

# Stay alert: probability of African Swine Fever introduction from Eastern Asia is almost as high as from Eastern Europe.

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## Bleibt wachsam! Die Wahrscheinlichkeit einer Einschleppung der Afrikanischen Schweinepest aus Ostasien ist fast so hoch wie aus Osteuropa.

Die Afrikanische Schweinepest (ASP) ist eine schwere Viruserkrankung, die alle Schweineartigen infiziert. Seit dem ersten Ausbruch in Georgien im Jahr 2007 hat sie sich langsam nach Westeuropa ausgebreitet und erreichte die Europäische Union im Jahre 2014, als die ersten Fälle in Polen und den baltischen Staaten diagnostiziert wurden. 2018 wurde die ASP erstmals in China entdeckt und breitete sich innerhalb von zwei Jahren in weitere 14 Länder aus. Ziel dieser Studie war es, die Einschleppungswahrscheinlichkeit der ASP aus Ostasien in einer qualitativen Risikobewertung abzuschätzen und mit einer früheren Risikobewertung der Einschleppungswahrscheinlichkeit aus Osteuropa zu vergleichen.

Die Einschleppungswahrscheinlichkeit aus Asien durch den Import von Fleisch und Fleischprodukten wurde als hoch eingeschätzt, welcher sich als wahrscheinlichster Verschleppungsweg herausstellte. Weniger bedeutende Wege waren die Einschleppung durch menschliche Kontamination (geringe Wahrscheinlichkeit) oder die Einfuhr von Futtermitteln oder Blutprodukten (sehr geringe Wahrscheinlichkeit). Die Einfuhr von Hausschweinen oder freilaufende Wildschweine, kontaminierte Transportmittel oder infiziertes Sperma, Embryonen oder Zecken wurde als vernachlässigbar eingeschätzt.

Auch für Osteuropa wurde der Import von Fleisch und Fleischprodukten als ein hohes Risiko der Einschleppung der ASP eingeschätzt und war daher der wahrscheinlichste Einfuhrweg. Höhere Wahrscheinlichkeiten wurden für den Import von lebenden Schweinen, kontaminierten Futtermitteln oder Transportmitteln und menschlicher Kontamination geschätzt.

## Summary

African Swine Fever (ASF) is a severe viral disease infecting all suid species. Since the first outbreak in Georgia in 2007, it has slowly spread towards Western Europe and reached the European Union when first cases were detected in Poland and the Baltic States in 2014. ASF was first reported in China in 2018 and since then, it has spread to 14 countries within two years. This study aimed to estimate the introduction probability of ASF from Eastern Asia in a qualitative risk assessment, and to compare it to the probability from Eastern Europe, which was assessed in an earlier risk assessment.

A high probability of introduction was estimated for the import of meat and meat products, which was found to be the most likely route of introduction. Less important routes were introduction by human contamination (low probability) or import of feed or blood products (very low probability). Import of domestic pigs or free-ranging wild boar, contaminated means of transport, or infected semen, embryo or ticks were all estimated to be negligible.

For Eastern Europe, import of meat and meat products was also estimated to pose a high risk and was therefore the most likely route of introduction. Higher probabilities were estimated for import of live pigs, contaminated feed or means of transport and human contamination.

Overall, the probability of introduction from Eastern Asia is only slightly lower than from Eastern Europe. As it is important to detect the first case as quickly as possible, it is important not to fall victim to habituation effects, but to remain vigilant.

**Keywords:** Risk assessment, emerging infectious disease, pig, ASF

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Insgesamt ist die Einschleppungswahrscheinlichkeit aus Ostasien nur geringfügig geringer als aus Osteuropa. Daher ist es essenziell den ersten Fall möglichst schnell zu erkennen, einer Gewöhnung vorzubeugen und immer wachsam zu bleiben.

**Schlüsselwörter:** Risikobewertung, Neue Infektionskrankheiten, Schwein, ASF

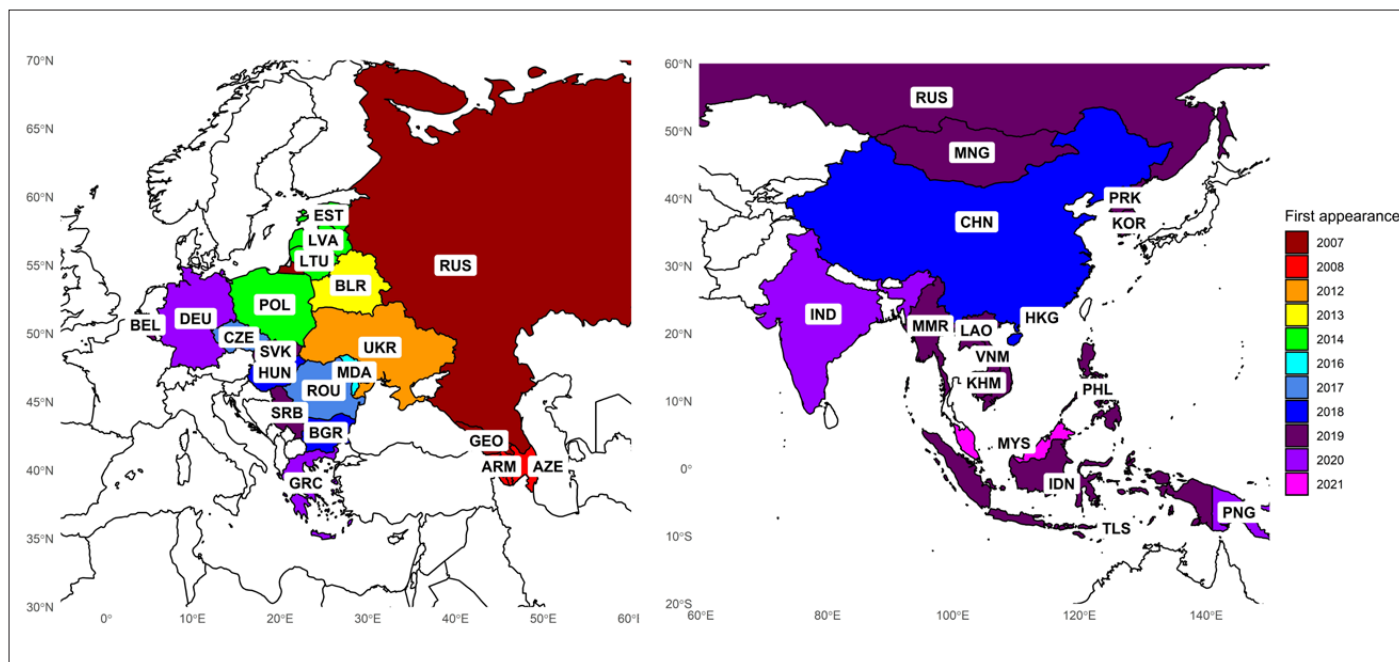
### Introduction

African Swine Fever (ASF) is a severe viral disease caused by the African Swine Fever Virus (ASFV). It infects all suid species including domestic pigs and free-ranging wild boar (hereafter only called «wild boar»). Since the first outbreak in Georgia in 2007, ASF has been spreading slowly but steadily towards Western Europe. ASF reached the European Union when the first cases were detected in Poland and the Baltic States in 2014.<sup>20,21</sup> In 2018, ASF was detected in Belgium, which was particularly surprising considering that the closest regions affected by ASF at that time were in Poland. The origin of introduction is not known so far, but due to the aforementioned long distance it is usually attributed to human activity.<sup>7,9</sup>

In countries affected by ASF in Eastern Europe (EE countries), ASF has been circulating mainly in the wild boar populations, with Romania being the only exception detecting most of the cases in domestic pigs kept in farms or backyards.<sup>10,20</sup>

In August 2018, the first outbreak of ASF has been reported in China.<sup>20,24</sup> Within only two years, ASF has spread over 14 countries in Eastern Asia. In the beginning of 2021, Malaysia also reported first cases of ASF.<sup>20</sup> Figure 1 provides an overview of the first appearance of ASF in different countries.

The risk of ASF introduction from EE countries to Switzerland was investigated in a risk assessment in 2017.<sup>15</sup> At that time, the probability of introduction of ASF into Switzerland was estimated to be low. The main pathway of introduction was identified to be illegal import of meat or meat products, which could lead to exposure if leftovers are not properly disposed. All other pathways were estimated to be negligible. As the situation in Eastern Asia might be different from the one in Eastern Europe, there is a need for an updated risk assessment focusing on the probability of introduction from countries affected by ASF in Eastern Asia (EA countries). The objective of this study was thus to estimate the probability of introduction of ASF from EA countries



**Figure 1:** Maps showing the distribution of African Swine Fever in different countries according to the year of first detection. Left: Eastern Europe. Right: Eastern Asia.

into the Swiss populations of domestic pigs and wild boar, and to compare this to the probability of introduction from Eastern Europe.

## Material and Methods

The risk assessment was conducted according to the OIE Handbook on Import Risk Analysis for Animals and Animal Products.<sup>19</sup> In brief, ASF was defined as hazard of interest. Subsequently, possible ways of introduction were identified and information about these pathways, both scientific literature and quantitative data, was collected. Due to lack of quantitative data, a qualitative risk assessment was conducted.

For both entry and exposure, probability was described using the terms listed in table 1. Uncertainty was described on a scale from low (1) to high (3). The consequences are the same, independent of the route of introduction: trade restrictions, culling of infected herds, transport bans, etc. Therefore, the present study focused only on the probability of entry and exposure.

As data on certain nodes or pathways were scarce, a concise expert elicitation was conducted. Experts were only asked about those nodes of the introduction pathways where information was scarce. Furthermore, specific questionnaires were designed for experts with different expertise to keep the questionnaire short and maximize response rate of experts.

## Results

### Identified pathways

The following nine entry pathways were identified and assessed: import of domestic pig, entry or import of wild boar, illegal and legal import of meat and meat products, entry by contaminated means of transport, entry by human contamination, entry of contaminated feed, entry of contaminated semen/embryo, entry of contaminated blood products and entry of infected ticks.

Import of domestic pig includes legal or illegal import of live domestic pigs. Entry or import of wild boar means any introduction of live wild boar into Switzerland, either import by humans or wild boar crossing the border within their natural movement. Illegal and legal import of meat and meat products includes any introduction of meat products, either through legal import or different travellers carrying meat products: this could be tourists or workers (e.g. truck drivers) entering Switzerland with a sandwich or similar provisions, Swiss people travelling abroad and returning meat products as souvenirs or citizens of countries affected by ASF visiting friends or fam-

ily in Switzerland bringing meat products as a gift. Entry by contaminated means of transport describes the scenario that a pig transport truck could be contaminated on a foreign farm affected by ASF and subsequently drive to a Swiss farm without proper cleaning and disinfection. The scenario of entry by human contamination is similar, with the only difference that infectious material is transferred by humans, e.g. farmers or hunters having contact with infected pigs or wild boar abroad, returning infectious material on their clothes, boots or other tools. Entry of contaminated feed, semen, embryo, or blood products refer to import of those products, which are afterwards fed to or used for pigs. The last pathway, entry of infected ticks, stands for the theoretical scenario that a tick could feed on an infected suid abroad, then happen to be transported to Switzerland in any kind of transport and arrive at infecting another suid in Switzerland.

### Expert responses

Nine experts were contacted, out of which six responded. The six respondents were experts from cantonal veterinary offices (n = 2), the pig health service (n = 1) and veterinary practice (n = 3).

### Entry & Exposure Probability

For better readability, results of entry and exposure assessment are presented together for each pathway. Table 2 summarises entry, exposure, and overall introduction probabilities of the different pathways. The reasoning for these estimates is described in detail in the following paragraphs.

### Import of meat and meat products

The highest probability of ASF introduction from EA countries is posed by (illegal) import of meat and meat products. Throughout the last 10 years, there was an increasing number of tourists from EA countries (stagnating at around 1.6 Mio. during the last three years).<sup>4</sup> Much lower are the numbers of Swiss citizens living abroad in EA countries (about 10 000) or citizens of EA countries living in Switzerland (about 50 000).<sup>3,5</sup> Tourists are numbers of people arriving in Switzerland every

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**Table 1:** Description of terms used to describe probabilities.

Description of probability	Interpretation
Very high	Event occurs almost certainly
High	Event occurs frequently.
Moderate	Event occurs regularly.
Low	Event occurs rarely but can happen.
Very low	Event occurs rarely but cannot be ruled out.
Negligible	Event is so unlikely that it has not to be considered further.

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year, whereas people living in Switzerland or in EA countries are less likely to visit their respective home country every year. Temporarily employed farm assistance labourers are not likely to come from Asia. Experts rated the probability of temporary farm assistance workers introducing ASFV to be negligible or very low for EA countries. It cannot be ruled out that illegal imports could happen at a larger scale. In Italy, 10 tonnes of Chinese pork were seized in 2020.<sup>2,12</sup>

The probability that pig meat from EA countries is contaminated with ASFV should be considered very high. Data from Australia showed that almost 50% of the confiscated meat products were contaminated with ASFV.<sup>1</sup> Even if it's unclear whether the virus is still infectious, it means that the animals from which these products were derived were infected with ASFV at time of slaughter and thus, introduction of ASF cannot be ruled out.

The high number of travellers from EA countries combined with the high proportions of ASF positive confiscates led to the estimation that the entry probability through meat products was very high. Uncertainty was estimated to be high as well due to the lack of data on illegal imports.

Feeding of food waste or leftovers is prohibited in Switzerland. Even though laws are generally followed, it cannot be ruled out that some farmers or backyard pig keepers without training in animal husbandry feed their pigs leftovers. Neither can it be ruled out that pigs eat

meat or meat products improperly disposed in the vicinity of open-air runs. Wild boar could access leftovers dumped in the forest or at motorway service areas. Experts estimated the probability that Swiss pigs are fed leftovers from restaurant kitchens from negligible to moderate. The probability of feeding private household leftovers was estimated from very low to high. Thus, exposure probability for domestic pigs was estimated to be low, whereas exposure probability for wild boar was estimated to be moderate. Uncertainty was estimated to be high.

Combining entry and exposure probability, the overall probability of introduction by import of meat and meat products was estimated to be high.

#### Human contamination

Although hunting abroad is a common practice in Switzerland, it happens mostly in neighbouring countries and EA countries are not common hunting tourism destinations.<sup>15</sup>

Similarly, experts agreed that temporary farm assistance labourers are not likely to come from Asia. Awareness campaigns were run in recent years, so hunters and farmers should be aware of the dangers of ASF and the importance of proper cleaning and disinfection. Experts supported this assumption.

Entry probability was estimated to be low, while uncertainty was estimated to be moderate. Exposure proba-

**Table 2:** Overview of identified entry pathways and final estimations of entry, exposure, and overall introduction probability of African Swine Fever from Eastern Asia to Switzerland.

Pathway	Entry		Exposure		Overall probability
	Probability	Uncertainty	Probability	Uncertainty	
Meat and meat products	Very high	High	DP: Low WB: Mod.	High	High
Human contamination	Low	Moderate	DP: Low WB: Low	Moderate	Low
Feed	Very low	High	DP: High WB: Neg.	Moderate	Very low
Blood products	Very low	Moderate	DP: High WB: Neg.	Low	Very low
Domestic pig	Negligible	Low	–	–	Negligible
Wild boar	Negligible	Low	–	–	Negligible
Means of transport	Negligible	Low	DP: High WB: Neg.	Low	Negligible
Semen or Embryo	Negligible	Low	DP: High WB: Neg.	Low	Negligible
Tick	Negligible	Low	DP: Neg. WB: Neg.	Low	Negligible

Abbreviations: DP = domestic pig, WB = wild boar, Mod. = moderate, Neg. = negligible.

bility was estimated to be low for both domestic pigs and wild boar, with moderate uncertainty as well.

Combining entry and exposure probability, the overall probability of introduction by human contamination was estimated to be low.

#### Contaminated feed

No official data on feed imports could be included in the current risk analysis. Whereas three experts considered the probability of import of contaminated feed to be very low or even negligible, another expert considered it as high. Knowledge about survival of ASFV in feedstuff is limited. However, a recent study suggests that drying or heating during manufacturing processes can be expected to inactivate ASFV.<sup>13,14</sup> Therefore, entry probability was estimated to be very low, yet uncertainty was estimated to be high.

If contaminated feedstuff were imported, it would most likely also be fed to pigs. Thus, exposure probability was estimated to be high with moderate uncertainty.

Combining entry and exposure probability, the overall probability of introduction by contaminated feed was estimated to be very low.

#### Blood products

No blood products for feeding purposes were imported from EA countries and experts rated the probability of illegal import to be very low. Entry probability was thus estimated to be very low. Uncertainty was estimated to be moderate.

Like feed, blood products would probably be fed to pigs if they were imported. One recent study found all of 21 batches of dried blood pig feed positive for ASFV.<sup>23</sup> Although no live virus was isolated it should not be taken for granted that ASFV is inactivated in every batch. Therefore, exposure probability was estimated to be high, while uncertainty was estimated to be low.

Combining entry and exposure probability, the overall probability of introduction by contaminated blood products was estimated to be very low.

#### Import or entry of live domestic pig or wild boar

No import of live pigs was reported from any country affected by ASF.<sup>11</sup> Illegal imports cannot be completely ruled out but are highly unlikely due to the enormous distance. Such transport would need to be by airplane, which makes illegal import almost impossible. All experts rated the probability of such illegal import to be negligible. The distance that ASF spreads by natural movements of wild boar is estimated to be 1–2 km per month.<sup>8</sup> EA countries are too far away for a wild boar to cover such a distance.

Overall, entry probability of both domestic pigs and wild boar was estimated to be negligible. Uncertainty was estimated to be low.

Exposure was not further assessed because any introduction of infected live animals would be equivalent to an outbreak.

#### Contaminated means of transport

There are no official records of trucks entering Switzerland. However, due to the tremendous distance it is highly unlikely that cars drive all the way from Eastern Asia to Switzerland. Experts also rated the probability of this pathway as negligible. Therefore, entry probability was estimated to be negligible. Uncertainty was estimated to be low.

Like in the scenario of contaminated feed, it can be assumed that a pig transporter would also drive to a farm if it entered Switzerland in the first place. Thus, exposure probability was estimated to be high, while uncertainty was estimated to be low.

Combining entry and exposure probability, the overall probability of introduction by contaminated means of transport was estimated to be negligible.

#### Contaminated semen or embryo

Most of the imported semen originated from Germany (65%) and France (28%), followed by Austria and Belgium (3% each). From EA countries, only three doses of semen were imported from China in 2019.<sup>11</sup>

However, production and import of semen and embryos are strictly regulated and controlled. It is unlikely that an ASF infection would remain undetected. Experts also rated this probability to be negligible.

Therefore, entry probability was estimated to be negligible, with low uncertainty.

Similar to contaminated feed or blood products, it was assumed that semen or embryos would be used to inseminate pigs in Switzerland, if it were imported. Thus, exposure probability was estimated to be high, while uncertainty was estimated to be low.

Combining entry and exposure probability, the overall probability of introduction by contaminated semen or embryo was estimated to be negligible.

#### Infected tick

No evidence was found that an introduction by infected ticks was ever reported. On the contrary, there are studies suggesting that ticks play no role in the transmission of ASF in the current outbreaks.<sup>16,17</sup>

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Thus, probability of both entry and exposure was estimated to be negligible. Uncertainty was estimated to be low for both entry and exposure as well.

### Comparison with Eastern Europe

For both regions, the introduction pathway with the highest probability is entry of meat and meat products. There are about 700 000 tourist arrivals per year from EE countries as well as 200 000 citizens from EE countries living in Switzerland, and about 70 000 Swiss citizens living in EE countries.<sup>3–5</sup> Another major risk group are temporarily employed farm assistance labourers. Experts ranked their introduction probability between low and very high. Overall, introduction probability was estimated to be high (EA countries: high), with high uncertainty.

The biggest difference in introduction probability between EA and EE countries was observed for the pathway of introduction of live pigs. Legal imports originated from France (>90%), but also from Canada, Denmark, the Netherlands, Austria, the United Kingdom and Germany. No live pigs were imported from ASF positive countries during the last 10 years. However, illegal imports are more likely from EE countries as road transport is possible. Experts rated the probability of such illegal import from EE countries from very low to moderate. There are examples of illegal imports leading to outbreaks of other diseases, e.g. an outbreak of Porcine Reproductive and Respiratory Syndrome in Val-de-Ruz (NE) in May 2020, which was traced back to an illegal import of 2 pigs from Spain.<sup>22</sup> Thus, the probability of introduction by infected domestic pigs was estimated to be moderate (EA countries: negligible), with moderate uncertainty.

Introduction by natural movement of wild boar is negligible. Considering spread of 1–2 km per month and that the closest ASF outbreak is about 550 km from the Swiss border, it would take another 10–20 years until ASF reaches Switzerland this way. Experts rated the probability of illegal import of wild boar from very low to high. This wide range of expert opinions is due to the high uncertainty about illegal imports. Overall, the probability was estimated to be low (EA countries: negligible), with high uncertainty.

The importance of imported contaminated feed was also found to be higher for EE countries. One expert expressed considerable concerns about feed or straw produced in Switzerland from byproducts of plants imported for human consumption (example of spelt, of which byproducts are pressed to cubes for pigs to play with). However, no official records on the amounts of such imports could be found. Overall, the introduction probability was estimated to be moderate (EA countries: very low), with moderate uncertainty.

Human contamination was estimated to have a slightly higher probability. Even though countries affected by ASF are not common hunting tourism destinations, experts rated the probability of insufficient cleaning and disinfection as low or moderate. Temporary assistance labourers also pose a potential risk. However, they will likely not visit their home countries in their working clothes. Overall, introduction probability was estimated to be moderate (EA countries: low), with moderate uncertainty.

There are no recorded pig transports from EE countries. However, such transports might happen anyway. Experts estimated this probability to be very low (EA countries: negligible).

No difference in introduction probability was observed for contaminated blood products (very low), semen or embryos (negligible) or ticks (negligible).

## Discussion

The probability of introduction of ASF from EA countries by import of meat and meat products was estimated to be comparable to the risk by EE countries. This demonstrates that while it remains important to closely monitor the situation in Eastern European countries, the risk of an import from Eastern Asia should not be forgotten. The high overall probability of introduction of the virus into the wild boar population is demonstrated by the recent introduction into the German wild boar population. Germany reported the first cases of ASF during the work on this risk assessment and after data collection was already completed.<sup>20</sup> As there were so far only cases in wild boar in an area about 550 km distant from the Swiss border, the situation in Eastern Germany was assumed to be comparable to Western Poland. Therefore, Germany was not yet incorporated in the current risk assessment. Similarly, Malaysia reported the first cases in the beginning of 2021.<sup>20</sup> As data was collected in 2020, Malaysia is coloured in figure 1 in the introduction, but it was not considered in the current risk assessment.

As mentioned above, introduction probability by import of meat and meat products is similar for Eastern Europe and Eastern Asia. However, the target group for interventions is different: There are many temporarily employed farm assistance labourers working in Switzerland and citizens from EE countries living in Switzerland (or vice-versa). As these will be travelling mainly by car, disease awareness campaigns should focus on border points, motorway service areas, etc. On the other hand, people arriving from EA countries are mainly

tourists who are travelling by plane, which would need campaigns to focus more on airports. In any case, public places, like fireplaces in forests, should also be included to reduce exposure probability of wild boar.

The probability of introduction from EE countries by natural wild boar movements was estimated to be negligible. However, this only reflects the current situation. As human activity was repeatedly accounted responsible for ASF spread over long distances, this situation may change quickly.<sup>8,10,18</sup> As soon as ASF spreads to regions of neighbouring countries that are close to the Swiss border, the probability of introduction will increase dramatically.

Our study only involved a small number of experts. This is due to the fact that the number of people with in-depth knowledge on ASF is rather limited. However, we took great care to contact experts with different background to represent different perspectives on ASF. This is reflected in the large range of answers for some of the questions.

There is considerable uncertainty in some of the introduction pathways. In particular, a more in-depth study of imported goods that may be used as pig feed as well as studies focusing on the survival of ASFV in feedstuff would be needed to elucidate the risk posed by feedstuff. Measures to reduce the introduction probability will need to focus on humans, as the main routes of introduction are driven by human activity. The simplest measure is to promote information campaigns. It is important to also reach the general population that might not be aware of ASF. This should not only focus on the introduction of potentially contaminated products at border points and airports, but also address the improper disposal of such provisions. The latter is particularly important for Switzerland as most pigs are kept in open-air runs, often close to hiking trails. Another way to

reduce introduction probability even more would be border controls. However, this would require a tremendous effort and thus is barely feasible.

Currently, the COVID-19 pandemic is attracting a lot of attention. In the context of ASF, the reduced travel activities may even be beneficial: a lower number of travellers results in a lower probability of ASF introduction. The examples of Belgium and the Czech Republic show that a fast response allows to eradicate ASF after a single-point introduction.<sup>6,7</sup> To achieve this, it is important to detect the first case as quickly as possible. This requires a high disease awareness, which may be impaired due to the COVID-19 pandemic. The first cases in Germany sparked a temporarily increased media coverage, but this effect has already worn off again. Nevertheless, the probability of ASF introduction remains high and thus, it is important not to fall victim to habituation effects, but to stay ever vigilant.

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### Abbreviations:

ASF	African Swine Fever
ASFV	African Swine Fever Virus
EA countries	countries affected by African Swine Fever in the Eastern Asia outbreak cluster
EE countries	countries affected by African Swine Fever in Eastern Europe outbreak cluster
wild boar	free ranging wild boar

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## Restez vigilants: la probabilité d'introduction de la peste porcine africaine en provenance d'Asie orientale est presque aussi élevée qu'en provenance d'Europe de l'Est.

La peste porcine africaine (PPA) est une maladie virale grave qui infecte toutes les espèces de suidés. Depuis le premier foyer en Géorgie en 2007, elle s'est lentement propagée vers l'Europe occidentale et a atteint l'Union européenne lorsque les premiers cas ont été détectés en Pologne et dans les États baltes en 2014. La PPA a été signalée pour la première fois en Chine en 2018 et depuis lors, elle s'est propagée dans 14 pays en deux ans. Cette

## Attenzione: la probabilità di introduzione della peste suina africana proveniente dall'Asia orientale è quasi pari a quella dell'Europa orientale.

La peste suina africana (PSA) è una grave malattia virale che infetta tutte le specie di suidi. Dal primo focolaio in Georgia nel 2007, si è lentamente diffusa verso l'Europa occidentale e ha raggiunto l'Unione europea quando i primi casi sono stati rilevati in Polonia e negli Stati baltici nel 2014. La PSA è stata segnalata per la prima volta in Cina nel 2018 e da allora si è diffusa in 14 paesi in due anni. Questo studio mirava a stimare la probabilità di introduzione della PSA dall'Asia orientale in una valuta-

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étude visait à estimer la probabilité d'introduction de la PPA en provenance d'Asie orientale par une évaluation qualitative des risques et à la comparer à la probabilité en provenance d'Europe de l'Est, qui a été estimée dans une évaluation des risques antérieure.

Une forte probabilité d'introduction a été estimée pour l'importation de viande et de produits carnés, qui s'est avérée être la voie d'introduction la plus probable. Les voies moins importantes étaient l'introduction par contamination humaine (faible probabilité) ou l'importation d'aliments pour animaux ou de produits sanguins (très faible probabilité). Les importations de porcs domestiques ou de sangliers sauvages, de moyens de transport contaminés ou de sperme, d'embryons ou de tiques infectés ont tous été estimés négligeables.

Concernant l'Europe de l'Est, l'importation de viande et de produits carnés était également considérée comme présentant un risque élevé et était donc la voie d'introduction la plus probable. Des probabilités plus élevées ont été estimées pour l'importation de porcs vivants, d'aliments ou de moyens de transport contaminés et de contamination humaine.

Dans l'ensemble, la probabilité d'introduction depuis l'Asie orientale n'est que légèrement inférieure à celle de l'Europe de l'Est. Comme il est essentiel de détecter le premier cas le plus rapidement possible, il est important de ne pas être victime d'effets d'accoutumance, mais de rester vigilant.

**Mots clés:** Évaluation des risques, maladies infectieuses émergentes, porc, PPA

zione qualitativa del rischio, e a confrontarla con la probabilità di introduzione dall'Europa orientale, stimata in una precedente valutazione del rischio. Un'alta probabilità di introduzione è stata attribuita all'importazione di carne e prodotti a base di carne, che è risultata essere anche la via di introduzione più probabile. Vie meno importanti sono considerate l'introduzione via contaminazione umana (bassa probabilità) o l'importazione di mangimi o prodotti sanguigni (probabilità molto bassa). La probabilità di introduzione attraverso maiali domestici o cinghiali selvatici, mezzi di trasporto contaminati, o sperma infetto, embrioni o zecche sono stati tutti stimati come trascurabili.

Per l'Europa orientale, l'importazione di carne e prodotti a base di carne è stata anche stimata ad alto rischio ed è stata quindi classificata come la via di introduzione più probabile. Probabilità più alte sono state assegnate all'importazione di suini vivi, di mangimi o mezzi di trasporto contaminati e alla contaminazione umana.

Nel complesso, la probabilità di introduzione dall'Asia orientale è solo leggermente inferiore a quella dall'Europa orientale. Poiché è importante rilevare il primo caso il più rapidamente possibile, è essenziale non cadere vittima degli effetti di assuefazione, e rimanere vigili.

**Parole chiave:** Valutazione del rischio, malattia infettiva emergente, maiale, PSA

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Stay alert: probability of African Swine Fever introduction from Eastern Asia is almost as high as from Eastern Europe

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