions. APHIS addressed this concern for the EU-15 in a previous regulation by establishing a process which would not allow swine, swine products, or semen from an area affected with CSF in domestic swine to be exported until 6 months after the last affected premises was cleaned and disinfected (APHIS 2006).

12. Discussion of identified risk factors

12.1 General discussion

The preceding 11-factor assessment identified five main pathways by which CSF, SVD, and/or FMD could be introduced into Latvia from other EU Member States or third countries, resulting in exposure of a susceptible domestic animal population (see Figure 12.1). However, introduction of these diseases into Latvia by the identified pathways would only affect export risk to the United States if a susceptible domestic animal population became infected and this infection was not detected prior to export. The timeframe for detection of a disease incursion depends on a number of factors, including characteristics of the disease agent, surveillance practices, diagnostic capabilities, and the disease recognition capability of animal caretakers and veterinarians.

Figure 12.1: Pathway assessment for virus introduction and subsequent export



As discussed under the hazard identification section, some forms of CSF, SVD, and FMD are difficult to detect in live animals or on post-mortem examination without laboratory testing. For example, carrier sows that were exposed to low virulence CSF strains are capable of shedding virus for substantial periods of time without clinical signs. Subclinical SVD infection is common, although the period of virus shedding is generally short and persistent infection is rare. Both subclinical and persistent (carrier) infections are characteristic of FMD in ruminants, particularly sheep and goats. In addition, virus shedding may occur in animals incubating FMD prior to the appearance of clinical signs.

Passive surveillance for these diseases is enhanced by ongoing training in disease recognition as discussed in Section 1.3.2. Active serological surveillance for CSF in domestic swine and wild boar appears sufficient to detect the presence of the disease (*see* Section 9), and is well supported by the diagnostic laboratory system (*see* Section 10). However, serological surveillance for antibodies to CSF would likely miss an early infection, since antibodies occur relatively late (around 21 days). Passive surveillance could overlook early infection with a moderate or low virulence strain, thereby delaying the time to detection, but the current level of serological surveillance would likely reveal the historical presence of CSF.

In contrast, Latvia does not conduct active surveillance for FMD and SVD surveillance in domestic swine occurs at a very low level, in part because these are not perceived as diseases of concern. Although SVD surveillance likely would eventually reveal the historical presence of the disease, detection of these diseases is primarily dependent on passive surveillance. Consequently, detection could be delayed in the absence of overt clinical signs.

APHIS concludes from this discussion that the timeframe for detection of a CSF, SVD, or FMD incursion into Latvia could be weeks or even months under certain circumstances. There would therefore be a period of time between virus introduction and outbreak detection during which infected animals and products could be presented for export to the United States. Physical inspection of individual animals is sufficient to detect clinically affected animals prior to live export, slaughter, or collection of genetic material. However, such inspection is unlikely to detect subclinical or persistent infection, which may be more apparent at the herd level.

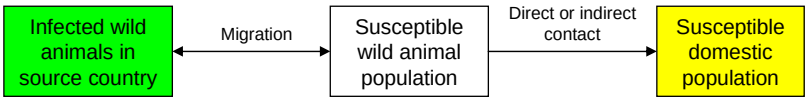
As noted in the hazard identification section, each of the causative agents may remain viable through carcass maturation, transport, and storage, and may be present in genetic material as well. Consequently, if one or more of these diseases is introduced into a domestic animal population in Latvia, the potential exists for it to remain undetected long enough for export of infected live animals, meat, meat products, and genetic material to the United States. Although APHIS considers the probability of this scenario occurring to be relatively low, it cannot be entirely disregarded. Consequently, the likelihood of disease introduction via the pathways identified in the previous sections resulting in exposure of a susceptible domestic animal population is examined below.

12.2 Natural movement of wild animals into Latvia

12.2.1 Central risk issue

Infected wild animals migrating from neighboring affected regions could introduce CSF, SVD, or FMD virus into Latvia. As shown in Figure 12.2, direct or indirect contact with infected wild animals could spread the disease to a susceptible population of domestic animals, creating the potential for export of infected animals or products to the United States.

Figure 12.2: Pathway for disease introduction via migrating wild animals



12.2.2 Risk factors and existing mitigation measures

The likelihood of introducing CSF, SVD, or FMD into Latvia via infected wild animals from surrounding regions depends primarily on the disease status of wild animals in the neighboring regions and the extent to which natural barriers prevent movement of wild animals into Latvia. Risk factors for disease introduction and associated mitigating factors identified in Sections 1-11 are summarized below.

Risk factors for disease introduction:

1. CSF, SVD, FMD – Latvia shares common land borders with several countries that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD (*see* Sections 3). APHIS therefore cannot rule out the existence of these diseases in wild animal populations in these regions.
2. CSF, SVD, FMD – Natural barriers are not sufficient to prevent movement of wild animals into Latvia from neighboring regions (*see* Section 6).
3. CSF – CSF in wild boar populations in the extended European region constitutes a reservoir for exposure of domestic swine (*see* Section 3.1).

Factors mitigating the risk of disease introduction:

1. FMD – FMD has not been reported in domestic or wild species in a region bordering Latvia in the past 20 years (*see* Section 3.3).
2. SVD – SVD has never been reported in domestic or wild species in a neighboring country (*see* Section 3.2).

12.2.3 Summary discussion

APHIS considers the risk of introducing FMD or SVD virus into Latvia via susceptible wild animals to be very low. The risk of CSF introduction into Latvia via migration of wild boar from potentially affected neighboring regions is greater and is an issue of concern for exposure of domestic animals. However, the risk of direct or indirect exposure is substantially mitigated by commercial production and biosecurity practices on swine confinement operations such as breeding farms, semen collection centers, and large production units (*see* Section 8.1.2).

Exposure to wild boar is more likely on small farms with limited biosecurity, although the tendency towards keeping pigs indoors limits the potential for contact. Production and slaughter systems in Latvia are such that large confinement operations are the most likely source of swine commodities for export to the United States. Consequently, APHIS concludes that the export risk to the United States associated with this pathway is low.

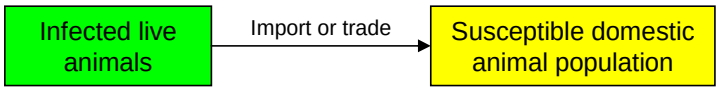
12.3 Import, transit, or trade of infected live animals

12.3.1 Central risk issue

Infected live ruminants and swine may enter Latvia legally through import from third countries or intra-Community trade, or illegally via smuggling from neighboring countries (see Figure 12.3). Legally imported live animals may be intended for breeding,

production (i.e. fattening and slaughter), or direct slaughter. APHIS considers the risk of illegally importing live swine or ruminants into Latvia to be low.

Figure 12.3: Pathway for disease introduction via live animals



12.3.2 Risk factors and existing mitigation measures

The likelihood of disease introduction via legal import or trade of live animals depends primarily on the provisions of the harmonized EC import legislation for ruminants and swine, the efficacy of limiting intra-Community trade from affected regions, and Latvian import and trade practices. Risk factors for disease introduction and associated mitigating factors identified in Section 1-11 are summarized below.

Risk factors for disease introduction:

1. FMD – Harmonized EC legislation allows Latvia to import live ruminants from countries and territories that APHIS has not evaluated and regards as unknown risk for FMD (*see* Section 7.2.1).
2. CSF – Harmonized EC legislation allows Latvia to import live swine from Switzerland, which APHIS considers of unknown risk for CSF (*see* Section 7.2.1).
3. CSF, SVD, FMD – Veterinary inspection of imported animals at the ports of entry is unlikely to detect incubating or subclinical infection, or infection in species that show few clinical signs (e.g. FMD in small ruminants) (*see* Sections 7.2.3 and 7.7.1).
4. CSF – Outbreaks occurring outside of established control zones within affected Member States where CSF is endemic in wild boar pose a risk to the common and export markets until detected (*see* Section 3.1).
5. CSF – Outbreaks have recurred in several areas of the EU shortly after EC restrictions were lifted, suggesting that 30 days may be an insufficient duration for restrictions (*see* Sections 11.2 and 11.6).

Factors mitigating the risk of disease introduction:

1. SVD – APHIS considers the countries from which EC legislation permits Latvia to import live swine to be free of SVD (*see* Section 7.2.1).
2. CSF, SVD, FMD – EC certification requirements for import, transit, or trade in live animals are comprehensive and must be signed by an official veterinarian of the country of origin (*see* Section 7.2.2).
3. CSF, SVD, FMD – Veterinary inspection at the point of entry is likely to detect clinically diseased animals (*see* Section 7.2.3).

4. CSF, SVD – EC legislation and the control measures put in place by affected Member States prohibit the sale of live swine from zones under restrictions for CSF or SVD (*see* Section 7.4).
5. CSF, SVD, FMD – EC requirements for isolation, observation, and veterinary inspection of live animals prior to transport increase the likelihood of detecting infected animals (*see* Sections 7.2.2 and 7.4).

12.3.3 Summary discussion

EC legislation imposes less stringent restrictions on the sourcing of imported ruminants than does U.S. legislation, which could result in a comparatively greater risk of FMD introduction into Latvia and other Member States with which Latvia trades. The same is true to a lesser extent for CSF in imported swine, and the potential exists for trade on the internal common market to introduce CSF from undetected infected herds in unrestricted areas, or from herds in areas released from restrictions too quickly following an outbreak.

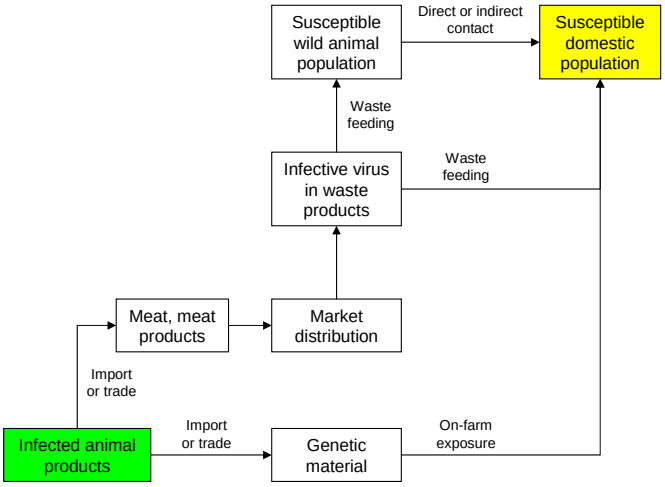
However, the mitigation measures currently in place substantially reduce the risk of FMD or CSF introduction into Latvia via import or trade of live animals. Isolation, observation, and veterinary inspection of animals at the point of destination further limit exposure of susceptible domestic animal populations. Additional mitigation measures may be necessary to restrict sourcing of animals for export and to prevent commingling with swine from regions APHIS considers affected with FMD or CSF.

12.4 Import, transit, or trade of infected animal products

12.4.1 Central risk issue

Infected bovine or swine products such as fresh meat, meat products, semen, embryos, or ova can enter Latvia legally through import or trade, or illegally via smuggling. Figure 12.4 shows the main pathways for introduction of CSF, SVD, or FMD virus via infected animal products.

Figure 12.4: Pathways for disease introduction via infected animal products



12.4.2 Risk factors and existing mitigation measures

The likelihood of introducing CSF, SVD, or FMD virus via infected animal products depends primarily on the provisions of the harmonized EC import legislation for ruminants and swine, the efficacy of limiting intra-Community trade from affected regions, and Latvian import and trade practices.

Risk factors for disease introduction:

1. CSF, SVD, FMD – Veterinary inspection of imported animal products at the port of entry is unlikely to detect infective virus (*see* Sections 7.2.3 and 7.7.2).
2. CSF, SVD, FMD – Harmonized EC legislation allows Latvia to import fresh pork and pork products, as well as fresh meat from wild boar, from third countries that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD (*see* Section 7.2.1).
3. FMD – Harmonized EC legislation permits Latvia to import fresh meat and meat products from domestic and wild ruminants from third countries that APHIS considers of unknown risk for FMD, including Belarus and Russia (*see* Section 7.2.1).
4. FMD – Harmonized EC legislation allows Latvia to import bovine semen, ova, and embryos from regions that APHIS regards as unknown risk for FMD (*see* Section 7.2.1).
5. CSF – Harmonized EC legislation allows Latvia to import swine semen from Switzerland, which APHIS considers of unknown risk for CSF (*see* Section 7.2.1).
6. CSF – Outbreaks occurring outside of established control zones within affected Member States where CSF is endemic in wild boar pose a risk to the common and export markets until detection (*see* Section 3.1).
7. CSF – Outbreaks have recurred in several areas of the EU shortly after EC restrictions were lifted, suggesting that 30 days may be an insufficient duration for restrictions (*see* Sections 11.2 and 11.6).

Factors mitigating the risk of disease introduction:

1. CSF, SVD, FMD – EC certification requirements for imported commodities derived from swine and ruminants in third countries are comprehensive and must be signed by an official veterinarian of the country of origin (*see* Section 7.2.2).
2. CSF, SVD, FMD – The EC approval process for exporting establishments, including semen collection centers and slaughterhouses, is rigorous and comprehensive, and substantially limits exports from approved third countries (*see* Section 7.2.1).
3. CSF, SVD – EC legislation and the control measures put in place by affected Member States prohibit the sale of swine commodities from regions restricted for CSF or SVD outbreaks (*see* Section 7.4).

12.4.3 Summary discussion

APHIS considers disease introduction via meat and meat products, rather than genetic material, to be the primary risk concern associated with this pathway. Although infected genetic material would most likely result in direct exposure of domestic swine, the strict biosecurity practices required of semen collection centers substantially reduce the risk of disease introduction. Infected meat and meat products pose little exposure risk to wild or domestic ruminants, but could be fed as waste to wild boar or domestic swine.

Harmonized EC legislation imposes less stringent restrictions on sourcing of swine products than does U.S. legislation, resulting in comparatively greater risk of introducing CSF, SVD, or FMD into Latvia. However, the approval process for exporting establishments in third countries provides substantial risk mitigation and limits the number of countries actually exporting to the EU. The potential exists for trade on the internal common market to introduce CSF via commodities from undetected infected herds in unrestricted areas. APHIS is also concerned that 30 days following a CSF outbreak is insufficient to ensure that the area where the outbreak occurred is no longer affected by the disease.

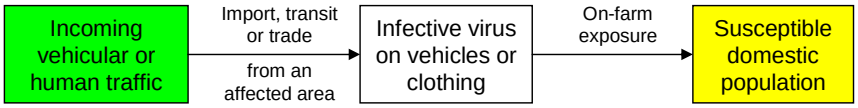
As discussed in the hazard identification section, waste feeding of infected meat or meat products is perhaps the most common cause of outbreaks in domestic swine and wild boar in previously free regions. Noncompliance with the waste feeding ban is most likely on small swine holdings (*see* Section 1.1), as is exposure to wild boar infected via waste feeding (*see* Section 8.1.2). Biosecurity practices limit the risk of exposure on large confinement operations, which are the most likely source of swine commodities for export to the United States (*see* Section 8.1.2). However, additional mitigation measures may be necessary to prevent commingling of pork and pork products destined for export with those sourced from an affected country or region.

12.5 Incoming vehicular or human traffic

12.5.1 Central risk issue

CSF, FMD, or SVD could be introduced into Latvia via incoming vehicular traffic, particularly improperly disinfected live-haul trucks coming from affected Member States or third countries. Virus could also be passively introduced by human traffic from affected regions through transmission of live virus on clothing, potentially resulting in on-farm exposure of a susceptible domestic animal population (see Figure 12.5).

Figure 12.5: Introduction pathways via vehicular or human traffic



12.5.2 Risk factors and existing risk mitigation measures

The likelihood of introducing CSF, SVD, or FMD into Latvia via incoming vehicular or human traffic depends primarily on the disease status of neighboring regions and

disinfection practices at the point of entry. Risk factors for disease introduction and associated mitigating factors identified in Sections 1-11 are summarized below.

Risk factors for disease introduction:

1. CSF, SVD, FMD – Latvia shares common land borders with several countries that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD (*see* Section 3).
2. CSF, SVD, FMD – Considerable local traffic occurs to and from neighboring third countries and Member States (*see* Section 7.6).
3. CSF, SVD, FMD – No standard disinfection practices are in place for human or vehicular traffic at border crossings without veterinary inspection in the absence of a reported outbreak (*see* Section 7.1.2).

Factors mitigating the risk of disease introduction:

1. CSF, SVD, FMD – None of the regions bordering Latvia has reported a CSF, SVD, or FMD outbreak in many years, if ever (*see* Sections 3.1 – 3.3).
2. CSF, SVD, FMD – Latvia has standard biosecurity measures in place for disinfection of live-haul trucks from third countries at BIPs with veterinary inspection (*see* Section 7.1.2).
3. CSF, SVD, FMD – EC legislation requires disinfection of all live-haul trucks after unloading, and in some cases, prior to animal loading (*see* Section 7.1.2).
4. CSF, SVD, FMD – The veterinary services are prepared to implement biosecurity measures to prevent disease introduction via vehicular or human traffic if an outbreak is reported in a neighboring region (*see* Section 7.7.3).

12.5.3 Summary discussion

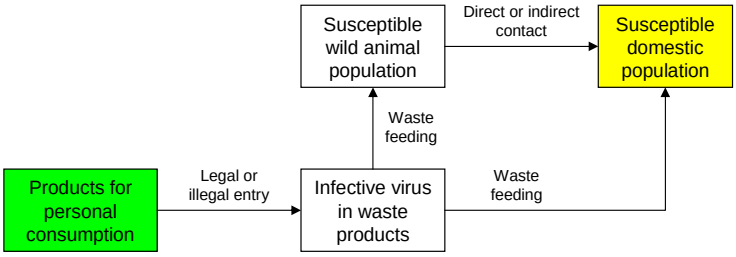
APHIS considers the risk of introducing CSF, FMD, or SVD virus via incoming vehicular or human traffic to be low. The level of biosecurity on most ruminant and small swine holdings is likely insufficient to protect against virus exposure from this quarter. However, ruminant populations with the greatest potential for exposure to humans or vehicles are generally also those that are intensively managed, which increases the odds of rapid disease detection. As stated above, small swine operations in Latvia are unlikely to contribute products for export. Existing husbandry and production conditions in Latvia substantially mitigate the export risk to the United States.

12.6 Agricultural commodities for personal consumption

12.6.1 Central risk issue

Infected meat or meat products carried into Latvia by human traffic for personal consumption could introduce CSF, SVD, or FMD into the country, as shown in Figure 12.6. Such products may be intentionally smuggled into the country or simply missed during Customs inspections at border crossings.

Figure 12.6: Introduction pathways via personal consignments



12.6.2 Risk factors and existing mitigation measures

The likelihood of CSF, SVD, or FMD introduction via agricultural products for personal consumption depends primarily on EC policies regarding allowable commodities for personal consumption; the extent of passenger traffic from affected regions; and Customs Service inspection, confiscation, and disposal practices at the point of entry.

Risk factors for disease introduction:

1. CSF, SVD, FMD – EC legislation permits personal consignments of meat, fluid milk, and meat and milk products from several countries that APHIS has not evaluated and regards as unknown risk for CSF, SVD, and/or FMD (*see* Section 7.6).
2. CSF, SVD, FMD – Considerable local traffic occurs from neighboring third countries that is subject to Customs inspection (*see* Section 7.6).
3. CSF, SVD, FMD – The Latvian Customs Service inspects a fairly low percentage of the total passenger traffic in the absence of a reported disease outbreak in the originating country (*see* Section 7.6).

Factors mitigating the risk of disease introduction:

1. CSF, SVD, FMD – None of the countries from which the EC allows personal consignments has reported an outbreak of CSF, SVD, or FMD in recent years, if ever, nor have any of the countries bordering Latvia (*see* Section 3.1 – 3.3).
2. CSF, SVD, FMD – Signs indicating prohibited items and prominently placed amnesty bins decrease the amount of illegal products unintentionally carried across the border (*see* Section 7.6).

12.6.3 Summary discussion

Although EC legislation permits personal consignments of products that could carry CSF, SVD, or FMD virus from potentially affected countries, APHIS considers the risk from this quarter to be low. More importantly, the intensity of Customs Service inspection depends in large part on disease reporting of other countries, and the standard level of inspection is not sufficient to allow detection and confiscation of all illegal commodities that could carry live virus.

APHIS considers the risk of introducing CSF or FMD into Latvia to be far greater than SVD, considering the limited geographical distribution of the latter disease. A risk

assessment recently estimated the risk of disease introduction into Great Britain via illegally imported meat to be once in 10 years for CSF, once per 100 years for FMD, and once per billion years for SVD (DEFRA 2004).

Infective virus in agricultural commodities for personal consumption could result in direct exposure of susceptible wild boar or domestic swine populations via waste feeding. Noncompliance with the waste-feeding ban and exposure of domestic swine to infected wild boar are most likely to occur on small swine holdings, which are unlikely to contribute products for export to the United States. Although APHIS considers this a higher risk pathway for CSF or FMD introduction, existing production and biosecurity measures limit the export risk to the United States.

13. Release assessment conclusions

Based on the preceding assessment of the 11 factors specified in 9 CFR 92.2, APHIS has no evidence that CSF, SVD, or FMD currently exists in Latvia. CSF has not been detected since 1996, FMD has not been detected since 1987, and SVD has never been reported. CSF surveillance in domestic swine and wild boar is sufficient to detect an incursion of this disease within the limits of serological diagnosis. Surveillance for SVD and FMD depends heavily on the disease recognition capability of veterinarians and animal caretakers; in the absence of overt clinical signs, detection could be substantially delayed. Once an outbreak is detected, the official veterinary services are well trained and equipped to contain and eliminate the outbreak.

However, APHIS considers the potential for introduction of CSF, SVD, and FMD into Latvia greater in several regards than the current potential for introduction of these diseases into the United States. Specifically, Latvia shares common land borders with several regions that APHIS does not consider free of these diseases, directly imports live animals or animal products from such regions, and engages in free trade with other Member States that import live animals or animal products from such regions.

APHIS has recognized in previous assessments that a reservoir of CSF infections exists in wild boar in the EU-15 (APHIS 2000; APHIS 2004a). This reservoir is likely to produce continuing CSF outbreaks in domestic swine in the EU. However, APHIS concluded from these assessments that EC control measures were sufficient to detect and contain any outbreaks that might occur. This assessment verified that the same EC control measures apply in Poland as in the EU-15.

APHIS' current regulations recognize an equivalent level of risk across the EU-15 due to harmonized EC legislation and trading on the internal common market. The EU-15 is considered a low-risk region for CSF for the purposes of export to the United States and is subject to the import conditions specified in 9 CFR 94.24 for breeding swine, pork, and pork products, and 9 CFR 98.38 for swine semen. APHIS also recognizes the EU-15 as free of FMD and most parts free of SVD, but subject to import restrictions specified in 9 CSF 94.13 and 94.11, respectively. These restrictions are based on the existence of common land borders with regions not considered free and/or import of live animals or animal products from such regions.

The risk profile of Latvia resembles that of the EU-15; APHIS therefore considers the export risk from Latvia to be equivalent to that of the EU-15 with regard to CSF, SVD, and FMD. Applying provisions of 9 CFR 94.11, 94.13, 94.24, and 98.38 to Latvia would address the risk issues discussed in Section 12 and result in a level of risk that is equivalent to that portion of the EU authorized to export breeding swine, swine semen, and fresh pork to the United States.

The text of 9 CFR 94.11, 94.13, 94.24, and 98.38 is provided in Annex 2. In summary, these CFR sections mitigate the risks associated with less restrictive trade practices by (1) restricting the sourcing of swine and ruminants for live export or slaughter to regions free of the pertinent diseases; (2) prohibiting commingling of live animals, meat, or meat products for export with such commodities from regions not considered free of these diseases; (3) restricting the use of transportation equipment for live swine; and (4) requiring exporting slaughter establishments to be approved by the U.S. Food Safety and

Inspection Service (FSIS). An official veterinarian of the exporting country must certify that these conditions have been met.

The CFR provisions do not directly address the risk of exporting infected live animals or animal products during the period between virus incursion and outbreak detection. However, 9 CFR 94.24 and 98.38 substantially mitigate this risk by prohibiting sourcing of swine from a restricted zone established because of detection of CSF in wild boar or a CSF outbreak in domestic swine, as well as for the 6 months following depopulation, cleaning, and disinfection of the last infected premises in the zone. In addition, swine semen centers must be approved by the national government of the exporting country, which provides substantial risk mitigation under EC legislation.

Biosecurity measures and production practices on swine confinement operations most likely to export to the United States limit exposure risk as discussed in Section 12. Other potential mitigation measures include a mandatory period of observation and/or diagnostic testing prior to live export or slaughtering for export. However, since the results of this assessment indicated that Latvia is currently free of CSF, SVD, and FMD, these measures are not necessary.

Exposure assessment

An exposure assessment as defined by OIE describes the biological pathway(s) necessary for exposure of animals and humans in an importing country to the hazards released from a given risk source, and estimates the probability of the exposure(s) occurring (OIE 2005b). APHIS' regulatory authority is limited to animal health, however, so potential risks to animals are the primary focus of this evaluation.

APHIS considers that the most likely pathway of exposure of domestic livestock to CSF, SVD, and FMD viruses in meat (pork or beef) and meat products is through feeding of contaminated food waste to swine (APHIS 2001). Other exposure pathways are more direct and include contact with imported infected live animals or contact with infected genetic material.

1. Waste feeding to susceptible swine

1.3 Waste-feeding practices in the United States

The likelihood of exposure of susceptible species to virus-infected meat was evaluated in previous APHIS studies. In 1995, APHIS conducted a pathway analysis to estimate the likelihood of exposing swine to infected waste (APHIS 1995). The analysis included two pathways for exposure of swine to contaminated waste; namely, exposure associated with illegal household imports, and exposure associated with legal imports. The latter is the exposure pathway that would be applicable to importing meat or meat products from Latvia. With 95% confidence, APHIS estimated that 0.023% or less of plate and manufacturing waste would be inadequately processed prior to feeding to swine (APHIS 1995). Based on this fraction, less than 1 part in 4,300 (reciprocal of 0.023%) of imported meat is likely to be fed to swine as inadequately cooked waste.

APHIS conducted a survey in 2001 of the U.S. swine waste-feeding sector to update a similar study done in 1994 (APHIS 2002). Based on this survey, APHIS estimated that the proportion of plate and manufacturing waste fed to swine diminished by about 50% between 1994 and 2001 due to a significant decrease in the number of waste-feeding premises. The study also found that:

1. Several more states prohibited feeding food wastes to swine;
2. The number of waste-feeding premises in the continental United States decreased by 40.5% from 1994-2001, and in Hawaii and Puerto Rico decreased by 37.5% and 52.3%, respectively; and
3. Institutions and restaurants provide nearly 90% of all plate waste fed to swine.

APHIS considers that prohibiting the feeding of unprocessed plate waste to swine has further contributed to the reduction of waste-feeding to swine. Waste-feeder operations must be licensed and inspected regularly by U.S. Department of Agriculture inspectors (9 CFR 166). The licensing process requires that producers adequately cook the waste fed to swine using methods designed to destroy foreign animal disease agents.

Based on the 1995 estimate that a very small proportion of food waste is inadequately processed prior to feeding to swine, and the substantial reduction in waste-feeding operations in recent years, APHIS concludes the likelihood of exposure of susceptible swine to CSF, SVD, or FMD viruses through inadequately processed food waste is low.

Based on the results of the release assessment, APHIS further regards the probability of exposure of susceptible swine to these viruses through inadequately cooked infected meat from Latvia as low.

2. Imported live animals

The likelihood of exposure of susceptible species to infected live animals was evaluated by briefly reviewing virus persistence and shedding in live swine and ruminants, as well as standard import requirements for these species. The exposure assessment focuses on breeding animals because transportation costs are prohibitive for export of other live animals (e.g. feeder pigs or cattle) to the United States from EU Member States. APHIS considers exposure of a susceptible U.S. animal population to illegally imported infected live animals from Latvia to be highly unlikely.

The survival period of CSF virus within live swine ranges from 1 week to greater than 6 months depending on various host-pathogen factors. Similarly, up to 50% of ruminant animals may become carriers of FMD virus (Alexandersen 2003). The maximum reported duration of the carrier state is 3.5 years in cattle, 9 months in sheep, and 4 months in goats. Carrier virus is fully infectious and consequently the carrier state is associated with at least a theoretical risk of introducing FMD into a susceptible population. Although SVD virus is not known to cause persistent infection, a large percentage of infections are subclinical and therefore may remain undetected without diagnostic testing prior to export.

Consequently, APHIS considers this potential pathway for disease introduction to have a high unmitigated risk. Current U.S. regulations require certification that ruminants and swine have been kept in a region entirely free of FMD for 60 days prior to export (9 CFR 93.405 and 93.505) and also require a minimum quarantine of 30 days for most imported ruminants (9 CFR 93.411) and 15 days for all imported swine (9 CFR 93.510). These requirements serve to partially mitigate the risk of exposure by increasing the probability of FMD detection in ruminants and detection of CSF and SVD in swine.

Based on the results of the release assessment, APHIS considers the probability of exposure of susceptible animals to CSF, SVD, or FMD viruses via live animals from Latvia to be low. With the mitigation measures for live swine described in 9 CFR 94.24, which further limit the sourcing of swine for export (see footnote on page 29), the probability of exposure of susceptible U.S. swine to CSF virus via infected swine from Latvia is very low.

3. Imported genetic material

Genetic material has been implicated in the introduction of foreign animal disease into susceptible populations, as well as the spread of established disease epidemics over considerable distances. For example, two semen collection centers became infected during the course of the 1997-1998 CSF epidemic in the Netherlands (Hennecken et al 2000). Potentially contaminated semen was distributed to 1,680 swine herds over the course of 5 weeks, during which the disease remained undetected in the donor boars. Although investigators concluded that only 36 farms had been infected through artificial insemination, all suspect farms were subject to quarantine and testing, resulting in a tremendous expenditure of resources.

Survival of CSF virus in semen has been estimated in experimental studies to be 12-72 hours are 20°C but ranges from 1 month to several years at 4°C or below (Floegel et al 2000). Survival in embryos and ova is unknown (Floegel et al 2000; Glossup and Cameron 2002). Survival of SVD virus in genetic material is possible but is not considered to be a primary mode of transmission (OIE 2005a). FMD virus may be present in semen up to 4 days before clinical signs become apparent (OIE 2005a).

Based on the extended period of survival of CSF and FMD viruses in frozen semen, APHIS considers the unmitigated likelihood of exposure of susceptible animals to these viruses in infected semen to be high. However, based on the results of the release assessment, APHIS considers the probability of exposure of susceptible animals to CSF or FMD viruses via infected semen from Latvia to be low. With the mitigation measures for swine semen described in 9 CFR 98.38 (see footnote on page 29), the probability of exposure of susceptible swine to CSF or SVD virus via infected semen from Latvia is very low.

Consequence assessment

A consequence assessment describes the biologic and economic consequences of introducing the hazards under consideration into the United States. This consequence assessment addresses both direct and indirect consequences as recommended by the OIE (OIE 2005b).

The magnitude of the biologic and economic consequences following an introduction of CSF, SVD, or FMD virus would depend on the location of the introduction; the virus serotype introduced; the rate of virus spread and whether other environmental conditions at the introduction site that might facilitate this spread; the ability to detect the disease rapidly; livestock demographics and movement patterns; and the ease of employing eradication procedures (McCauley 1979). In addition, depending on the extent of export of livestock and their products, trade restrictions imposed by trading partners may result in severe economic consequences.

Direct consequences include effects of the disease on animal health and the subsequent production losses, the total costs of control and eradication, the effect on the environment, and public health consequences. Indirect consequences include impacts on international trade and associated domestic consequences.

1. Effects on animal health and production

1.1 Classical swine fever

CSF infection may take an acute or a chronic course. The severity of the disease depends largely on the age of the animal and virulence of the viral strain, with young animals usually more severely affected than older animals. In older breeding pigs the course of infection is often mild or even subclinical, whereas mortality rates may reach 90% in young pigs (Moennig 2000). Low virulence strains may manifest primarily as poor reproductive performance and birth of piglets with neurologic defects.

1.2 Swine vesicular disease

SVD is typically a transient vesicular disease of pigs. The virus causes essentially no mortality, and infected pigs generally recover within one week (up to three weeks). Some strains produce only mild clinical symptoms or are asymptomatic (OIE 2005a). Morbidity rates may be low throughout a whole herd but high in certain pens.

1.3 Foot and mouth disease

FMD causes significant distress and suffering to animals regardless of the size and sophistication of their livestock unit. Very high mortality rates in young animals can occur, particularly among pigs and sheep (Alexandersen 2003; Dunn and Donaldson 1997; Geering 1995). Mortality in older animals occurs less frequently but may be significant with certain virus strains.

FMD also causes significant losses in the production capacity of affected animals. Productivity losses of 10-20% are reported in FMD-infected livestock if the disease is allowed to run its course (McCauley 1979). In addition, FMD can cause a reduction in the growth rate of animals raised for meat (Doel 2003). The comparatively greater severity of FMD in pigs would imply at least similar losses to those described for cattle.

2. Control and eradication costs

The overall cost of control and eradication depends on the mitigation or policy option chosen to control and eradicate the disease. Potential costs include disease control measures such as imposing quarantine measures and movement controls, direct costs related to stamping out of affected and other herds, indemnity payments, vaccination costs, surveillance and laboratory testing, etc. For disease-free countries like the United States that have a substantial export market for livestock and livestock products, the preferred option for control and eradication has traditionally been to stamp-out infected herds without the use of vaccine.

The U.S. policy for most significant foreign animal disease emergencies is to follow strict quarantine measures and stamping-out of infected and contact herds with ongoing assessment for the need for and implementation of strategic vaccination. Available data do not allow quantification of the number of herds/farms that would be infected if one of these diseases were introduced. Nevertheless, the cost of control, eradication and compensation is likely to be significant.

1.1 Classical swine fever

Since there have been no CSF outbreaks in the United States from which economic estimates can be derived, estimates of economic effects in other countries are provided as illustrations. Saatkamp et al (2000) reviewed the economic aspects of control of small and large CSF outbreaks in the EU from 1990-1997. For the largest outbreak, involving 429 herds over 14 months, the cost of removal of affected swine was 426.9 million Euros, slaughter for welfare purposes cost 1.2 billion Euros, and program operational costs were 134.3 million Euros. Overall, the outbreak cost pig producers 712.4 million Euros, the national government 230.5 million Euros, and the EU 807.8 million Euros. The total cost of smaller outbreaks ranged from 10.9 million Euros (8 affected herds over 2 months) to 208.7 million Euros (113 affected herds over 10 months) (Saatkamp et al 2000). Approximately 10 million pigs were destroyed during the course of the outbreak, primarily for welfare reasons (overcrowding or overweight) (Stegeman et al 2000).

Garner et al (2001) estimated the potential economic impact of CSF on the pig industry of Australia using a stochastic modeling process. The model estimated a loss in gross income of 28-37% for the pig industry in the affected region, and a 9-11% loss in gross income for the national pig industry.

1.2 Swine vesicular disease

Little information exists on the cost of control and eradication of SVD in a previously free region. SVD virus generally does not spread as quickly as CSF virus; even on infected premises, spread from one pen to another may not occur in the absence of a common open drainage system or of frequent movement of pigs between pens (Lin and Kitching 2000). However, a SVD outbreak may not be detected for weeks or even months due to the frequently mild nature of the disease, allowing ample time for spread to other swine establishments. In addition, the virus is extraordinarily stable in the environment, which could lead to disease recurrence on previously infected farms.

In the absence of specific data on the cost of control and eradication, APHIS assumes a baseline cost similar to that of a small- to medium-sized CSF outbreaks (see above).

1.3 Foot and mouth disease

A few studies have estimated the potential consequences of an FMD outbreak in the United States. Bates et al (2003) used results from a FMD simulation model to estimate the direct costs associated with indemnity, slaughter, cleaning and disinfecting livestock premises for various vaccination and eradication strategies to control transmission of FMDV in a cattle population of 2,238 herds and 5 sale yards located in 3 counties of California. The study found that mean herd indemnity payments were USD 2.6 million and USD 110,359 for dairy and non-dairy herds, respectively. Cleaning and disinfection costs ranged from USD 18,062 – 60,205 per herd. The mean vaccination cost was USD 2,960 per herd and the total eradication cost ranged from USD 61 million – 551 million depending on eradication strategy.

At the national level, McCauley et al (1979) conducted a comprehensive study to assess the potential economic impact of FMD in the whole of the United States. The study estimated the direct costs (control and eradication program costs) and increased costs borne by consumers of FMD introduction over a 15-year period (1976-1990). Using the Consumer Price Index to update to 2001, the estimated total cost of a strict quarantine and slaughter policy was USD 34.4 million.

3. Effect on the environment

Environmental effects have been considered under all applicable environmental review laws in force in the United States. These are considered in a separate, but related, environmental assessment conducted for certain regions of the EU (APHIS 2003). The environmental assessment complies with the National Environmental Policy Act (NEPA) and implementing regulations (NEPA 1969).

4. Effect on public health

Although public health consequences are not issues under APHIS' regulatory authority, the issue is briefly addressed in this assessment. Direct public health consequences are insubstantial because the occurrence of CSF, SVD, or FMD virus in humans is quite rare. In fact, the number of cases reported is so small when compared with the number of persons exposed to these viruses that the World Health Organization generally does not consider CSF, SVD, and FMD to be a threat to humans.

Perhaps more importantly, a substantial foreign animal disease outbreak can result in severe psychosocial effects on farmers and farming communities. Farmers and their families can suffer from grief over losing animals, in some cases blood lines kept over many generations, as well as loss of control over their lives due to movement restrictions, disruptions in community life, and short- and long-term stress over their financial future. For example, a study of the social consequences of the 2001 FMD outbreak in the Cumbria community of the United Kingdom revealed high rates of depression, alcohol consumption, and mortality among farmers during the crisis (Anonymous 2004).

5. Indirect consequences

In addition to the direct costs of CSF, SVD, or FMD introduction, impacts on international trade and related domestic consequences need to be considered. Export losses due to restrictions imposed by trade partners on animals and products susceptible

to these diseases could run into billions of U.S. dollars. The value of U.S. exports of pork and pork products, which would be immediately lost if an outbreak of one of these diseases occurred, was an estimated USD 1.3 billion in 2003 (FAS 2003). Similarly, the value of U.S. exports of beef products alone, which would also be lost in an FMD outbreak, was over USD 3 billion in 2001. Since the United States exports only small amounts of lamb and mutton, economic losses associated with these commodities are not likely to be significant compared to cattle and swine.

The impact of an outbreak of a foreign animal disease on the rural and regional economic viability, including businesses reliant on livestock revenue, could also be substantial. For example, Paarlberg et al. (2002) conducted a study to estimate the potential revenue impact of an FMD outbreak in the United States similar to the one that occurred in the United Kingdom in 2001. This study estimated the gross revenue losses for the animal sector as follows: live cattle (17%), beef (20%), milk (16%), live swine (34%), pork (24%), live sheep and lambs (14%), and sheep and lamb meat (10%).

Indirect economic losses to U.S. firms that support export markets for live animals and animal products could also be substantial. For example, such firms would stand to lose at least USD 2.5 billion annually if ruminant export markets were lost (Green and Grannis 2003). More than 33 thousand full-time U.S. jobs, accounting for almost $1 billion in wages annually, could be jeopardized by loss of these three markets. In the longer term, if trade restrictions persisted and alternative export markets did not develop, the U.S. ruminant production sector could contract, allowing other supplying countries to establish trade relationships in the absence of U.S. supply. Losses due to restrictions on live swine, pork, and pork products are likely to be significant as well.

Risk Estimation

Risk estimation consists of integrating the results from the release assessment, exposure assessment, and consequence assessment to produce overall measures of risk associated with the hazards identified at the outset. Thus, risk estimation takes into account the whole risk pathway from hazard identified to the unwanted event.

APHIS concludes from the release assessment that there is no evidence that CSF, SVD, or FMD viruses currently exist in Latvia. APHIS considers the risk potential for introduction of these hazards from Latvia into the United States via export of swine and ruminant commodities to be low. In keeping with previous analyses, APHIS also concludes that there is an equivalent low level of risk across all of the EU Member States that are unaffected by these hazards. Further risk reduction would be gained if mitigation measures for Latvia are implemented that are equivalent to those specified for other EU Member States in 9 CFR 94.11, 94.13, 94.24, and 98.38.

APHIS concludes from the exposure assessment that the probability of exposure of susceptible U.S. livestock to CSF, SVD, or FMD viruses via meat or meat products, live animals, or genetic material from Latvia is low. Applying risk mitigation measures similar to those described in 9 CFR 94.24 for live swine, pork, and pork products, and 9 CFR 98.38 for swine semen, would reduce that low risk even further.

Conversely, APHIS concludes that the animal health and economic consequences of a CSF, SVD, or FMD outbreak in the United States would be severe. Although control and eradication measures would be costly, the major economic impact would likely result from export trade losses.

In summary, although a CSF, SVD, or FMD outbreak in the United States would be likely to have severe animal health and economic consequences, APHIS considers the risk of infected live swine and ruminants, or commodities derived from these species, entering the United States from Latvia and exposing U.S. livestock to be low. This risk is further mitigated if Latvia is subject to the same mitigations measures as are specified for other EU Member States in 9 CFR 94.11, 94.13, 94.24, and 98.38.

Annexes

Annex 1: Latvia import and export statistics 2000 – 2004 (GTA 2006).

Table 1A: Import of live swine 2002 – 2004

Partner Country	Quantity			% Share		
	2002	2003	2004	2002	2003	2004
World	99875	55487	43493	100.00	100.00	100.00
Estonia	66126	46666	38687	66.21	84.10	88.95
Lithuania	33554	7355	4020	33.60	13.26	9.24
Denmark	10	637	781	0.01	1.15	1.80
Austria	0	3	5	0.00	0.01	0.01
Belgium	59	82	0	0.06	0.15	0.00
France	126	0	0	0.13	0.00	0.00
Germany	0	3	0	0.00	0.01	0.00
Netherlands	0	15	0	0.00	0.03	0.00
Poland	0	706	0	0.00	1.27	0.00
Sweden	0	20	0	0.00	0.04	0.00

Table 1B: Export of live swine 2002 – 2004

Partner Country	Quantity			% Share		
	2002	2003	2004	2002	2003	2004
World	20	0	0	100.00	n/a	n/a
Russia	20	0	0	100.00	n/a	n/a

Table 1C: Import of live sheep and goats 2002 – 2004

Partner Country	Quantity			% Share		
	2002	2003	2004	2002	2003	2004
World	20	25	0	100.00	100.00	n/a
Estonia	0	22	0	0.00	88.00	n/a
Germany	20	0	0	100.00	0.00	n/a
Russia	0	3	0	0.00	12.00	n/a

Table 1D: Export of live sheep and goats 2002 – 2004

Partner Country	Quantity			% Share		
	2002	2003	2004	2002	2003	2004
World	0	5	0	n/a	100.00	n/a
Russia	0	5	0	n/a	100.00	n/a

Table 1E: Import of live cattle 2002 – 2004

Partner Country	Quantity			% Share		
	2002	2003	2004	2002	2003	2004
World	9329	11858	7293	100.00	100.00	100.00
Lithuania	3622	7275	5300	38.83	61.35	72.67
Estonia	5671	4554	1840	60.79	38.40	25.23
Netherlands	14	0	141	0.15	0.00	1.93
Denmark	0	0	12	0.00	0.00	0.16
Sweden	22	29	0	0.24	0.24	0.00

Table 1F: Import of fresh, chilled, or frozen pork

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	11751	17078	16733	100.00	100.00	100.00
Poland	T	1363	7465	5812	11.60	43.71	34.73
Germany	T	2293	2539	5456	19.51	14.87	32.61
Estonia	T	5397	4868	3090	45.93	28.50	18.46
Spain	T	126	118	536	1.07	0.69	3.20
Lithuania	T	1822	1209	483	15.51	7.08	2.89
France	T	490	390	345	4.17	2.29	2.06
Denmark	T	162	375	233	1.38	2.19	1.39
Finland	T	0	0	217	0.00	0.00	1.29
Belgium	T	79	104	209	0.67	0.61	1.25
Austria	T	0	0	208	0.00	0.00	1.24
Netherlands	T	4	7	70	0.03	0.04	0.42
Italy	T	0	0	41	0.00	0.00	0.24
Sweden	T	12	0	28	0.10	0.00	0.16
United Kingdom	T	0	0	6	0.00	0.00	0.04
Ireland	T	0	0	2	0.00	0.00	0.01
Belarus	T	3	4	0	0.03	0.02	0.00

Table 1G: Export of fresh, frozen, or chilled pork

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	29	48	52	100.00	100.00	100.00
Not Determined	T	8	17	17	25.85	34.72	33.53
Extra EU Trade	T	0	0	17	0.00	0.00	32.95
Russia	T	0	0	7	0.00	0.21	12.52
Stores & Provisions	T	0	0	3	0.00	0.00	6.17
Liberia	T	0	0	3	0.00	0.00	4.82
Estonia	T	0	0	1	0.00	0.00	2.12
Norway	T	0	0	1	0.00	0.21	1.54
Panama	T	1	0	1	4.42	0.00	1.35
Marshall Islands	T	0	0	1	1.02	0.00	0.96
Malta	T	2	0	0	7.14	0.21	0.77
St. Vincent/Grenadines	T	0	0	0	0.00	0.00	0.58
Denmark	T	0	0	0	0.00	0.00	0.58
Belize	T	0	0	0	0.00	0.00	0.58
Cyprus	T	0	1	0	0.68	1.25	0.39
France	T	0	0	0	0.00	0.00	0.39
Portugal	T	0	0	0	0.00	0.00	0.39
Germany	T	0	22	0	0.34	44.91	0.19
Gibraltar	T	0	0	0	0.00	0.00	0.19
Greece	T	0	0	0	0.68	0.00	0.00
India	T	0	0	0	0.00	0.00	0.00
Georgia	T	0	0	0	0.68	0.00	0.00
Lithuania	T	17	9	0	59.18	18.50	0.00
Dominica	T	0	0	0	0.00	0.00	0.00
Cambodia	T	0	0	0	0.00	0.00	0.00
Antigua & Barbuda	T	0	0	0	0.00	0.00	0.00
Bahamas	T	0	0	0	0.00	0.00	0.00
Myanmar	T	0	0	0	0.00	0.00	0.00
Netherlands	T	0	0	0	0.00	0.00	0.00
NL Antilles (Curacao)	T	0	0	0	0.00	0.00	0.00
Sweden	T	0	0	0	0.00	0.00	0.00
United Kingdom	T	0	0	0	0.00	0.00	0.00

Table 1H: Import of fresh or chilled beef

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	2666	2329	1508	100.00	100.00	100.00
Lithuania	T	2644	2329	1449	99.19	100.00	96.11
Estonia	T	0	0	30	0.00	0.00	1.96
Poland	T	22	0	27	0.81	0.00	1.78
Italy	T	0	0	2	0.00	0.00	0.10
France	T	0	0	0	0.00	0.00	0.03
Germany	T	0	0	0	0.00	0.00	0.01

Table 1I: Export of fresh or chilled beef

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	8	2	1	100.00	100.00	100.00
Extra EU Trade	T	0	0	1	0.00	0.00	57.14
Liberia	T	0	0	0	0.00	4.76	21.43
Not Determined	T	1	2	0	7.23	85.71	14.29
Russia	T	0	0	0	0.00	0.00	7.14
St. Vincent/Grenadines	T	0	0	0	0.00	0.00	0.00
Lithuania	T	8	0	0	90.36	0.00	0.00
Malta	T	0	0	0	0.00	4.76	0.00
Myanmar	T	0	0	0	0.00	0.00	0.00
NL Antilles (Curacao)	T	0	0	0	0.00	0.00	0.00
Norway	T	0	0	0	0.00	0.00	0.00
Antigua & Barbuda	T	0	0	0	0.00	0.00	0.00
Belize	T	0	0	0	0.00	0.00	0.00
Cambodia	T	0	0	0	0.00	0.00	0.00
Cyprus	T	0	0	0	0.00	0.00	0.00
Denmark	T	0	0	0	0.00	0.00	0.00
Estonia	T	0	0	0	0.00	0.00	0.00
Stores & Provisions	T	0	0	0	0.00	0.00	0.00
Georgia	T	0	0	0	2.41	0.00	0.00
Hong Kong	T	0	0	0	0.00	4.76	0.00
Iceland	T	0	0	0	0.00	0.00	0.00

Table 1J: Import of fresh, chilled, or frozen sheep and goat meat

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	49	64	40	100.00	100.00	100.00
New Zealand	T	0	12	22	0.00	18.87	54.57
Australia	T	42	48	7	86.33	75.47	17.04
Denmark	T	0	0	5	0.00	0.00	11.60
Lithuania	T	7	4	3	13.67	5.66	8.40
France	T	0	0	3	0.00	0.00	7.16
Estonia	T	0	0	1	0.00	0.00	1.23
Germany	T	0	0	0	0.00	0.00	0.00

Table 1K: Export of fresh, chilled, or frozen sheep and goat meat

Partner Country	Unit	Quantity			% Share		
		2002	2003	2004	2002	2003	2004
World	T	0	0	2	100.00	100.00	100.00
Russia	T	0	0	1	0.00	0.00	29.41
Extra EU Trade	T	0	0	0	0.00	0.00	23.53
Lithuania	T	0	0	0	0.00	0.00	23.53
Marshall Islands	T	0	0	0	0.00	0.00	5.88
Not Determined	T	0	0	0	50.00	50.00	5.88
St. Vincent/Grenadines	T	0	0	0	0.00	0.00	5.88
Liberia	T	0	0	0	0.00	25.00	5.88
Panama	T	0	0	0	50.00	0.00	0.00
Portugal	T	0	0	0	0.00	0.00	0.00
NL Antilles (Curacao)	T	0	0	0	0.00	0.00	0.00
Norway	T	0	0	0	0.00	0.00	0.00
Malta	T	0	0	0	0.00	0.00	0.00
Belize	T	0	0	0	0.00	0.00	0.00
Stores & Provisions	T	0	0	0	0.00	0.00	0.00
EU Stores & Provisions	T	0	0	0	0.00	0.00	0.00
Italy	T	0	0	0	0.00	25.00	0.00

Annex 2: Text of Title 9 *Code of Federal Regulations* 94.11, 94.13, 94.24, and 98.38.

9 CFR 94.11: Restrictions on importation of meat and other animal products from specified regions.

(a) Austria, The Bahamas, Belgium, Channel Islands, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, The Netherlands, Norway, Papua New Guinea, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom, which are declared in Sec. 94.1(a)(2) to be free of rinderpest and foot-and-mouth disease, supplement their national meat supply by the importation of fresh (chilled or frozen) meat of ruminants or swine from regions that are designated in Sec. 94.1(a) to be infected with rinderpest or foot-and-mouth disease; or have a common land border with regions designated as infected with rinderpest or foot-and-mouth disease; or import ruminants or swine from regions designated as infected with rinderpest or foot-and-mouth disease under conditions less restrictive than would be acceptable for importation into the United States. Thus, even though this Department has declared such regions to be free of rinderpest and foot-and-mouth disease, the meat and other animal products produced in such free regions may be commingled with the fresh (chilled or frozen) meat of animals from an infected region, resulting in an undue risk of introducing rinderpest or foot-and-mouth disease into the United States. Therefore, meat of ruminants or swine, and other animal products, and ship stores, airplane meals, and baggage containing such meat or animal products originating in the free regions listed in this section shall not be imported into the United States unless the following requirements in addition to other applicable requirements of chapter III of this title are met. However, meat and meat products which meet the requirements of Sec. 94.4 do not have to comply with the requirements of this section. As used in this section the term "other animal product" means all parts of the carcass of any ruminant or swine, other than meat and articles regulated under part 95 or 96 of this chapter.

(b) All meat or other animal product from such regions, whether in personal-use amounts or commercial lots (except that which has been fully cooked by a commercial method in a container hermetically sealed promptly after filling but before such cooking and sealing produced a fully sterilized product which is shelf-stable without refrigeration) shall have been prepared only in an inspected establishment that is eligible to have its products imported into the United States under the Federal Meat Inspection Act (21 U.S.C. 601 et seq.) and the regulations in Sec. 327.2, chapter III of this title, issued thereunder, and shall be accompanied by a Department-approved meat inspection certificate prescribed in Sec. 327.4 in chapter III of this title, or similar certificate approved by the Administrator, as adequate to effectuate the purposes of this section, regardless of the purpose or amount of product in the shipment.

(c) Additional certification. Meat of ruminants or swine or other animal products from regions designated in paragraph (a) of this section must be accompanied by additional certification by a full-time salaried veterinary official of the agency in the national government that is responsible for the health of the product in the United States, the certification must be presented to an authorized inspector at the port of arrival. The certification must give the name and official establishment number of the establishment where the animals were slaughtered, and shall state that:

(1) The slaughtering establishment is not permitted to receive animals that originated in, or have ever been in, or that have been aboard a means of conveyance at the time such means of conveyance called at or landed at a port in, a region listed in Sec. 94.1(a) as a region infected with rinderpest or foot-and-mouth disease;

(2) The slaughtering establishment is not permitted to receive meat or other animal products derived from ruminants or swine which originated in such a rinderpest or foot-and-mouth disease infected region, or meat or other animal products from a rinderpest and foot-and-mouth disease free region transported through a rinderpest or foot-and-mouth disease infected region except in containers sealed with serially numbered seals of the National Government of the noninfected region of origin;

(3) The meat or other animal product covered by the certificate was derived from animals born and raised in a region listed in Sec. 94.1(a)(2) as free of rinderpest and foot-and-mouth disease and the meat or other animal product has never been in any region in which rinderpest or foot-and-mouth disease existed;

(4) The meat or other animal product has been processed, stored, and transported to the means of conveyance that will bring the article to the United States in a manner to preclude its being commingled or

otherwise in contact with meat or other animal products that do not comply with the conditions contained in this certificate.

9 CFR 94.13: Restrictions on importation of pork or pork products from specified regions

Austria, the Bahamas, Belgium, Bulgaria, Chile, Denmark, France, Germany, Hungary, Luxembourg, the Netherlands, Portugal, Republic of Ireland, Spain, Switzerland, the United Kingdom (England, Scotland, Wales, the Isle of Man, and Northern Ireland), Yugoslavia, and the Regions in Italy of Friuli, Liguria, Marche, and Valle d'Aosta are declared free of swine vesicular disease in Sec. 94.12(a) of this part.

These regions either supplement their national pork supply by the importation of fresh (chilled or frozen) meat of animals from regions where swine vesicular disease is considered to exist, have a common border with such regions, or have trade practices that are less restrictive than are acceptable to the United States. Thus, the pork or pork products produced in such regions may be commingled with fresh (chilled or frozen) meat of animals from a region where swine vesicular disease is considered to exist, resulting in an undue risk of swine vesicular disease introduction into the United States. Therefore, pork or pork products and ship's stores, airplane meals, and baggage containing such pork, other than those articles regulated under part 95 or part 96 of this chapter, produced in such regions shall not be brought into the United States unless the following requirements are met in addition to other applicable requirements of part 327 of this title:

(a) All such pork or pork products, except those treated in accordance with Sec. 94.12(b)(1)(i) of this part, shall have been prepared only in inspected establishments that are eligible to have their products imported into the United States under the Federal Meat Inspection Act (21 U.S.C. 601 et seq.) and under Sec. 327.2 of this title and shall be accompanied by the foreign meat inspection certificate required by Sec. 327.4 of this title. Upon arrival of the pork or pork products in the United States, the foreign meat inspection certificate must be presented to an authorized inspector at the port of arrival.

(b) Unless such pork or pork products are treated according to one of the procedures described in Sec. 94.12(b) of this part, the pork or pork products must be accompanied by an additional certificate issued by a full-time salaried veterinary official of the agency in the national government responsible for the health of the animals within that region. Upon arrival of the pork or pork products in the United States, the certificate must be presented to an authorized inspector at the port of arrival. The certificate shall state the name and official establishment number of the establishment where the swine involved were slaughtered and the pork was processed. The certificate shall also state that:

(1) The slaughtering establishment is not permitted to receive animals that originated in, or have ever been in a region listed in Sec. 94.12(a) as a region in which swine vesicular disease is considered to exist;

(2) The slaughtering establishment is not permitted to receive pork derived from swine which originated in such a region or pork from swine from a swine vesicular disease free region which has been transported through a region where swine vesicular disease is considered to exist except pork which was transported in containers sealed with serially numbered seals of the National Government of a region of origin listed in Sec. 94.12 as a region considered free of the disease.

(3) The pork has been processed, stored, and transported to the means of conveyance that will bring the article to the United States in a manner that precludes its being commingled or otherwise coming in contact with pork or pork products that have not been handled in accordance with the requirements of this section.

9 CFR 94.24: Restrictions on the importation of pork, pork products, and swine from the EU-15.

(a) Pork and pork products. In addition to meeting all other applicable provisions of this part, fresh pork and pork products imported from the EU-15 must meet the following conditions:

(1) The pork or pork products must not have been derived from swine that were in any of the regions described in paragraphs (a)(1)(i) through (a)(1)(iii) of this section during the periods described, unless the swine were slaughtered after the periods described:

(i) Any region when the region was classified in §§ 94.9(a) and 94.10(a) as one in which classical

swine fever is known to exist, except for the EU-15;

(ii) In a restricted zone in the EU-15 established because of an outbreak of classical swine fever in domestic swine, from the time of the outbreak until the designation of the zone as a restricted zone is removed by the competent veterinary authority of an EU-15 Member State or until 6 months following depopulation of the swine on affected premises in the restricted zone and the cleaning and disinfection of the last affected premises in the zone, whichever is later; or

(iii) In a restricted zone in the EU-15 established because of the detection of classical swine fever in wild boar, before the designation of the zone as a restricted zone is removed by the competent veterinary authority of an EU-15 Member State.

(2) The pork and pork products must not have been commingled with pork or pork products derived from swine that were in any of the regions or zones described in paragraphs (a)(1)(i) through (a)(1)(iii) of this section at any time during the periods described, unless the swine were slaughtered after the periods described. Additionally, the pork and pork products must not have been derived from swine that were commingled with swine that were in any of the regions or zones described in paragraphs (a)(1)(i) through (a)(1)(iii) of this section at any time during the periods described, unless the swine were slaughtered after the periods described.

(3) The swine from which the pork or pork products were derived must not have transited any region or zone described in paragraph (a)(1)(i) through (a)(1)(iii) of this section during the periods described, unless moved directly through the region or zone in a sealed means of conveyance with the seal determined to be intact upon arrival at the point of destination, or unless the swine were slaughtered after the periods described.

(4) The pork and pork products must be accompanied by a certificate issued by an official of the competent veterinary authority of the EU-15 Member State who is authorized to issue the foreign meat inspection certificate required by § 327.4 of this title, stating that the applicable provisions of paragraphs (a)(1) through (a)(3) of this section have been met.

(b) Live swine. In addition to meeting all other applicable provisions of this title, live swine imported from the EU-15 must meet the following conditions:

(1) The swine must be breeding swine;

(2) The swine must not have been in any of the following regions or zones at any time during the periods described in paragraphs (b)(2)(i) through (b)(2)(iii) of this section:

(i) Any region when the region was classified in §§ 94.9(a) and 94.10(a) as one in which classical swine fever is known to exist, except for the EU-15, unless the swine are exported to the United States after APHIS removes its classification of the region as one in which classical swine fever is known to exist;

(ii) In a restricted zone in the EU-15 established because of an outbreak of classical swine fever in domestic swine, unless the swine are exported after the designation of the zone as a restricted zone is removed by the competent veterinary authority of an EU-15 Member State or after 6 months following depopulation of the swine on affected premises in the restricted zone and the cleaning and disinfection of the last affected premises in the zone, whichever is later; or

(iii) In a restricted zone in the EU-15 established because of the detection of classical swine fever in wild boar, unless the swine are exported after the designation of the zone as a restricted zone is removed by the competent veterinary authority of an EU-15 Member State;

(3) The swine must not have been commingled with swine that have at any time been in any of the regions described in paragraphs (b)(1)(i) through (b)(1)(iii) of this section during the periods described, unless the swine are exported after the periods described;

(3) The swine must not have transited any region or zone described in paragraph (b)(2) of this section during the periods described, unless moved directly through the region or zone in a sealed means of conveyance with the seal determined to be intact upon arrival at the point of destination, or unless the swine are exported after the periods described;

(4) No equipment or materials used in transporting the swine may have previously been used for

transporting swine that do not meet the requirements of this section, unless the equipment and materials have first been cleaned and disinfected; and

(5) The swine must be accompanied by a certificate issued by a salaried veterinary officer of the competent veterinary authority of the EU-15 Member State, stating that the conditions of paragraphs (b)(1) through (b)(4) of this section have been met.

(c) The certificates required by paragraphs (a)(4) and (b)(5) of this section must be presented by the importer to an authorized inspector at the port of arrival, upon arrival of the swine, pork, or pork products at the port.

9 CFR 98.38: Restrictions on the importation of swine semen from the EU-15.

In addition to meeting all other applicable provisions of this part, swine semen imported from the EU-15 must meet the following conditions, except as noted in paragraph (h) of this section with regard to swine semen imported from Denmark, Finland, the Republic of Ireland, Sweden, or the United Kingdom:

(a) The semen must come from a semen collection center approved for export by the competent veterinary authority of the EU-15 Member State;

(b) The semen must not have been collected from a donor boar that was in any of the regions or zones described in paragraphs (b)(1) or (b)(2) of this section at any time during the periods described, unless the semen was collected after the periods described:

(1) Any region when the region was classified in §§ 94.9(a) and 94.10(a) of this chapter as one in which classical swine fever is known to exist, except for the EU-15; or

(2) During the following time periods in any restricted zone in the EU-15:

(i) In a restricted zone in the EU-15 established because of an outbreak of classical swine fever in domestic swine, from the time of the outbreak until the designation of the zone as a restricted zone is removed by the competent veterinary authority of an EU-15 Member State or until 6 months following depopulation of the swine on affected premises in the restricted zone and the cleaning and disinfection of the last affected premises in the zone, whichever is later; or

(ii) In a restricted zone established because of the detection of classical swine fever in wild boar, before the designation of the zone as a restricted zone is removed by the competent veterinary authority of the EU-15 Member State.

(c) The semen must not have been collected from a donor boar that was commingled with swine that at any time were in any of the regions or zones described in paragraphs (b)(1) or (b)(2) of this section, unless the semen was collected after the periods described;

(d) The semen must not have been collected from a donor boar that transited any region or zone described in paragraphs (b)(1) and (b)(2) of this section during the periods described, unless the donor boar was moved directly through the region or zone in a sealed means of conveyance with the seal determined to be intact upon arrival at the point of destination, or unless the semen was collected after the periods described;

(e) The donor boar must be held in isolation for at least 30 days prior to entering the semen collection center;

(f) No more than 30 days prior to being held in isolation as required by paragraph (c) of this section, the donor boar must be tested with negative results with a classical swine fever test approved by the Office International des Epizooties (World Organization for Animal Health);

(g) No equipment or materials used in transporting the donor boar from the farm of origin to the semen collection center may have been used previously for transporting swine that do not meet the requirements of this section, unless such equipment or materials had first been cleaned and disinfected;

(h) Except for semen collected from swine in Denmark, Finland, the Republic of Ireland, Sweden, or the United Kingdom, before the semen is exported to the United States, the donor boar must be held at

the semen collection center and observed by the center veterinarian for at least 40 days following collection of the semen, and, along with all other swine at the semen collection center, exhibit no clinical signs of classical swine fever; and

(i) The semen must be accompanied to the United States by a certificate issued by a salaried veterinary officer of the competent veterinary authority of the EU-15 Member State, stating that the provisions of paragraphs (a) through (f) of this section have been met.

Annex 3: Maps of livestock densities in Latvia.

Figure 3A: Cattle per square kilometer

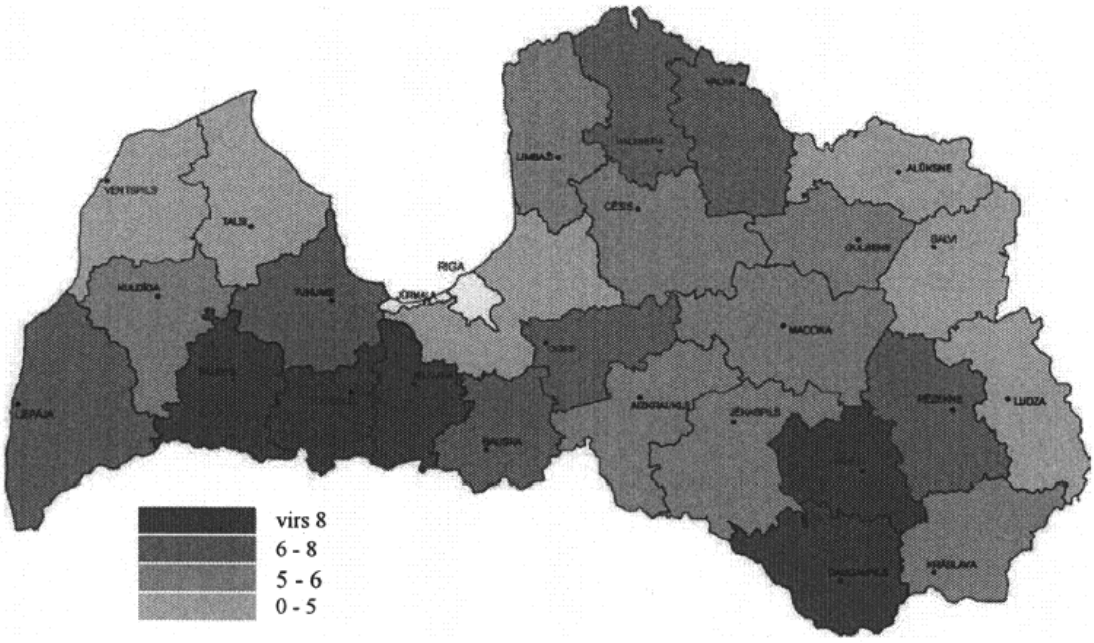


Figure 3B: Sheep per square kilometer

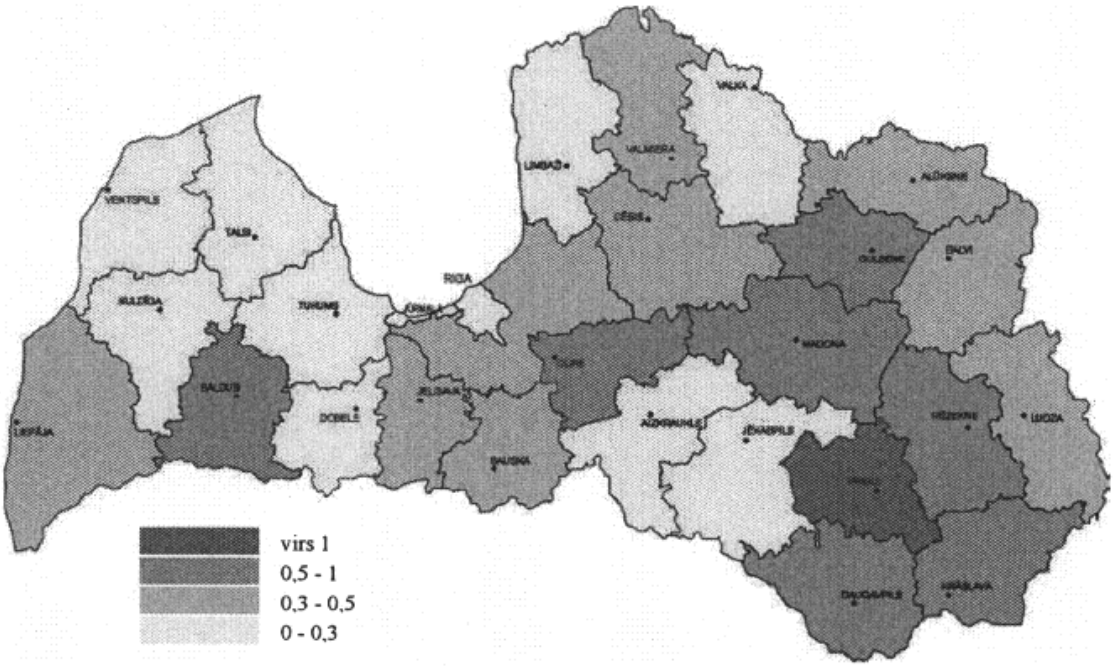


Figure 3C: Goats per square kilometer

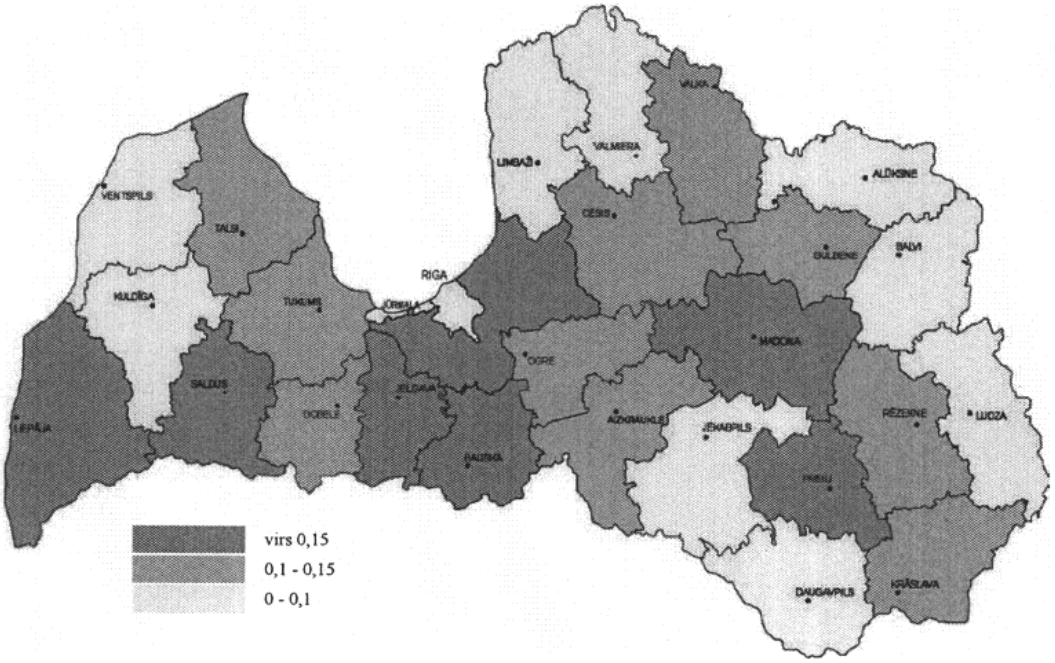
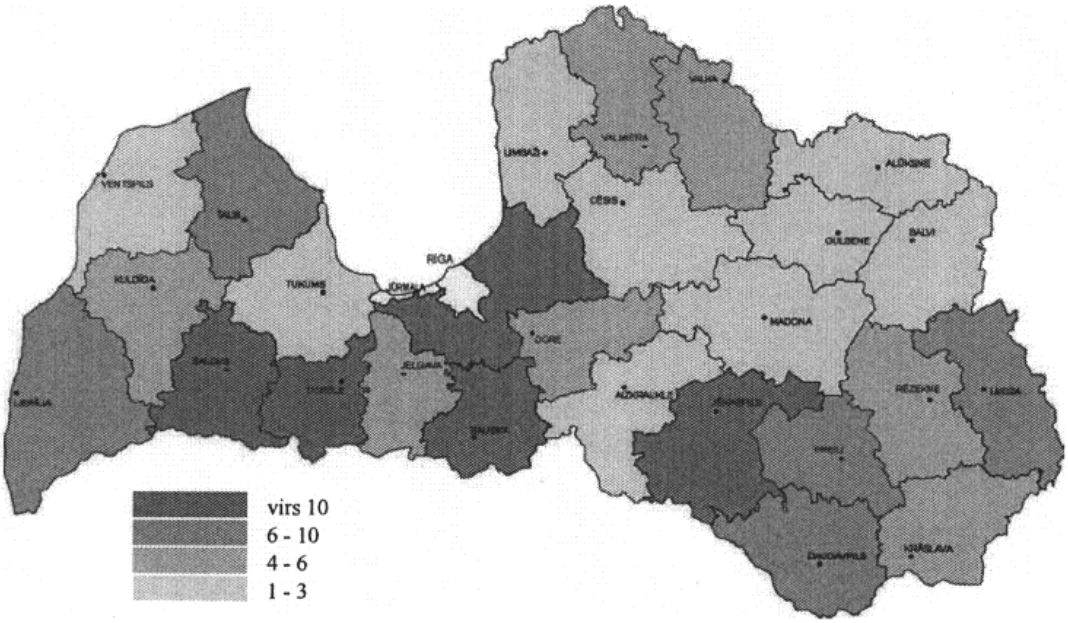


Figure 3D: Pigs per square kilometer



Annex 4: CSF, SVD, and FMD surveillance 2000 – 2004.

Table 4A: CSF surveillance numbers in domestic swine and wild boar 2000 – 2004

District	2004		2003		2002		2001		2000	
	Wild	Domestic	Wild	Domestic	Wild	Domestic	Wild	Domestic	Wild	Domestic
Aizkraukles	26	24	12	25	30	40	15	20	4	16
Alūksnes	12	15	20	79	21	22	18	11	1	13
Balvu	6	20	2	40	4	62	5	7	0	2
Bauskas	11	38	15	42	15	40	9	20	7	36
Cēsu	0	55	6	31	34	81	15	27	0	20
Daugavpils	10	56	6	40	8	40	0	20	0	0
Dobeles	14	90	15	40	23	39	20	23	7	30
Gulbenes	4	12	1	42	8	40	16	10	0	0
Jēkabpils	8	86	2	39	0	40	1	10	0	22
Jelgavas	4	40	4	73	4	42	16	33	7	20
Krāslavas	7	40	15	37	13	54	2	33	0	26
Kuldīgas	21	60	22	43	53	55	30	13	1	8
Liepājas	28	70	23	40	36	40	14	21	6	19
Limbažu	3	21	10	42	17	40	14	22	1	25
Ludzas	9	117	15	40	7	40	10	22	4	26
Madonas	30	24	22	38	14	38	19	26	1	0
Ogres	3	25	9	40	27	37	14	28	0	10
Preiļu	3	32	12	40	3	40	12	45	0	10
Rēzeknes	0	142	12	44	6	40	5	15	0	4
Rīgas	8	111	3	131	4	87	6	126	2	107
Saldus	24	64	22	40	31	41	24	25	4	25
Talsu	44	35	20	40	27	40	3	20	9	24
Tukuma	28	61	14	52	38	37	33	36	6	0
Valkas	9	34	22	79	4	16	6	10	0	0
Valmieras	19	32	18	40	26	6	8	31	2	0
Ventspils	38	23	36	20	56	20	21	20	0	55
Rīga city	1	0	0	0	0	0	0	0	0	0
Total	**370**	**1327**	**358**	**1217**	**509**	**1077**	**336**	**674**	**64**	**498**

Table 4B: SVD surveillance testing in domestic swine 2000 – 2003

District	2003	2002	2001	2000
Aizkraukles	30	30	20	0
Alūksnes	30	30	12	13
Balvu	30	63	12	2
Bauskas	19	40	20	36
Cēsu	31	81	27	20
Daugavpils	40	30	20	0
Dobeles	35	29	20	30
Gulbenes	20	20	10	0
Jēkabpils	38	40	10	22
Jelgavas	15	30	24	20
Krāslavas	20	20	33	26
Kuldīgas	40	50	15	8
Liepājas	40	40	20	10
Limbažu	32	30	22	25
Ludzas	40	40	20	24
Madonas	30	24	24	0
Ogres	35	30	28	10
Preiļu	35	30	45	17
Rēzeknes	31	30	15	4
Rīgas	84	80	126	0
Saldus	40	41	25	24
Talsu	20	20	20	24
Tukuma	20	25	10	0
Valkas	20	11	10	25
Valmieras	35	17	20	0
Ventspils	20	26	30	55
Rīga city	0	0	0	0
Total	**830**	**907**	**638**	**395**

Table 4C: FMD surveillance results in domestic swine and cattle 2000 – 2003

District	2003		2002		2001		2000	
	Cows	Pigs	Cows	Pigs	Cows	Pigs	Cows	Pigs
Aizkraukles	15	8	9	8	7	5	0	No surveillance conducted
Alūksnes	12	8	12	8	12	7	8	
Balvu	10	7	10	6	14	2	11	
Bauskas	8	8	12	8	8	8	20	
Cēsu	14	7	12	21	15	17	10	
Daugavpils	12	8	12	8	0	20	0	
Dobeles	12	6	15	8	12	0	16	
Gulbenes	12	7	11	6	14	6	0	
Jēkabpils	6	8	12	11	0	0	20	
Jelgavas	12	12	12	12	12	23	20	
Krāslavas	11	6	10	8	13	6	28	
Kuldīgas	12	8	15	10	14	7	0	
Liepājas	12	8	13	16	12	10	10	
Limbažu	12	11	12	10	20	11	40	
Ludzas	11	8	14	14	10	4	10	
Madonas	12	8	15	19	25	22	0	
Ogres	12	8	12	4	12	2	10	
Preiļu	11	9	31	9	35	25	10	
Rēzeknes	12	8	12	8	10	10	4	
Rīgas	12	41	12	8	6	126	71	
Saldus	11	8	12	7	12	25	15	
Talsu	10	8	12	10	12	10	10	
Tukuma	12	8	12	9	12	8	10	
Valkas	12	8	12	8	8	10	0	
Valmieras	12	16	0	2	15	19	0	
Ventspils	10	8	14	20	7	25	18	
Rīga city	0	0	0	0	0	0	0	
Total	**297**	**250**	**325**	**258**	**317**	**408**	**507**	

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