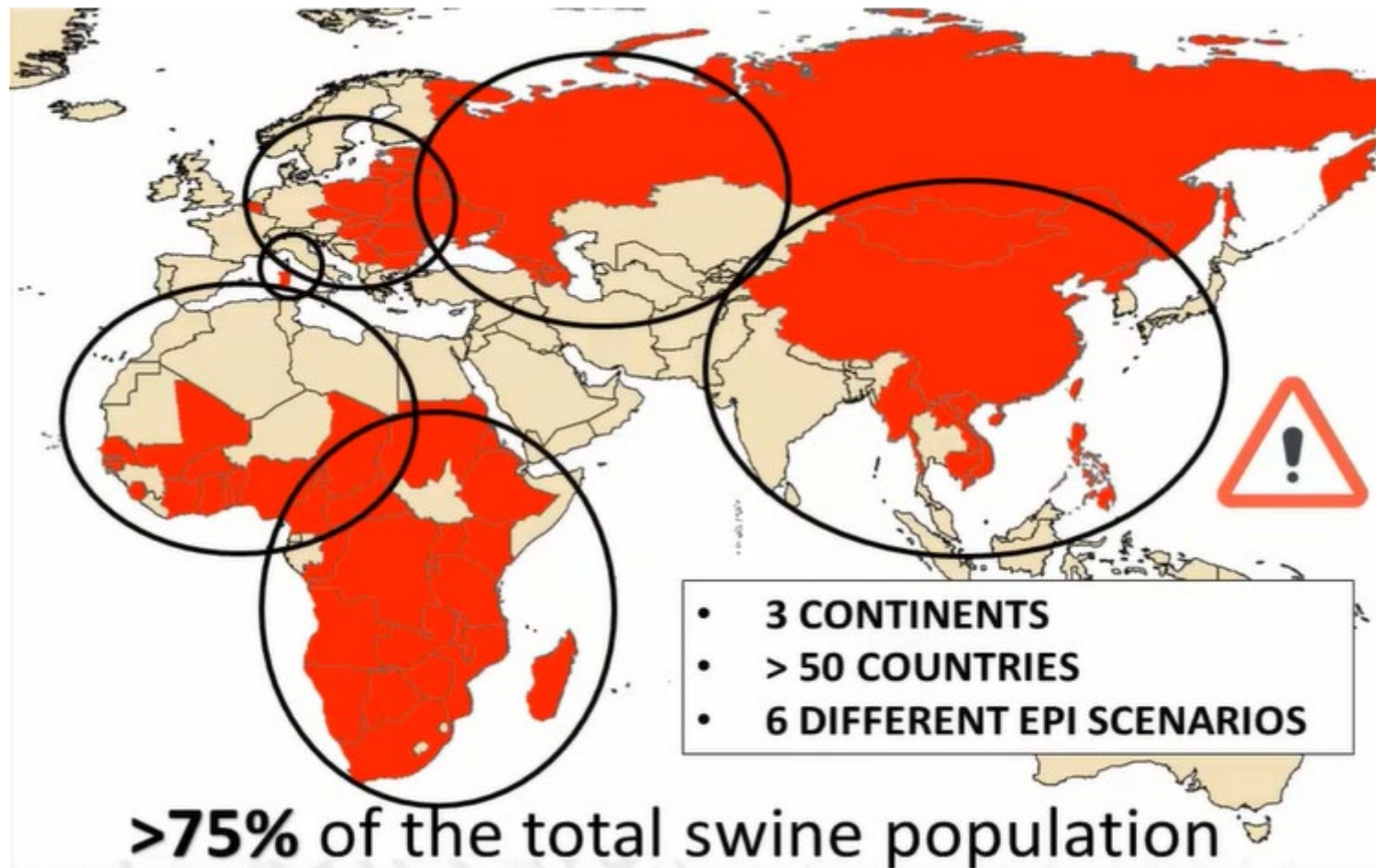


# What Is Really Happening with ASF in Europe and Asia?

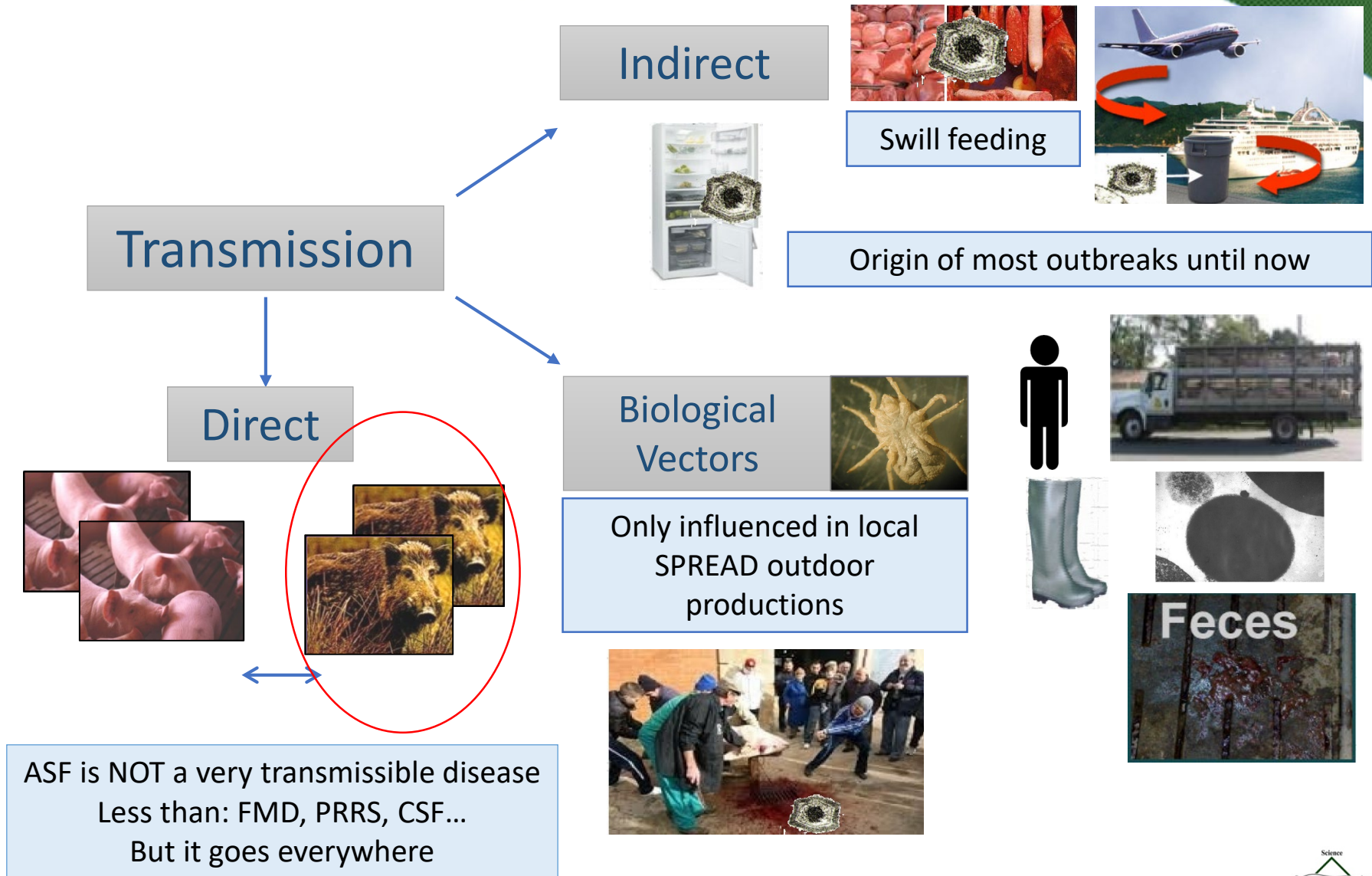


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# ASF - Global Swine Industry



# ASF Transmission Routes



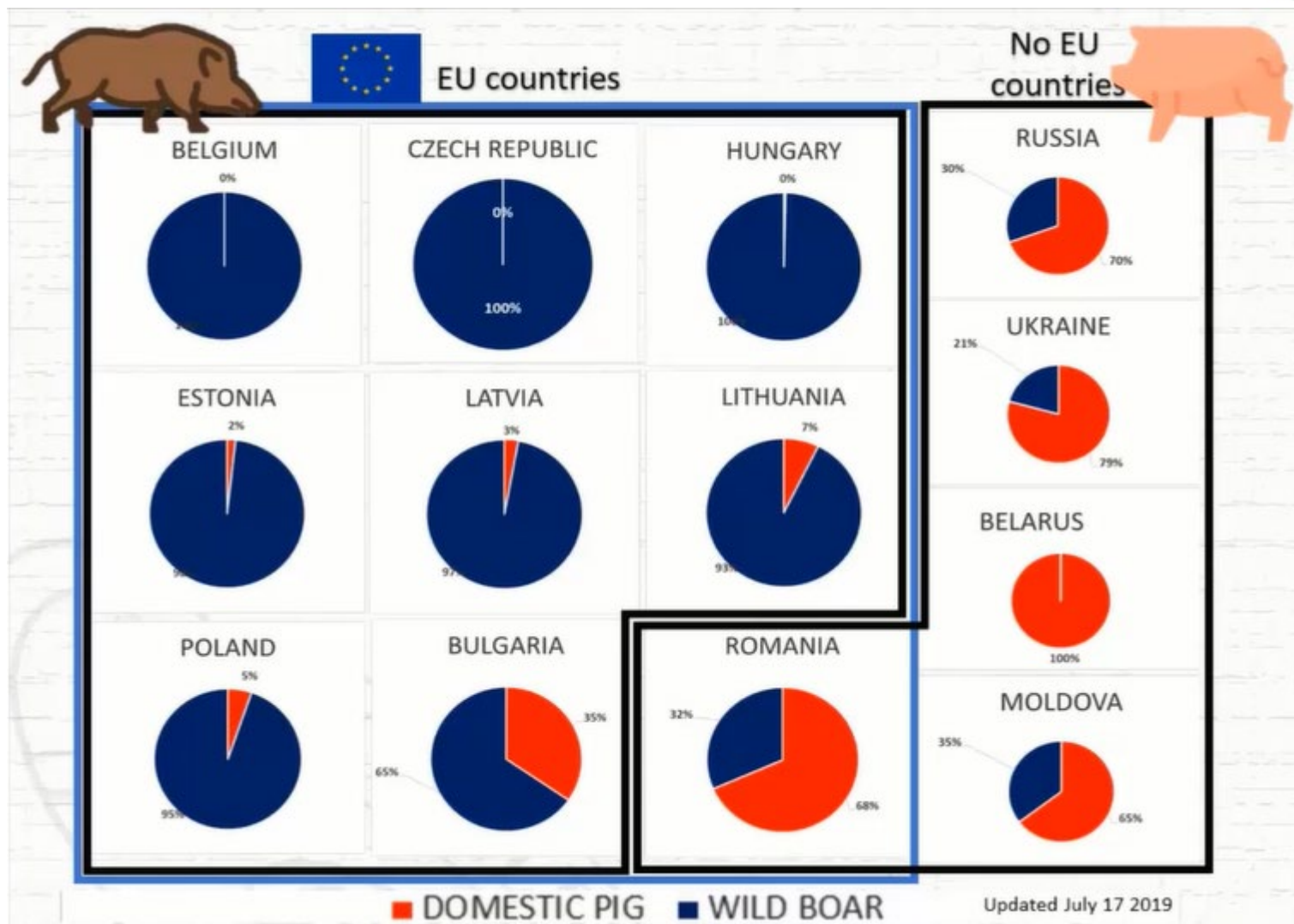
# ASF – Main Routes of Entry

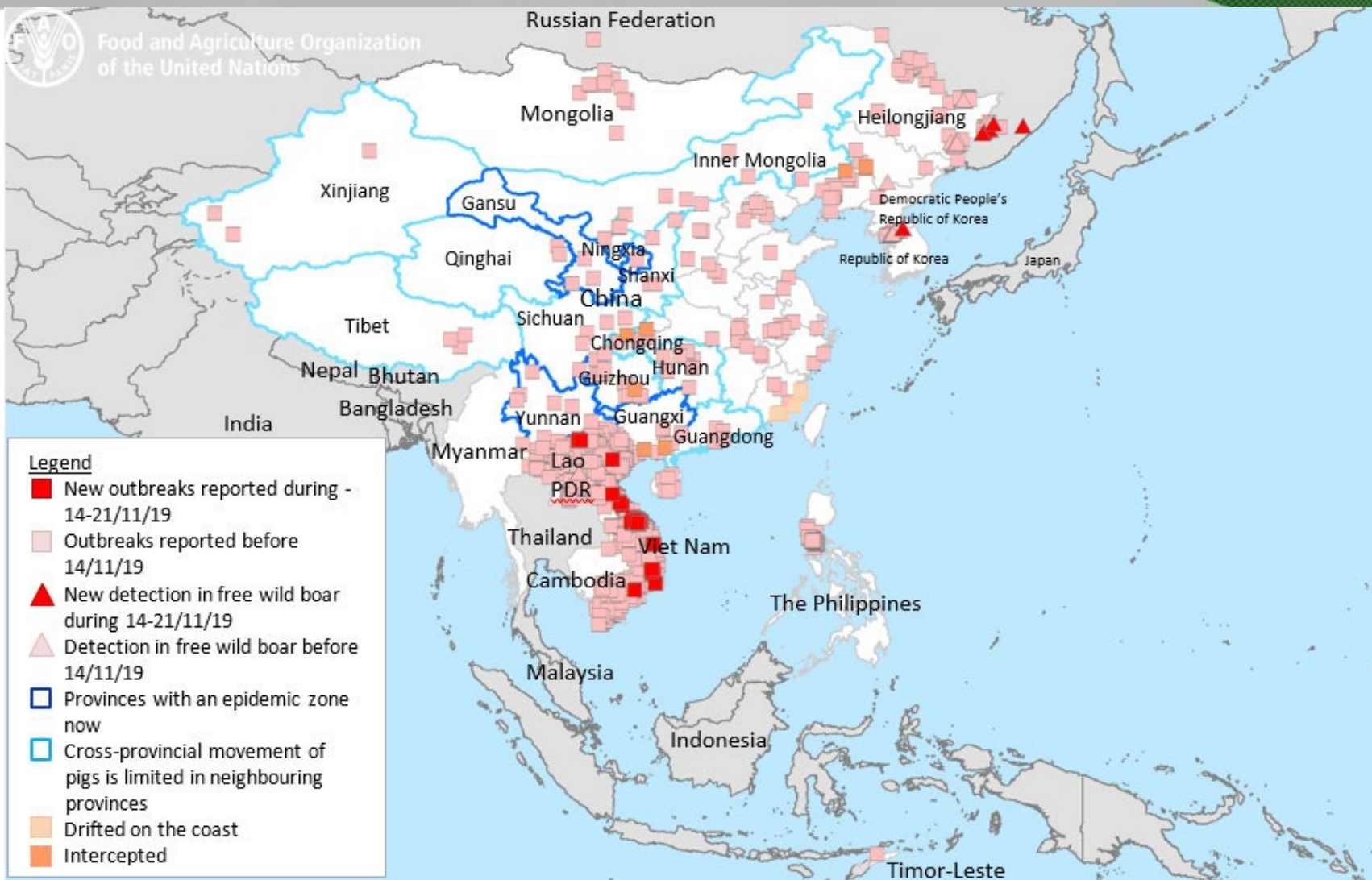
- Infected animals – domestic and wild boars
- Personnel – workers, owners, visitors, vets
- Human food – workers (swill feeding)
- Vehicles
- Flies – blood, feces
- Rodents, cats
- Reinfection of a farm after outbreak
- Infected and/or carrier pigs to slaughterhouse



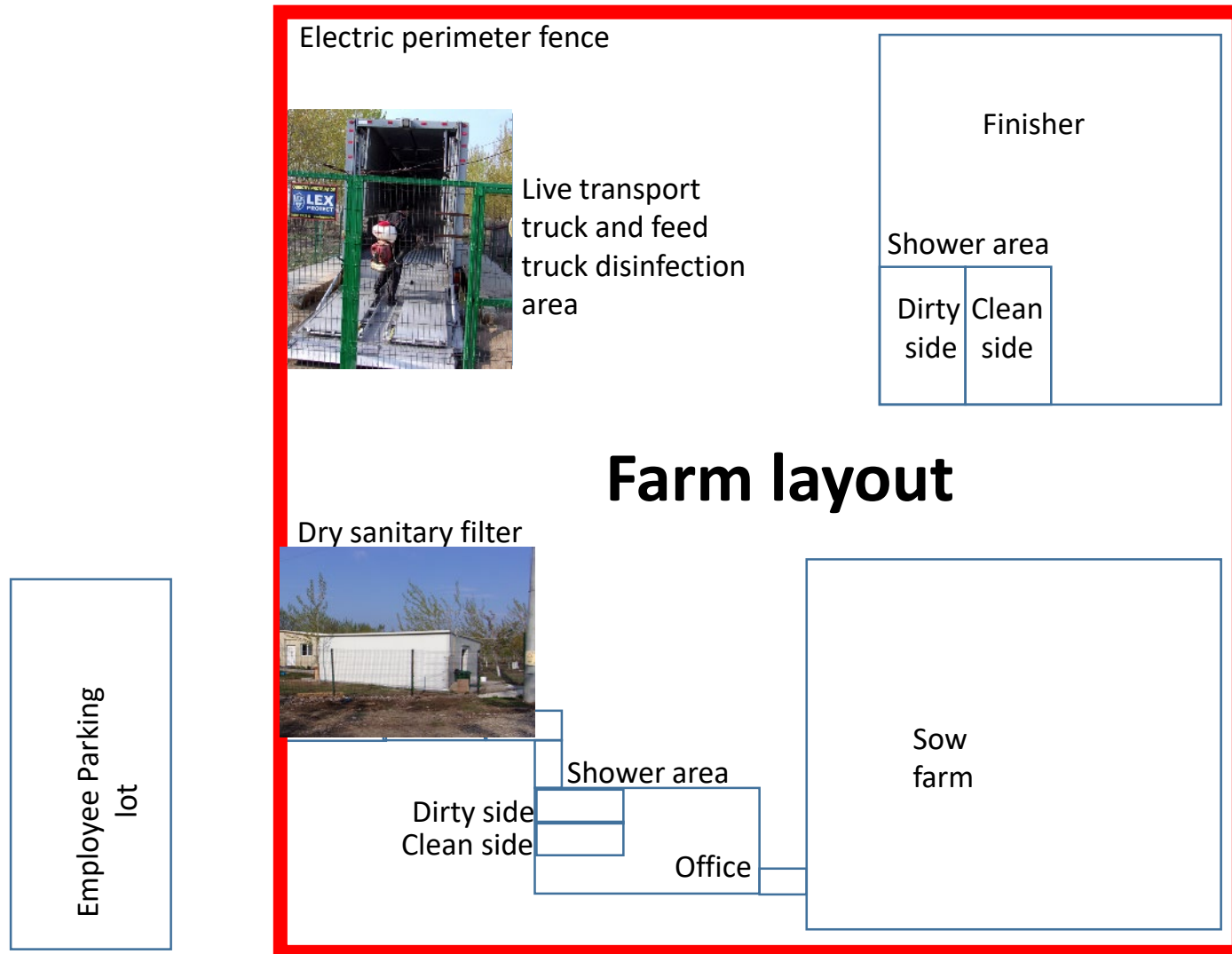
# ASF in Europe and Asia 2014-2019







# Farm Layout

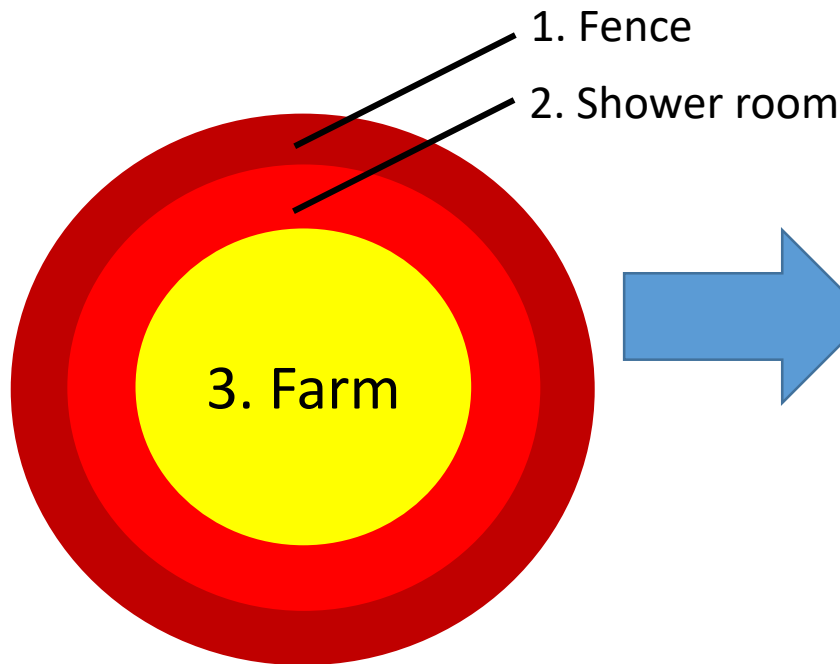




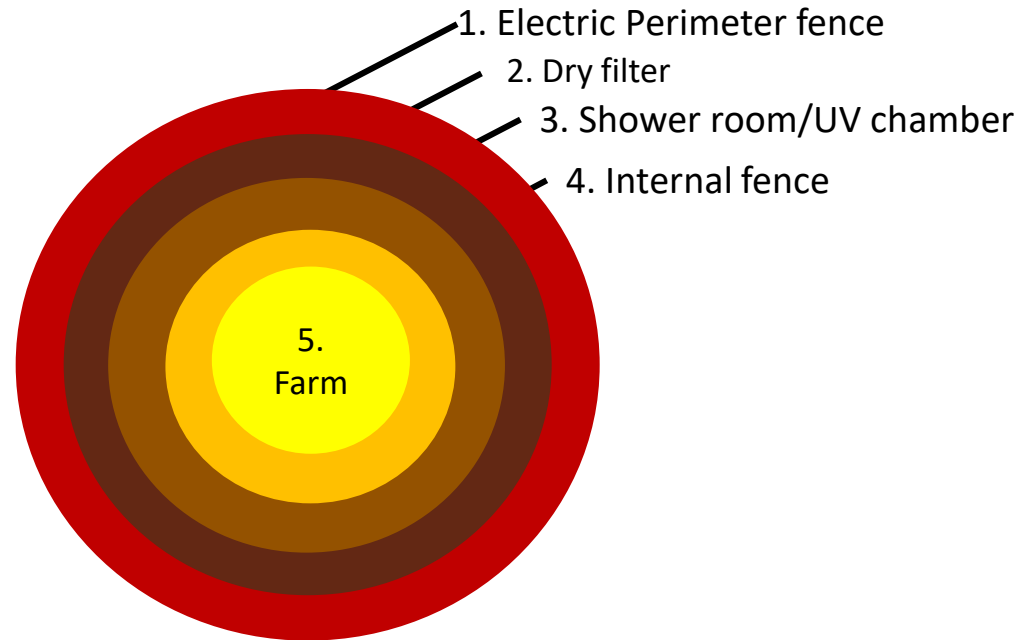
# Biosecurity

## Establishing Protection Barriers

Before ASF:



After ASF:



# “Layering” Examples

## Entering into the farm

Before stepping out of the car – use of **foot covers**...

At entrance – **disinfection mat**

**Bench system** – remove shoes

**Remove clothes** and shower in

**Farm clothes** and **boots**

## Gilts delivery

**Gilts** checked for disease status at the multiplier

**Truck** – Wash, disinfect and bake

Load **gilts** – clean and dirty lines - **farm** < > **truck**

**Isolation unit** – Test and hold gilts before enter the herd

**Reduce** frequency of gilt delivery.

This same rationale is important for all pathogens

# People - Dry Filter

- Anyone entering the farm to go through a dry filter, where they change their shoes and street clothes and leave any personal items including jewelry, phone, watch
- Hand disinfection with alcohol-based disinfectants is mandatory
- Color coded clothing and footwear is used between the dry filter and shower room



# Disinfection Chamber

- All product/tools/equipment/food are introduced through the disinfection chamber equipped with UV light and fogger
- 2 hrs. contact time, except for food (30 min)
  - Dry heat – 28 days at 21 degrees C
- Semen doses - double bagged and through chamber





# Truck Disinfection

- Live animal hauling trucks and feed trucks are performed with company owned trucks and are disinfected with Virkon S at the farm gate prior to entering the farm
  - 10 minute contact time
- Drivers of animal transport vehicles and feed trucks are not allowed to exit their cab
  - Loading is done by farm personnel



Truck Drivers may **NEVER** come into the farm

**Never** share equipment with the farm (sort boards, etc)

- A visual line not to cross, clearly communicated with the trucker
- One-way animal movement on or off the chute
- Enclosed and bird proof

# Transfer Station





# Harvest Plant



# Feed and Water Supply

- Feed is manufactured and delivered by own feed factory with own feed trucks
- Newly purchased grains are stored for at least 60 days prior to use
- Feed trucks are disinfected with the atomizer before entering the feed mill and have to pass through a disinfection tunnel
- Drinking water is deep well source
  - Chlorinated and checked quarterly through microbiological analysis





# Mortality

Carcasses are excellent vectors for disease transfer



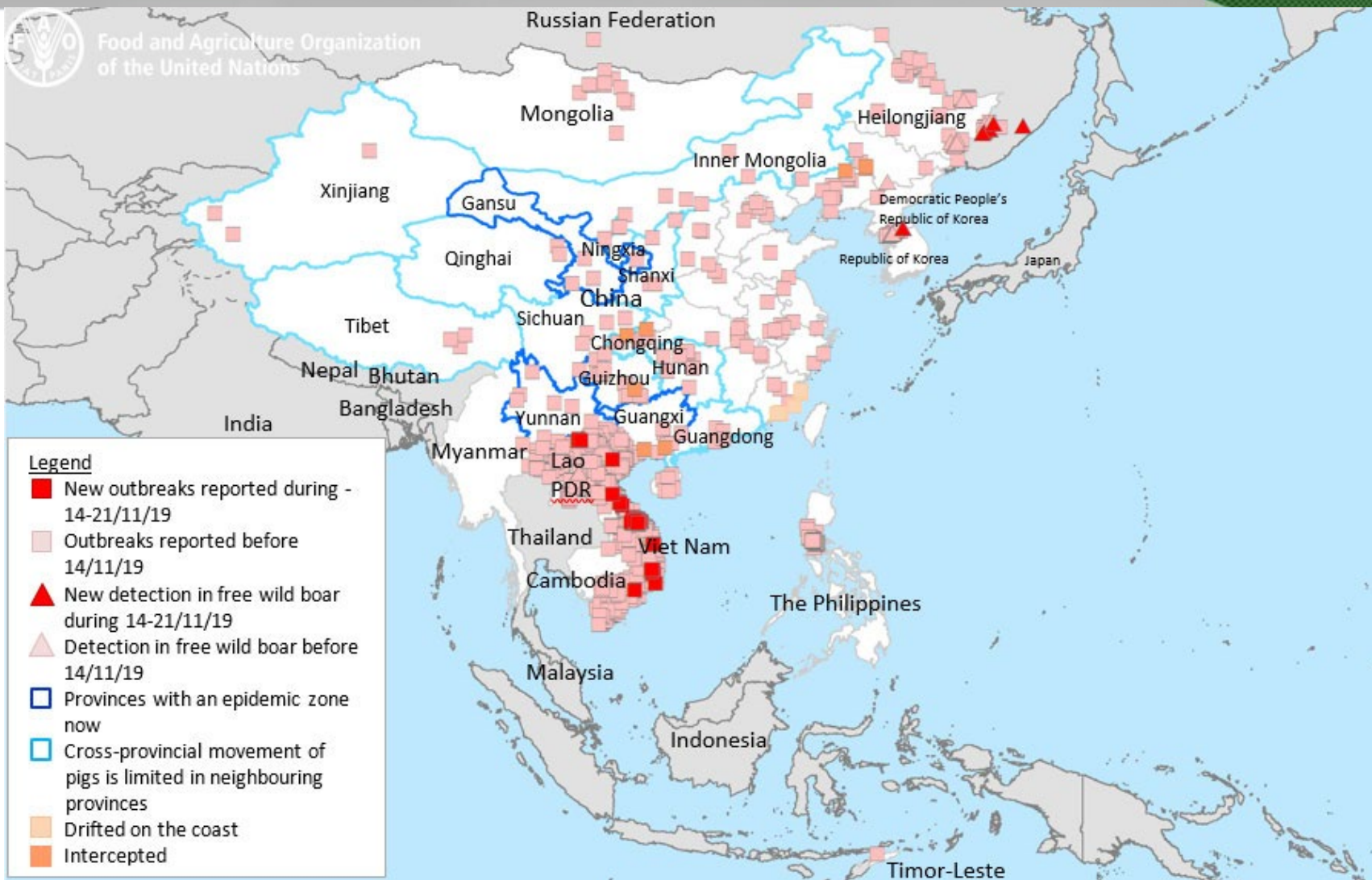
# Mortality Removal

- Designated area for mortality removal
  - Follow a one-way out program
  - No cross-traffic
  - Nothing else goes through that door (supplies, maintenance, etc)
  - No “farm-side” equipment may have contact with external mortality removal equipment (chains, buckets, cables, etc.)
- Rendering
  - Discontinue
  - Move to offsite



**Dead docks MUST stay clean.**





# China – Economic Drivers

- Cull sows - \$800
- Slaughter pigs - \$700-900
- Weaner gilts - \$400
- Weaner barrows - \$250



# China

## Risk

- Grain sourcing
- Food
- Transport
- Dead animal disposal
- Wild boars

## Solution

- Storage and on farm manufacturing with pelleting
- Dedicated sources(Few)
- Truckwashes
- Transfer stations
- Rendering
- Hunting

# ASF Impact – Repopulation

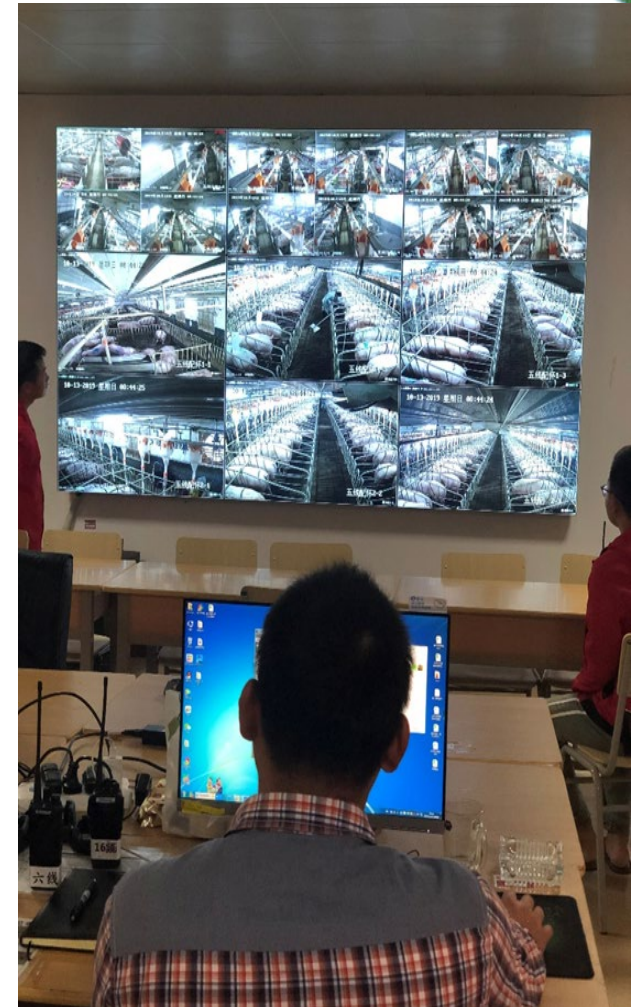
- Repopulation of farms with early outbreaks was generally unsuccessful
  - Poor Hygiene and Sanitation
  - Repopulating too fast
  - Poor gilt and transportation biosecurity
- Minimal repopulation from May – August
  - Extended downtime
  - Summer heat

# ASF Impact – Repopulation

- Recent repopulations much more successful
  - Dramatically improved transportation biosecurity
  - Significant investment in diagnostic monitoring
- Different population strategy
  - Finisher gilts from multiple sources and Health status
  - Purebred gilts where possible (Internally Multiply)
  - Significant Investment in compartmentalization

# ASF Impact - Repopulation

- Massive Biosecurity Investment
  - Truck washes & dryers
  - Quarantine dorms
  - Off site kitchens
  - Thermal disinfection buildings
  - Shower In/Out feed mills
  - Individual nipples, cups, trough, solid pen dividers
  - Virkon and Glutaraldehyde





# ASF Impact - Repopulation

- Major Production Changes
  - No Animal Movement
  - Heat Checking and Breeding Without Boars
- “Animal Extraction”
  - Depopulations generally do not occur currently
  - Individual test and remove
    - Chinese feel strongly this will be effective
  - Vaccinated herds may be difficult to monitor

# ASF Impact – Vaccination

- Small Scale Field Trials with ASF Vaccine
  - Government sanctioned, Gene Edited MLV Vaccine
  - Safety feedback has been good
  - Efficacy feedback is inconsistent
- Currently No Licensed Vaccine in China
  - All Vaccine Use is Illegal
  - Many Black Market Vaccines Exist
  - Many Fake Vaccines Exist
  - Cost is \$25-\$50 per Dose

# Lessons

- Biosecurity layering
- Early detection
  - PCR at site
- Rapid confirmation
- Segregation by barn and site
- Animal disposal
- Wild boar management
- No swill feeding

# Thank You

