**TABLE LEGENDS**

**Table 1.** Pig and pig products imported to South Korea and ASF status in domestic pig population of the countries of origin during 2009-2018.

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| --- | --- | --- | --- | --- | --- |
| **Country** | **Pigs** | | **Pig products** | | **ASF presence**  **in domestic pigs** |
| **Heads** | **%** | **Kg** | **%** |
| Australia |  |  | 1.0E+07 | 0.3 | N |
| Austria |  |  | 1.7E+08 | 4.4 | N |
| Belgium |  |  | 1.2E+08 | 3.1 | N (only in wild boars since 2018) |
| Canada | 27,303 | 60.2 | 5.3E+08 | 13.8 | N |
| Chile |  |  | 3.6E+08 | 9.3 | N |
| Denmark | 1,770 | 3.9 | 1.7E+08 | 4.4 | N |
| Finland |  |  | 4.7E+07 | 1.2 | N |
| France | 7,711 | 17.0 | 1.3E+08 | 3.4 | N |
| Germany |  |  | 6.2E+08 | 16.1 | N |
| Hungary |  |  | 5.5E+07 | 1.4 | N (only in wild boars since 2017) |
| Ireland |  |  | 3.5E+07 | 0.9 | N |
| Italy excluding Sardinia\* |  |  | 3.4E+05 | 0.008 | N |
| Japan | 24 | 0.05 | - | - | N |
| Mexico |  |  | 1.1E+08 | 2.9 | N |
| New Zealand |  |  | 6.1E+04 | 0.001 | N |
| Poland |  |  | 6.6E+07 | 1.7 | Y (14-) |
| Spain |  |  | 4.8E+08 | 12.5 | N |
| Sweden |  |  | 1.7E+07 | 0.4 | N |
| The Netherlands |  |  | 1.7E+08 | 4.4 | N |
| United Kingdom | 1 | 0.002 | 2.0E+07 | 0.5 | N |
| USA | 8,567 | 18.9 | 7.4E+08 | 19.2 | N |

\* Pig products from Italy except for Sardinia can be imported to South Korea according to the Import Health Requirements for pig products imported from Italy (Notification of Ministry of Agriculture, Food and Rural Development No. 2015-72. Enforcement on 22 July 2015)

**T****able 2.** Description and parameterization of model inputs for assessing the risk of ASF introduction via legal import of live pigs.

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| **Notation** | **Definition** | **Parametrization** | **Source** | **Values** |
| *P1* | Probability of ASF infection in the country of *o* | Beta (α1, α2)  α1 = X + 1,  α2 = M - (X + 1) | OIE (2019)  X: the number of months with at least one undetected ASF outbreak M: number of months considered | Examples:  Free countries: Beta (2, 11998) |
| *P2* | Probability of selecting an ASF-infected pig from the country *o* in a month m during the HRP | Beta (α3, α4)  α3 = NI + 1,  α4 = No - (NI + 1) | NI = *Ou* × *To* × *Hp,* No = pig population |  |
| *Ou* | Number of undetected outbreaks during the HRP | Pert (min, most likely, max) | Mur *et al.* (2012) | Free countries:  Pert (1, 1, 1) |
| *To* | Average herd size in the country *o* | Normal = No/So | OIE (2018b) |  |
| *No* | Pig population size in the country *o* | Normal (μ, б) | OIE (2018b) |  |
| *So* | Number of pig establishments in the country *o* | Normal (μ, б) | OIE (2018b) |  |
| *Hp* | Intraherd prevalence | Pert (min, most likely, max) | OIE (2019) | Free countries:  Pert (0, 0.21, 1) |
| *P3* | Probability that an ASF-infected pig survives the infection | Pert (min, most likely, max) | Spickler and Roth (2006) | Pert (0.05, 0.2, 0.8) |
| *P4* | Probability of an ASF-infected pig surviving the transportation | Pert (min, most likely, max) | Murray and Johnson (1998) | Pert (0.0005, 0.0027, 0.092) |
| *Pre* | Probability that an ASF-infected pig from origin country enters a farm in South Korea during a month m | *Pre = P1 × P2* × *P3* × *P4* |  |  |
| *Pex* | Probability of an imported ASF-infected pig coming into contact with other domestic pigs in the importing country | Pq + [(1 - Pq) × Pu] |  |  |
| *Pq* | Probability that imported pigs were not quarantined | Beta (68.7, 4.6) | APHIS (1990); Herrera-Ibatá *et al.* (2017) | Beta (68.7, 4.6) |
| *Pu* | Probability that an ASFV-infected animal pass remained undetected during quarantine | Beta (1.3, 34.2) | Martínez-López *et al.* (2009); Romero. Spanish Ministry of Agriculture, Personal communication | Beta (1.3, 34.2) |
| *nodm* | Imports of live pigs from country of origin to South Korea during a month m | Normal (μ, б) | APQA (2019) | Normal (64.3, 182.6) |
| *Pf* | Probability that an ASF-infected pig from origin country enters a farm and results in transmission in South Korea during a month m | binomial (n, p) | *p = Pre × Pex*  n = *nodm* |  |

**Table 3.** Description and parameterization of model inputs for the risk assessment of ASF introduction via legal import of pig products.

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| **Notation** | **Definition** | **Parametrization** | **Source** | **Values** |
| *Pre* | Probability of introduction of ASF infected pig products into South Korea |  | *Pre* = *P1* × *P2* |  |
| *P1* | Probability of ASF infection in the country *o* | Beta (α1, α2)  α1 = X + 1,  α2 = M - (X + 1) | OIE (2019)  X = the number of months with at least one outbreak  M = number of months considered | Examples:  1. Poland: Beta (2,118)  2. Free countries: Beta (2, 11998) |
| *P2* | Probability of selecting an ASF-infected meat in a month m before the HRP | Beta (α3, α4)  α3 = Qim + 1  α4 = Nm - (Qim + 1) | Qim = *Ou* × *To* × *Hp* × *Pm* × *Mp*  Nm = Total meat production |  |
| *Ou* | Number of undetected outbreaks during the HRP | Pert (min, most likely, max) | OIE (2019) | Pert (1, 1, 1) |
| *To* | Average herd size in the country *o* | Normal = No/So |  |  |
| *No* | Pig population size in the country *o* | Normal (μ, б) | OIE (2018b) |  |
| *So* | Number of pig establishments in the country *o* | Normal (μ, б) | OIE (2018b) |  |
| *Hp* | Intraherd prevalence | Pert (min, most likely, max) | OIE (2018b) | Examples:  1. Poland: Pert (0.001, 0.0422, 1)  2. Free countries: Pert (0.001, 0.2264, 1) |
| *Pm* | Probability of ASF infected pig being transformed into meat | Pm = P3 × P4 × Psm × Pus |  |  |
| *P3* | Probability of pigs surviving the ASF infection | Pert (min, most likely, max) | Spickler and Roth (2006) | Pert (0.05, 0.2, 0.8) |
| *P4* | Probability of pigs surviving the transportation | Pert (min, most likely, max) | Murray and Johnson (1998) | Pert (0.0005, 0.0027, 0.092) |
| *Psm* | Probability of a pig going to slaughterhouse during a specific month | Normal (μ, б) | EUROSTAT (2014). | Normal (0.18, 0.02) |
| *Pus* | Probability of an infected pig being in slaughterhouse | Beta (α5, α6) | Romero. Spanish Ministry of Agriculture, Personal communication | Beta (1.34, 34.17) |
| *Mp* | Average weight of meat obtained from a pig (total meat products) | Normal (μ, б) | FAOSTAT (2018) |  |
| *Nm* | Total meat production in the country of origin per month | Normal (μ, б) | FAOSTAT (2018) |  |
| *Pex* | Probability of exposure to susceptible pig population in South Korea |  |  |  |
| *PW* | Proportion of food waste per supplied food | Normal (μ, б) | Ministry of Environment (2017a) | Normal (0.1713, 0.0115) |
| *PM* | Proportion of meat in food waste | Normal (μ, б) | Chang *et al.* (2013) | Normal (0.1297, 0.0129) |
| *SF* | Proportion of food waste used to swill feeding | Normal (μ, б) | Ministry of Environment (2015, 2016, 2017b) | Normal (0.283, 0.048) |
| *IE* | Inefficiency of heat treatment of food waste used for swill feeding | Pert (min, most likely, max) | Assumption | Pert (0.05, 0.1, 0.2) |
| *LF* | Proportion of food waste disposed in landfills | Normal (μ, б) | Ministry of Environment (2015, 2016, 2017b) | Normal (0.020, 0.006) |
| *LFw* | Probability of wild boar presence in landfills | Pert (min, most likely, max) | National Institute of Ecology (2015); Ministry of Environment (2011) | Pert (0.860, 0.919, 0.978) |
| *Wa* | Probability of wild boars having access to landfills | Pert (min, most likely, max) | Assumption | Pert (0.05, 0.10, 0.20) |
| *nodm* | Imports of pig products from the country *o* to South Korea during month m | Normal (μ, б) | APQA (2019) |  |
| *Pf* | Probability that infected pig product from the country *o* is introduced into South Korea and results in transmission during month m | binomial (n, p) | p = *Pre* × *Pex* n = nodm |  |