African Swine Fever in Georgia

1. Introduction

African Swine Fever (ASF) is a highly contagious virus infection of domestic pigs that is usually lethal and for which there is no vaccine. The potential distribution of the infection is global, and therefore most countries free of the infection take serious measures to prevent entry. Where the infection occurs, pig production is usually sustainable only by adoption of high levels of biosecurity. The disease is endemic in domestic and wild porcine species in most of sub-Saharan Africa and Sardinia. Pigs become infected mainly through the oro-nasal route after contact with infected pigs or through feeding of virus-contaminated products (swill and garbage waste). In areas where vectors exist (Ornithodoros ticks), transmission via these vectors can be important for virus persistence in an area. In Africa, the presence of Ornithodoros moubata and the sub-clinically infected wildlife populations of warthogs maintain ASF virus; this means that in order to prevent infection, strict fencing is required of farms in eastern and southern African regions where warthogs are found.

ASF virus strains differ in virulence, although different serotypes cannot be identified. The virus is very stable in excretions of infected pigs, in pig carcasses, and in some pig meat products and fresh pig meat.

Acute, sub-acute and chronic forms of ASF occur, depending mainly on virus virulence. In pigs which clinically recover, viraemia may persist for several weeks, and recovered animals present a risk since the virus has been isolated up to six months after infection. The development of high fever (>40°C) is usually the first clinical sign, which is accompanied by depression and loss of appetite. Sows may abort at all stages of pregnancy. However, from clinical examination, ASF can only be suspected. Pathological findings revealing extensive haemorrhages in lymph nodes, spleen and kidneys may be additional indicators for the presence of ASF. A final diagnosis can only be done after laboratory testing. The morbidity and mortality rate within an affected holding may be 100%.

Feral pigs (escaped domestic species) or European wild boar (non-domesticated species) are equally susceptible to ASF which makes control of the disease very difficult if the infection becomes endemic in these populations.
2. Epidemiological insights of ASF


3. ASF in Georgia

Georgia reported ASF to the World Organisation for Animal Health on 5 June 2007 after final confirmation by the OIE Reference Laboratory in Pirbright, United Kingdom. Sequence analysis of the Georgian ASF virus isolate revealed a close relationship to virus strains from Southeast Africa (Mozambique, Madagascar, and Zambia).

It was the first official report of ASF occurrence in the Caucasus region. However, several weeks before ASF was officially reported, increases in pig mortalities had been noticed, which was originally attributed to PMWS (Post Weaning Multisystemic Wasting Syndrome) and was reported to the OIE as such on 22 May, 2007.

Since the first report, several outbreaks in different locations have been detected based mainly on clinical findings. However, only a small proportion of the reported outbreaks have been confirmed by laboratory investigations (Fig. 2). By the second week of June, 52 of 65 districts were suspected to be affected, more than 30,000 pigs had died and a total of 3,900 pigs had been culled. However, it was reported that only clinically ill animals within an infected herd had been culled.
Since ASF is already widely distributed across the country, this is likely to be a considerable underestimation of the real incidence due to lack of surveillance and timely notification. More outbreaks are expected to occur in the infected areas. Though currently unknown, it is also likely that wild boar will become infected and thus potentially contributes to possible endemicity of the virus, as had occurred on the Iberian peninsula and occurs in Sardinia today.

The epidemiological course of the disease is unclear. Retrospectively, the first clinical cases attributed to ASF were seen in the port of Poti, situated on the eastern shore of the Black Sea (May 2007). Afterwards the disease spread eastwards following the main transportation routes. Most pigs affected are on open grazed fields or free range systems. The source of virus is not yet known, but entry via the port of Poti is suspected by Georgian authorities. Virus might have been introduced via ships carrying contaminated meat or meat products, and since most pigs are kept on a free range, scavenging basis, access to dumped waste is a mechanism for infection to occur.

Control of ASF in feral pigs might become very difficult

Delayed recognition and response to the new disease appears to have allowed infection to become widespread. At the time of notification to the OIE, ASF appears to be widespread although only confirmed in a few cases. Differential diagnosis with other swine diseases should be considered. Georgia and the region are now facing an exceptional epidemiological event.

So far no cases of ASF in wild boar have been reported, though wild boar or feral swine in Georgia are common and may have close contact with free ranging domestic pigs.

### 4. The pig industry in Georgia

In 2005, Georgia’s swine production totalled almost 500,000 head of swine, with a slight increase from the 473,000 head of the 2004 census. Of the just over 2.5 million head of livestock in Georgia in 2005 (including cattle, buffaloes, swine, sheep and goats), pigs accounted for almost 20%. Similar to live animal production, pig meat production increased in Georgia by 10,000 tonnes from 360,000 tonnes in 2004 to 370,000 tonnes in 2005.

Georgia’s live swine and pig meat production makes up only a small percent of world stocks and production at 0.05% and 0.03% respectively (Table 1).

<table>
<thead>
<tr>
<th>Stock/Production</th>
<th>2004</th>
<th>2005</th>
<th>% World stocks/production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks (head)</td>
<td>473832</td>
<td>483854</td>
<td>0.05%</td>
</tr>
<tr>
<td>Production (metric tonnes)</td>
<td>360000</td>
<td>370000</td>
<td>0.03%</td>
</tr>
</tbody>
</table>

In Georgia, pigs are kept mainly in backyards (non-professional pig holdings) and in small farms (professional and semi-professional). The distribution density of pigs is shown in Figure 4. The highest density is found in the east and west of Georgia. Few pigs are reported in the mountainous areas along the border with Russia or along the borders with Turkey and Armenia.

Rearing pigs is a very common and traditional practice in rural areas. This type of rearing is still a significant part of agricultural practices. It represents an important source of meat for the population in the countryside and often generates valuable cash income. Backyard pigs are not usually slaughtered in slaughterhouses (abattoirs), but are slaughtered at home. Traditionally, backyard pigs are traded either on free markets or by direct contact with potential customers.
5. Risks for Europe and other regions

None of the countries that share borders with Georgia have reported outbreaks of ASF to date, though FAO has issued a warning specifically to those countries. However, due to the limited human resources in veterinary services in Georgia and probably ongoing uncontrolled movement of pigs and pig products between Georgia and neighbouring countries, spread of ASF cannot be excluded. Furthermore, infected wild boar or feral swine might also contribute to the spread of the virus since movement of wild boar between regions and countries cannot be controlled. Involvement of wildlife in the ASF epidemic would make the eradication of ASF unrealistic in this region in the short term. Therefore the persistence of ASF in Georgia is a likely scenario unless strict control measures are implemented by the government as soon as possible.

Infection in domestic pigs may be self-limiting with high mortality but wild boar may act as a bridge to reintroduce the disease into restocked areas.

In addition to the above difficulties, potential tick vectors are present in the south Caucasus region, and therefore may complicate the clearance of infection there, since infection in Ornithodoros species may persist for several years. The presence of these vectors in pig pens, their biting habits and vector competence must be investigated.

Fig. 3: Location of outbreaks in Georgia.
6. Recommendations

The wide distribution of the disease before the first confirmation and the nature of pig rearing in unconfined open grazing make it very difficult to implement effective control measures. However the general rules concerning transboundary diseases have to be followed. In particular the following measures should be taken:

1. Immediate stop of any pig movements within the entire country of Georgia (standstill orders).

2. Keep backyard pigs permanently at home in total confinement (any contact between domestic pigs and feral pigs should be avoided). Establish strict entry/exit controls at all entry points between free and affected areas. Achieve confinement of pigs for a sufficient time to survive the epidemic: consider incentives such as providing pig feed to holdings in order to confine pigs to free areas.

3. Close collaboration with the veterinary services of neighbouring countries and the international community to prevent spread of the disease outside Georgia

4. Enhance public awareness and improve the reporting of ASF by pig keepers (vigilance and early warning).

5. Conducting a detailed epidemiological investigation (tracing forwards and backwards)

6. Effective culling of all pigs within infected herds and in-contact herds

7. Introduction of simple and transparent means of owner compensation

8. Clarification of the potential role of wild boar as virus reservoirs
9. Enhance disease notification and protect free districts in the country.

10. Enhance laboratory capacities and performance.

11. Control of swill feeding.

12. Elucidate the potential role of soft ticks as virus vectors.

13. Improve bio-containment in infected districts; focus on preventing exit of infection from these areas:
   - Food aid to owners willing to comply with measures.
   - Compulsory measures for non-compliance.
   - Greater use of village authorities (or other relevant local administrations), including police, to facilitate reporting and enforce movement control.
   - Enforce ban on pig movements and marketing.
   - Early culling of infected units: when the first clinical signs suggesting ASF appear, increase the number of district culling teams.
   - Reduce risk to wild populations; search and remove carcasses particularly in and near forested areas; evaluate the disease status in wild populations.
   - Develop a strategy for rehabilitation and restructuring of the pig production sector after control has been achieved in part or all of the country; publicize this strategy to encourage compliance with current culling and control measures.
   - Prevent re-entry of pathogens including ASF virus through efficient border control and appropriate management of waste from ships and aircraft, regardless of the control option.

7. References


OIE. WAHIS.

FAOSTAT
http://faostat.fao.org/

www.fao.org/DOCREP/004/Y0510E/Y0510E00.HTM

www.fao.org/DOCREP/004/X8060E/X8060E00.HTM

ASF and CSF sheets:

Soft, eyeless ticks (argasid ticks, tampans) of the Ornithodoros moubata complex inhabit warthog burrows and are important vectors of ASF virus.