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Commentary

Potential to export fresh pork in the event of an African swine fever outbreak in the United States

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Summary

An African swine fever (ASF) outbreak in the United States would result in the loss of fresh pork exports and a decrease in pig price. The World Organisation for Animal Health (OIE) Terrestrial Animal Health Code provides a potential opportunity for packers, working with swine production systems and the US Department of Agriculture (USDA), to maintain a significant portion of exports during an ASF outbreak through a combination of producer biosecurity and surveillance, packers only accepting pigs from production systems that meet specific requirements, and the USDA developing veterinary certificates for export stating the pork shipment meets the OIE requirements.

Keywords: swine, African swine fever, biosecurity, surveillance, pork exports.

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Resumen – Potencial para exportar carne de cerdo fresca en caso de un brote de peste porcina Africana en los Estados Unidos

Un brote de peste porcina Africana (ASF) en los Estados Unidos provocaría la pérdida de las exportaciones de carne de cerdo fresca y una disminución en el precio del cerdo. El Código de Salud de los Animales Terrestres de la Organización Mundial de Sanidad Animal (OIE) brinda una oportunidad potencial para que los empacadores, que trabajan con los sistemas de producción porcina y el Departamento de Agricultura de los Estados Unidos (USDA por sus cifras en inglés), mantengan una parte significativa de las exportaciones durante un brote de ASF mediante una combinación de bioseguridad y vigilancia del productor, los empacadores solo aceptan cerdos de sistemas de producción que cumplan requisitos específicos, y el USDA desarrolla certificados veterinarios para exportación que declaran que el envío de carne de cerdo cumple con los requisitos de la OIE.

Résumé – Potentiel d'exportation de porc frais advenant une épidémie de peste porcine Africaine aux États-Unis

Une épidémie de peste porcine Africaine (ASF) aux États-Unis résulterait eu une interdiction des exportations de porc frais et une diminution du prix du porc. Le Code de santé des animaux terrestres de l'Office international des épizooties (OIE) fournit une opportunité potentielle pour les conditionneurs, travaillant avec les systèmes de production porcine et le US Department of Agriculture (USDA), à maintenir une portion significative des exportations durant une épidémie d'ASF grâce à une combinaison de surveillance et mesures de biosécurité par les producteurs, les conditionneurs acceptant uniquement des porcs provenant de systèmes de production qui se conforment à des exigences spécifiques, et le USDA développant des certificats vétérinaires pour l'exportation stipulant que la cargaison de porc rencontre les exigences de l'OIE.

The emergence and spread of African swine fever (ASF) in Europe and Asia have caused increasing concern that the virus may find its way to the United States. The US swine industry has been very successful in increasing pork exports in recent years. Exports represented 25.7% of total US pork production in 2018.[1] A major factor in the success of exports is that the United States is free of ASF, classical swine fever (CSF), and foot-and-mouth disease (FMD). If any of these diseases were to infect an animal in the United States, there would likely be an immediate loss of export markets. However, in the case of an incursion of ASF, there are steps that could be taken to attempt to maintain some export markets. The international sanitary standards for trade in animals and animal products are described in the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code (TAHC).[2] The relevant OIE TAHC section containing recommendations for importation of pork from countries not free of ASF is found in the sidebar (next page).

These recommendations provide a potential opportunity for packers to work with swine production systems and the US Department of Agriculture (USDA) to maintain a significant portion of pork exports through an ASF Export Requirements Program. Effective biosecurity and surveillance will be essential. This will require coordination, planning, preparation, and investments by producers, packers, and the USDA in advance of an ASF outbreak.

Experience with the currently circulating strains of ASF virus (ASFV) in Europe and Asia is instructive for designing effective biosecurity and surveillance. While people are not affected, ASFV is highly contagious for swine and can spread rapidly in pig populations if pigs are exposed to infected blood or carcasses. Recent experience in Europe indicates that under field conditions, transmission of a highly virulent ASFV genotype II strain can be a slow process when animals are in direct contact with infected animals if exposure to blood and carcasses is avoided.[3] Therefore, animals that are suspected of being infected with ASFV and dead animals should be removed from pens as soon as they are observed.

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Program to maintain exports

The success of a program for maintaining exports will depend on convincing trading partners that the pork offered for export meets the recommendations in the OIE TAHC and any additional requirements that the trading partner may have. If ASF is reported in the United States, a trading partner must have a strong desire to import US pork for them to accept these pork products. If ASF continues to spread in Europe and Asia, there could be a worldwide shortage of pork. A country that is ASF negative may be very reluctant to agree to accept pork from an ASF-positive country, even if it meets all the OIE TAHC recommendations. However, a country that is already ASF positive has very little at risk by accepting pork that meets the requirements recommended in the OIE TAHC Article 15.1.15. The ASFV-positive country would already have lost their ability to export pork and would have a high degree of confidence that pork meeting the OIE requirements is free of ASFV. The USDA and industry should work with trading partners before an ASF outbreak to convince them that measures are in place to meet the OIE TAHC Article 15.1.15 recommendations so that if an outbreak occurs, pork exports to that country could continue with minimal disruption for packing plants and production systems participating in the ASF Export Requirements Program.

Industry, state, and federal officials have collaborated with swine disease experts to develop the Secure Pork Supply (SPS) Continuity of Business Plan.[4] The SPS plan is in place and provides opportunities for producers to voluntarily prepare before an outbreak of FMD, CSF, or ASF. This will better position pig premises with animals that have no evidence of infection to move animals to processing or another pig production premises under a movement permit issued by regulatory officials, and to maintain business continuity for the swine industry, including producers, haulers, and packers, during an FMD, CSF, or ASF outbreak. Meeting the requirements of the voluntary SPS plan should provide a high degree of confidence that a swine production system remains free of ASF. Third party auditing of compliance with the SPS plan components, including biosecurity, would provide increased confidence among trading partners.

The differences between the SPS plan and an ASF Export Requirements Program are illustrated in their respective purpose statements. The purpose of the SPS plan is to demonstrate with a high degree of confidence that a herd in a control area is not infected with the foreign animal disease so that animals can be permitted to move to another production system or to slaughter. The purpose of an ASF Export Requirements Program would be to demonstrate with a high degree of confidence that pork from a participating packing plant does not contain ASF virus so that it can be exported.

Funding provided by USDA Animal and Plant Health Inspection Service (APHIS) Veterinary Services and the National Pork Board to develop and implement the SPS plan and increased funding in the 2018 Farm Bill for the National Animal Health Laboratory Network (NAHLN) have put the United States in an excellent position to develop an ASF Export Requirements Program that could maintain a portion of pork export markets in the event of an ASF outbreak. Some of the Farm Bill funding could be used to enhance NAHLN lab testing capabilities, including validation, for ASF antibody and virus detection and to help fund an ASF surveillance program. The 2019 OIE TAHC Articles 15.1.28 to 15.1.30 describe the internationally accepted surveillance strategies for ASF.[2]

OIE Terrestrial Animal Health Code (2019)[2] Article 15.1.15

Recommendations for importation from countries or zones not free from ASF

For fresh meat of domestic and captive wild pigs

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that:

1. The entire consignment of fresh meat comes from animals which originated from herds in which surveillance in accordance with Articles 15.1.28 to 15.1.30 demonstrates that no case of ASF has occurred in the past three years. This period can be reduced to 12 months when the surveillance demonstrates that there is no evidence of tick involvement in the epidemiology of the infection. In addition, samples from a statistically representative number of animals were tested for ASF, with negative results;
2. The entire consignment of fresh meat comes from animals which have been slaughtered in an approved slaughterhouse/abattoir, have been subjected with favourable results to ante- and post-mortem inspections in accordance with Chapter 6.3;
3. Necessary precautions have been taken after slaughter to avoid contact of the fresh meat with any source of ASFV.

ASF surveillance and testing

When ASF was introduced into Latvia in January 2014, most outbreaks were associated with swill feeding or feeding potentially contaminated fresh grass or crops. African swine fever virus had a very low transmission rate and clear evidence of pig-to-pig transmission during the early stage of infection was lacking.[5] A case report of an ASF outbreak in a large commercial pig farm in Latvia in 2017 concluded that failure to fulfill biosecurity requirements due to human behavior was the main vulnerability for virus introduction. They also concluded that early detection of ASF by passive surveillance is crucial. In risk areas, they recommended that dead pigs be compulsorily tested for ASFV even if farm mortality is below the normal threshold.[6] Given the potential slow rate of spread within a herd and the high mortality rate for the strain circulating in Europe and Asia, mandatory polymerase chain reaction (PCR) testing of all dead animals for ASFV may be the most effective method for early detection of a highly virulent ASFV strain. However, the natural evolution of the ASFV genotype II circulating in Central-Eastern Europe has led to different ASF clinical forms, from acute to subclinical, coexisting in the field.[7] Surveillance will need to be designed to detect ASFV strains that may circulate in a US outbreak.

Currently, the United States has historical freedom from ASF as defined by 2019 OIE TAHC Article 15.1.4. Routine testing for ASF in a production system may not be necessary until the first case of ASF is found in the United States. Testing a representative sampling of pigs in the production system for antibody at the beginning of an outbreak

would give assurance that the ASFV has not been circulating in the herd. Beginning when ASF is first diagnosed in the United States, testing of all dead pigs by PCR for ASFV should provide a high degree of confidence that there are no cases of highly virulent ASF in the production system. Testing prior to shipment to slaughter also would reduce the chances that a packing plant would become contaminated with ASFV. It should be relatively easy to demonstrate that production systems in which all phases of production are housed in biosecure buildings are free from exposure to potential tick vectors, an important component of prevention of ASFV transmission.

Next steps

If the United States has a case of ASF in either domestic or feral swine, packing plants that wish to continue to export pork would likely need to accept pigs only from production systems that participate in the SPS plan and the ASF Export Requirements Program in order to provide assurances that fresh meat from the plant did not contact any potential source of ASFV. Other packing plants may accept pigs from producers that do not meet the biosecurity and surveillance requirements of these programs, however their pork would not be eligible for export.

International veterinary certificates for export that no longer state that the United States is free of ASF would need to be developed and ready to use by USDA APHIS and Food Safety Inspection Service. They would need a statement to the effect that all pork in the shipment meets the OIE TAHC recommendations for importing pork from an ASF-positive country. The USDA will need a way to validate that production systems and packing plants meet these requirements in order to include that statement on an international veterinary export certificate. Third party auditing of compliance with the SPS plan and ASF Exports Requirement Program components, including biosecurity, would provide increased confidence for USDA that the requirements are being met.

Being prepared to continue exporting pork from packing plants and production systems voluntarily participating in the ASF Export Requirements Program will require advance planning and will incur costs for producers, packers, and the USDA. However, the financial impact of losing all pork exports would be devastating for pork producers, associated industries, and the tax base for pork-producing states. Retaining a portion of pork exports in the event of an ASF outbreak would help support pork prices for all producers.

Implications

Implementation of an ASF Export Requirements Program could:

- Preserve some export markets during an ASF outbreak.
- Reduce the economic impact of an ASF outbreak.

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Conflict of interest

None reported.

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References

*1. U.S. pork exports remain steady in 2018 despite challenges [news release]. Des Moines, IA: National Pork Board. March 11, 2019. https://www.pork.org/news/u-s-pork-exports-remain-steady-2018-despite-challenges/. Accessed May 6, 2019.

*2. World Organisation for Animal Health. Chapter 15.1. Infection with Africa swine fever virus. In: *Terrestrial Animal Health Code*. 28th ed. Pairs, France: World Organisation for Animal Health; 2019. http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_asf.htm. Accessed May 6, 2019.

3. Chenais E, Depner K, Guberti V, Dietze K, Viltrop A, Stahl K. Epidemiological considerations on African swine fever in Europe 2014-2018. *Porcine Health Manag.* 2019;5(6):1-10.

*4. Secure Pork Supply Plan. www.securepork.org. Accessed May 6, 2019.

5. Olsevskis E, Guberti V, Serzants M, Westergaard J, Gallardo C, Rodze I, Depner K. African swine fever introduction into the EU in 2014: experience of Latvia. *Res Vet Sci.* 2016;105:28-30.

6. Lamberga K, Serzants M, Olsevskis E. African swine fever outbreak investigations in a large commercial pig farm in Latvia: a case report. *Berl Munch Tierarztl Wochenschr*. 2018. doi:10.2376/0005-9366-18031

7. Gallardo C, Fernández-Pinero J, Arias M. African swine fever (ASF) diagnosis, an essential tool in the epidemiological investigation. *Virus Res*. 2019:271:197676. doi:10.1016/j.virusres.2019.197676

* Non-refereed references.