SUMMARY Classical swine fever (CSF) and African swine fever (ASF) are two highly transmissible viral diseases affecting domestic pigs and wild boar, with major economic consequences on pig farming and on pig-product markets. These diseases are not transmissible to humans.

At global level, trans-border animal diseases fall under the remit of the World Animal Health Organisation. In the EU, measures to control and eradicate CSF or ASF are governed under the general animal health policy rules and under disease-specific Directives.

For CSF, the EU situation has largely improved and only a few sporadic outbreaks have been reported in recent years. ASF however is on the rise since 2011 in Sardinia (Italy).

All pigs in a farm infected by CSF or by ASF must be killed and destroyed. Special veterinary surveillance in surrounding zones, restrictions on movements and a ban on trade in swine products are additional measures required to prevent spread of the virus. Vaccine use is prohibited, but vaccination can be authorised exceptionally by the European Commission.

The EU also provides financial assistance to Member States in their efforts to control, monitor and eradicate these diseases.

A proposal for a new framework regulation on animal health should be tabled by the Commission in 2013.

In this briefing:
- Background
- CSF and ASF: main features
- EU policy
- EU Financial assistance
- European Parliament

Background

The occurrence of a contagious disease with severe health impacts on farm animals can lead to significant economic losses for the farmer. When highly transmissible, the spread of such disease can have major disruptive effects on the economy of the whole animal-farming sector concerned and on the market chain of its derived products. This is even more serious for a disease contagious to several groups of farm species (such as foot and mouth disease, which can notably affect swine, bovine and small ruminants). Some disease agents (some forms of avian influenza, for example) are also transmissible under natural conditions from animals to humans. The spread of such diseases, called zoonoses can have significant impact on public health. This requires public authorities ensuring proper surveillance and control of certain transmissible diseases in animals.

Classical swine fever (CSF) and African swine fever (ASF) are two examples of major contagious diseases in pigs of significant concern to the international community and to the EU. The pig sector is one of the most economically significant EU animal-farming sectors. According to Eurostat data, it accounts for over 9% of total EU agricultural output. In 2011, EU pig-meat production was valued at over €31 billion. It generated some €4.6 billion of exports. Eight Member States (MS) accounted for more than 80% of total EU pig-meat production which
amounted in 2011 to over 22 million tonnes (by decreasing importance: Germany, Spain, France, Poland, Denmark, Italy, the Netherlands, Belgium).

CSF and ASF: main features

The diseases

**CSF** and **ASF** are highly contagious diseases in pigs.

The two viruses causing CSF and ASF represent no risk to human health, however.

Though the ASF and CSF viruses are very different, the two diseases are very similar from an epidemiological and clinical point of view. In domestic swine, mortality rates can be as high as 100%, but some low virulence strains may cause few signs of disease (fever, loss of appetite, bleedings under the skin or in internal organs...) and few deaths. The two diseases can only be distinguished through laboratory tests of samples.

Host species

All different swine species, domestic and wild, are susceptible to CSF. They are the only reservoir of the CSF virus.

Domestic pigs, European wild boar and American wild pigs develop clinical signs of the ASF disease. The ASF virus shows however no apparent infection in different African wild swine species, which act as natural reservoir in Africa. The ASF virus is not only found in swine. It multiplies also in some tick species (Ornithodoros). The virus can therefore circulate among swine, among ticks and between swine and ticks.

Transmission and sources of the viruses

**CSF** and **ASF** viruses are present in all secretions (e.g. saliva), excretions (urine, faeces), tissues (including meat and blood), semen of sick or dead swine, and also of persistently infected animals (asymptomatic virus carriers, including pigs which may have recovered from the disease). The viruses can survive for several days, (up to several weeks) in the external environment. They may remain virulent for several months in refrigerated meat, and can survive for several years in frozen meat.

Transmission takes place by direct contact between animals (by oral and nasal routes mainly, but also through injured skin) and by genital and maternal routes. The diseases can also spread by indirect contact, e.g. through premises, vehicles, clothes, farm implements. The CSF or ASF viruses can therefore be introduced into a pig holding by animal trade, by food garbage containing infected meat and fed to the pigs (swill feeding), or by persons moving between farms. Some farming practices (e.g. external enclosures, free-range foraging for food) lead to possible cross-contamination through direct or indirect contact between farmed and wild swine. Swine may also get infected by the ASF virus through contaminated ticks (tick-borne disease).

International context

Highly transmissible diseases do not recognise frontiers, and there is global recognition of the need to address transboundary animal diseases through joint efforts.

ASF and CSF are two swine diseases listed as of global importance by the World Organisation for Animal Health. Known as the OIE (formerly “Office International des Epizooties”), it is the main intergovernmental body responsible for improving animal health worldwide. All EU Member States are OIE members and the EU has formal observer status. Common EU positions are taken on issues discussed in the OIE. The OIE General Assembly approves international standards or recommendations for both terrestrial and aquatic animals. Gathering international scientific expertise, the OIE is also able to provide support to its member countries.

The OIE acts in association with other institutions, collaborating notably with the UN Food and Agriculture Organisation and with the World Health Organisation. The OIE is also the reference organisation for the World Trade Organisation for standards relating to animal health and zoonoses and international trade.
Occurrence

CSF is found in countries on several continents (Asia, Africa, Central and South America). Europe was faced with large outbreaks of the disease in the 1990s (notably in 1997 in the Netherlands where millions of pigs had to be killed and destroyed). In last years, sporadic cases have continued to be reported in some MS (with numerous cases in wild boar in 2008-2009 (see box).

ASF is present in a number of sub-Saharan African countries. The EU is free of the disease, except in Sardinia (Italy) where a recrudescence of ASF cases has been noted since 2011. ASF was also introduced from Africa to Georgia in 2007, and the disease has since spread into the Caucasus (notably in Armenia, Russia, Azerbaijan and Ukraine).

Treatement or vaccines

There is not treatment for CSF. Vaccines have been developed but their use is generally prohibited (see next section). There is no treatment or vaccine for ASF either.

EU policy

Measures against a trans-border animal disease are intrinsically linked to its epidemiological features. Decisions on the most appropriate measures also depend on the overall health status of livestock in a given area, their cost and their practical feasibility.

General principles

CSF and ASF are notifiable diseases according to Council Directive 82/894/EEC: MS must inform the Commission of each outbreak via the EU Animal Disease Notification System.

Measures to control CSF and ASF in the EU follow the principles of the EU Animal Health Policy and its motto according to which "Prevention is better than cure".

In areas free of a listed highly transmissible disease, priority is given to avoiding its possible introduction. Harmonised preventive animal-health measures apply to intra-community trade and placing on the market, as well as on imports of any animal or product susceptible of carrying live disease agents, particularly originating from areas in which the disease is found. Such control measures concern live animals, products of animal origin such as meat products, as well as animal by-products not intended for human consumption. As an example, building notably on the CSF experience, EU rules on animal by-products prohibit the feeding of farmed animals with catering waste and derived material (Regulation No 1069/2009).

In case of sudden disease outbreak, measures are foreseen to control, eradicate and monitor the situation, to ensure fast protection of neighbouring pig farms and to avoid the disease spreading further. Rapid reaction in case of suspicion requires informed farmers, trained animal health professionals, and rapid and close cooperation among competent authorities. The aim is to limit impacts on animal health and welfare, in order to retrieve as fast as possible "disease free" status so limiting economic consequences from restrictions, notably on trade, associated with the disease.

ASP and CSF outbreaks in EU MS over the past five years

<table>
<thead>
<tr>
<th>Outbreaks / year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASF in farmed pigs</td>
<td>6 : Italy</td>
<td>3 : Italy</td>
<td>9 : Italy</td>
<td>31 : Italy</td>
<td>74 : Italy</td>
</tr>
<tr>
<td>ASF in wild boar</td>
<td>2 : Italy</td>
<td>1 : Italy</td>
<td>1 : Italy</td>
<td>3 : Italy</td>
<td>17 : Italy</td>
</tr>
<tr>
<td>CSF in farmed pigs</td>
<td>1 : Bulgaria 3 : Slovakia 1 : Lithuania</td>
<td>/</td>
<td>5 : Lithuania</td>
<td>3 : Latvia</td>
<td></td>
</tr>
</tbody>
</table>

Source: Animals Disease Notification System, European Commission

ASF and CSF outbreaks in EU MS over the past five years

<table>
<thead>
<tr>
<th>Year</th>
<th>ASF in farmed pigs</th>
<th>ASF in wild boar</th>
<th>CSF in farmed pigs</th>
<th>CSF in wild boar</th>
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<tbody>
<tr>
<td>2008</td>
<td>6 : Italy</td>
<td>2 : Italy</td>
<td>1 : Bulgaria</td>
<td>163 : Hungary</td>
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<tr>
<td>2009</td>
<td>3 : Italy</td>
<td>1 : Italy</td>
<td>3 : Slovakia</td>
<td>4 : Slovakia</td>
</tr>
<tr>
<td>2010</td>
<td>9 : Italy</td>
<td>1 : Italy</td>
<td>1 : Lithuania</td>
<td>[1 : Croatia]</td>
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<td>17 : Italy</td>
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<td>1 : Latvia</td>
</tr>
</tbody>
</table>

Source: Animals Disease Notification System, European Commission
Traceability is also of crucial importance for the control of highly contagious diseases. The identification and registration of pig holdings is governed by Directive 2008/71/EC. Swine must be marked with an ear-tag or tattoo and a register shall be maintained on each holding (farm, market, etc). A national computerised database on pig holdings has to be kept updated with some minimum harmonised information. A derogation can however be granted to MS regarding the registration of holdings containing not more than one pig.

CSF and ASF specific instruments
Beyond general animal-health measures, specific control provisions apply for some diseases of major economic importance, particularly CSF and ASF. The basics are established by the Council in the CFS Directive (2001/89/EC) and the ASF Directive (2002/60/EC).

Additional specific Commission measures have been laid down as regards laboratory diagnosis of CSF and ASF, based on technical assistance from the EU Reference Laboratories (in Hanover for CSF and Madrid for ASF). Based on a scientific opinion from the European Food Safety Authority, and after discussion in the EU Standing Committee on the Food Chain and Animal Health (SCFCAH), the Commission services also issued guidelines on control and eradication of CSF in wild boar.

Both CSF and ASF Directives require Member States to draw up contingency plans in the event of an outbreak. These plans need to be approved by the Commission and based on common approaches.

A suspected case of disease has to be notified immediately. The holding must be placed under official surveillance and some immediate preventive measures have to be taken (e.g. restriction of movements of pigs in or out of the farm, disinfection procedures). An epidemiological enquiry should start, notably to identify the possible sources of the contamination and the risks of the virus having already spread outside the holding.

If the disease is confirmed by laboratory tests, the following measures have to be applied:

- In the holding: immediate killing of all pigs (culling), destruction of their bodies and all swine products, decontamination of the holding.
- Around the outbreak site: establishment of a protection zone and a surveillance zone, with respective radii of at least 3 and 10 km, with special veterinary surveillance, prohibition of movements and transport of swine, restrictions on production and trade of swine products and other quarantine measures.
- Subsequent official controls and monitoring are required before any possible lifting of the restrictions.

In case of an outbreak in wild swine, measures can include the establishment of infected and surveillance zones, with restrictions on hunting and use of wild swine products, and virus testing on dead or hunted wild swine, accompanied by reinforced veterinary surveillance of pig holdings and additional protection for outdoor pig farming (e.g. double fencing).

The SCFCAH must be kept informed. If necessary, additional measures can be taken by the Commission (for example in November 2008 regarding CSF in several Member States, with regular reviews since).

Vaccination
No efficient vaccine against ASF exists yet, though some researchers consider that development prospects are good. In contrast, several vaccines have been developed against CSF. Marker vaccines, which allow vaccinated animals to be differentiated from infected animals through laboratory (blood) testing, have also been developed in the last decade (see box). Such a CSF marker vaccine has an EU marketing authorisation. The EU also continues to promote research in this area.
However, independently of the availability or not of a vaccine, both the CSF and ASF Directives prohibit any vaccination against the diseases. By derogation, limited emergency vaccination can be authorised by the Commission and EU stocks of CSF vaccines have been purchased in case of emergency need. Vaccination against CSF has been authorised on several occasions, for example in Romania in 2006, and in Germany in 2010. Vaccination of wild boar (using oral vaccine baits) has proven a useful measure in controlling CSF in the wild, as illustrated for example in presentations from Germany and France to SCFCAH in 2012.

Pros and cons of vaccination

Large vaccination programmes can be useful tools to limit the spread of a highly contagious virus in a population and to reduce the frequency of the disease, limiting thereby economic losses and negative impacts on animal health and welfare. These disease costs are to be balanced with the direct costs of vaccination and the associated economic consequences of a trade ban in pigs and pig products towards countries free of the disease.

In an area free of disease, vaccination may hinder early detection of a sudden introduction of the virus, as most animals would not show signs of disease. With classical vaccines, it is usually not possible to distinguish between animals which have been vaccinated from animals which have been in natural contact with the virus. If some vaccinated animals become asymptomatic virus carriers, they would also present a high risk of virus dispersion.

However, vaccination can be a useful support tool in controlling a disease outbreak. The density of pig farming and the organisation of the pig farming sector, as well as the progress made on marker vaccines and on diagnostic tools to check if products from vaccinated pigs are virus-free, are key factors to consider when assessing options for emergency situations and when designing vaccination strategies.
EU financial assistance

As part of its animal health strategy, the EU provides financial assistance to disease eradication and monitoring programmes, presented by Member States, including for CSF and ASF. Such programmes must comply with criteria established in Decision 2008/341/EC. The expenditure rules for co-funding are governed by Council Decision 2009/470/EC.

After evaluation, the Commission adopts the national disease control and monitoring programmes (including financing elements thereof). Programmes adopted for 2013 (Decision 2012/761/EU) cover CSF in Bulgaria, Germany, Hungary, Romania, Slovenia and Slovakia (plus Croatia as from 1 July 2013), and ASF in Italy. The budget allocated to such plans depends on the disease situation in each MS. For 2013, the total maximum EU allocations foreseen for CSF and ASF are €2 585 000 and €1 400 000 respectively.

MS have to report on the implementation of their disease control programmes. In addition to close follow-up in SCAFCAH, a dedicated task force also monitors the disease eradication programmes, to improve their cost-benefits. Some subgroups have been established to provide tailored technical assistance, notably on CSF. The Commission published in 2011 a general report on the generally positive outcome of the EU co-financed animal disease eradication programmes, including those for CSF and ASF.

European Parliament views

As part of its resolution on the animal health strategy in 2008, the EP recognised that culling may be necessary in response to the threat of a crisis, but in line with the principle "vaccination is better than unnecessary culling", the EP indicated a strong support to increased possibilities of vaccination as part of disease prevention and disease eradication operations.

In its answer of January 2012 to a Parliamentary question on CSF, the Commission did not exclude that current rules could be adapted to new science and technological developments concerning diagnostic tools and vaccines.

After a consultation which started in 2009, the Commission announced the finalisation in 2013 of a proposal for a new framework regulation on animal health, which would reshape over 40 Directives in this policy area. It will allow the EP to exercise its role of co-legislator in this domain, as provided for by the Lisbon Treaty.

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Endnotes

1 Epidemiology relates to the knowledge of causes, effects, distribution and evolution (mechanisms, risk factors) of a disease or a health-related status in a population.

2 This marketing authorisation was last renewed by the Commission on 16 September 2011.

3 The specific assessment of the eradication and monitoring programmes for ASF and CSF is provided in Annex 2 (section 2.7, pages 161 to 195) of the report.