

# **ASSESSING SOCIAL, ECOLOGICAL AND ECONOMIC CONSEQUENCES OF FREE-RANGING SWINE DISEASES; GAUGING PUBLIC ATTITUDES TOWARD THE PRESENCE AND DISEASE RISKS FROM FREE-RANGING SWINE**

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## **Summary**

Like in many other wildlife diseases the consequences of diseases in free-ranging pigs are manifold and may range from quite mild to very severe. Those effects can be best described by dividing them into groups: socio-economic effects, ecological consequences, zoonotic potential and, in the case of free-ranging swine with some reservation, conservation concerns.

With respect to swine diseases adverse effects will in general most likely focus on socio-economic losses to stakeholders in the agriculture and food business. Not surprisingly this sector will have a strong voice whenever any disease related scenario jeopardizes their sectoral interests. Free-ranging pigs are susceptible to diseases which can be transmitted to other domestic and wild pigs. They may also carry zoonotic infectious agents which are a public health issue. Conservation concerns for wild or feral pigs due to infectious diseases are not considered to be significant. Public opinion will largely depend on how the public perceives the role and interests of stakeholders including hunters and to a certain degree on their perception of risks posed by potential zoonotic disease in free-ranging swine.

## **Socio-economic consequences**

Several examples illustrate the devastating economic effects of classical (CSF) and African swine fever (ASF) spilling over from wild boar to domestic pigs. From the 1990's until the early years of this century there have been several occasions where CSF outbreaks in domestic pig holdings in Europe have been traced back to wild boar and wild boar carcasses. More than once those infections spread to regions with high pig density and resulted in until then unprecedented stamping out campaigns in Belgium, Germany and the Netherlands. The most severe economic losses were encountered in the Netherlands during 1997/98 when more than 400 outbreaks of CSF required the destruction of more than 12 Mill. pigs and caused direct losses of more than 2,3 billion Euros [Saatkamp et al. 2000]. In most cases the largest part of the costs was associated with transport stand still measures

Socio-economic losses on a similar scale have recently been reported by Russia where in some parts of the country ASF has become endemic in wild pigs with many incursions into domestic pig holdings. Total economic losses from ASF in the Russian Federation between 2007 and 2012 have been estimated to amount to more than one billion US dollar with more than 600.000 pigs destroyed [OIE-CIC Joint Meeting on ASF 2014]. The current ASF scenario in certain parts of Eastern Europe is in particular characterised by infections in small backyard holdings where owners are reluctant to notify disease and cooperate with Veterinary Services for fear of loosing their food security [EFSA Scientific opinion on ASF 2014]. Certain socio-cultural and economic factors still play an important role in sustaining ASF on the Italian island of Sardinia where the disease has been endemic for more than 35 years. In one area of the island small producers apply little or no biosecurity measures and breed pigs in communal areas despite strict bans [Mur et al. 2014].

In many African countries the ongoing presence of ASF in wild and feral pigs is a limiting factor for pig production and makes it even more difficult to improve livelihoods and provide an affordable source of high quality protein in poor regions [Penrith et Vosloo 2009].

In countries which are engaged in exportation of pigs and pig products/pork any animal health event in their free-ranging swine population can have quite a damaging economic effect on their involved industries. With respect to trade OIE Member Countries therefore adopt international standards based on scientific risk assessment which take into account such scenarios. With respect to the presence of CSF virus in wild pigs the OIE Terrestrial Animal Health Code (2014) explicitly states in Article 15.2.1 that an OIE Member Country "... should not impose bans on the trade in commodities of domestic and captive wild pigs in response to a notification of infection with CSFV in wild and feral pigs provided that [certain measures like surveillance, separation between domestic and free-ranging pigs, awareness programs ...] are implemented."

The principle of strict separation between wild or feral and domestic pigs is also being reflected in the OIE requirements for gaining official CSF country or zone freedom status which many OIE Member Countries currently apply for. Monitoring wildlife diseases has even become a critical competency in the OIE tool for the Evaluation of Performance of National Veterinary Services [OIE PVS Tool 2013].

Furthermore the OIE advocates the principles of zoning and compartmentalization. Both are strong tools which allow science based definitions of disease-free subpopulations, for example a disease-free compartment of domestic pigs in an area where CSF is present in wild boar. Correct application of zoning and compartmentalization will not only contain disease but can also limit economic losses considerably by enabling trade. Nevertheless the presence of contagious disease in free-ranging pigs will certainly be an obstacle and a challenge for negotiating the terms for veterinary certification between an importing and an exporting country. Trade disputes involving animal disease including wildlife affected countries may even seek a solution by settlement procedure in the framework of the World Trade Organisation (WTO). Whenever this happens, OIE standards are the principle animal health reference for members of the WTO.

### **Ecological effects**

In the context of ecological interaction one must be aware of the fact that free-ranging swine are susceptible to different diseases. Diseases such as CSF or ASF can be transmitted to other swine population (domestic or wild) by direct contact (close interaction) or indirect contact (scavenging on dead carcasses, contaminated fomites etc.). This is challenging for developing control programmes because information is lacking on the population size, dynamics movements, capacity to maintain the disease etc. in the free-ranging swine.

Given the disease risks from free-ranging swine there has been considerable research on different control measures (including hunting) such as the use of traps, fencing or artificial feeding. A recent study by EFSA on possible mitigation measures to prevent introduction and spread of ASFV through wild boar has concluded that drastic hunting is not a tool to reduce the risk for introduction and spread and persistence of ASF in wild boar populations [EFSA Scientific report on ASF 2014]. Intensive hunting pressure in affected wild boar populations may increase the risk for spread, possibly with severe implications across international borders.

## **Zoonotic issues**

An assessment of the consequences of free-ranging swine diseases must mention the zoonotic potential of diseases such as Brucellosis, Toxoplasmosis and others [Gortázar et al. 2007]. Trichinellosis is likely to be the most common by the general public as dangerous perceived zoonosis of wild and feral pigs. Outbreaks of Trichinellosis in humans are an alarming signal and will almost always catch a lot of public attention. Such an event will question the food safety of products from free-ranging swine in general and needs full involvement of both Veterinary and Public Health Services in order to restore public trust in their functionality.

## **Conservation issues**

Species conservation concerns for wild or feral pigs related to infectious diseases are not very likely. However it is not out of question that wildlife organisations might wish to reintroduce wild boars in areas where there are no wild boars in order to broaden biodiversity. This suggestion was put forward in Denmark and met strong resistance by Danish pig farmers who feared that this would lead to a higher risk of introducing CSF which could have enormous consequences for their highly export driven national pork industry [Danish Institute for Food and Veterinary Research 2005].

## **Public attitude**

Apart from the stakeholders already mentioned the public perception towards diseases in free-ranging swine primarily involves hunters and other persons working in the management of wild and feral pigs. Hunters in particular play an important role in the early detection of wildlife diseases and obviously they have a strong say whenever wild or feral pigs are at stake. In certain parts of the world hunting for visitors may be a certain source of income in the tourist sector.

During a recent forum convened by the OIE in collaboration with the International Council for Game and Wildlife Management (CIC) it was reported that communication with hunters improved considerably whenever they were fully integrated in disease management measures [OIE-CIC Joint Meeting on ASF 2014]. It has also been demonstrated that the public positively acknowledges success stories such the elimination of rabies in foxes and classical swine fever in wild boar in many European countries. It is therefore highly recommended that Veterinary Services and hunters clearly describe their roles and cooperation towards the public.

Society has generally become quite critical towards the large scale killing of animals for disease control purposes. It is obvious that there will be similar reactions whenever wild or free-ranging animals are involved.

In the context of public awareness it must certainly be kept in mind that strict biosecurity is definitely the best key to protect wild and domestic against disease.

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