



Biosecurity and control measures

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terminology (OIE)

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Biosafety

The consistent application of safety measures to minimize or prevent exposure to the person handling a biological agent, laboratory and building occupants, the community and the environment.

Biosecurity

Maintaining a biological agent a secure way, either by physical or procedural means, so as to ensure it does not constitute a hazard to man or his environment.

Biosecurity plan

Identifies potential pathways for the introduction and spread of disease in a zone or compartment.

Describes the measures which are being or will be applied to mitigate the disease risks.



Preparedness

- Knowledge- information
- Plan- what to do upon detection
- Surveillance- look for a new incursion
- Awareness – risk management & communication
- **Risk-based approach/ realistic approach**



Risk Assessment

- Risk management is based on risk assessment
- Qualitative - Yes/ No
 - Several grades, categories
- Quantitative- math modeling, many types
 - Bio-stats', epidemiologists, socio-economists...
- First Qualitative - then Quantitative
- Different person/ team from decision-makers
- Risk assessment affects control measures
- Realistic approach (K.I.S)

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Food and Agriculture Organization of the United Nations

Qualitative Risk Assessment- levels

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The logical overall risk estimate is expressed in words

Probability category	Interpretation
Negligible	Event is so rare that it does not merit to be considered
Very low	Event is very rare but cannot be excluded
Low	Event is rare but does occur
Medium	Event occurs regularly
High	Event occurs very often
Very high	Event occurs almost certainly

Source: EFSA

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Food and Agriculture Organization of the United Nations

LSD risk of spreading

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route	Estimated risk	Probability category
Cattle on foot	VH	Negligible
vehicle- Agric	VH	
vehicle- other	L	Very low
Dairy products	VL	Low
Meat products	L	Medium
Other products (hides, horns..)	H	High
Cattle feed	L	Very high
Cattle manure	M	
Insects- active movement	H	
Insects- passive movement	H	
Wild ruminants	VL	
Small ruminants	VL	
Others ?		

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LSD new introduction risk- detailed

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Route / border	Country/ region	zone 1			zone 2			etc.
	Overall risk (estimate)	official crossing- points	between CP's	Int'l air/sea ports	border crossing- points	border between CP's	Int'l airport	
Cattle walking	H							
vehicle- livestock	H							
vehicle- other	L							
Dairy products	VL							
Meat products	L							
Other products	H							
Cattle feed	L							
Cattle manure	L							
Insects active	H							
Insects passive	H							
Wild ruminants	L							
Small ruminants	VL							
Others ?								

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Biosecurity

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- **Don't demand what you can't/won't enforce**
- Most LSD spread is by flying-biting-insects
- Define epi' unit; grazing, non-grazing
 - Herd size- Backyard herds; 1-10 heads
 - Herd density
 - Free roaming, nomadic
 - Communal grazing, seasonal grazing
- Trade movements- official/ non-official
- Enforcement-compliance balance

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Control measures

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- General principles
- Disease specific- no “one size fits all”
- Ways of spread
- Rate (speed) of spread
- Impact
 - zoonotic
 - Food security- economical crisis
 - Trade- national/int'l
- LSD- “relatively easy” to prevent-contain-eliminate
 - Provided executing good risk analysis

Control measures- what

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- Vaccine- highly effective
- Vaccine- cost effective (vs stamping-out/ losses)
- Vaccination
 - Once- easy to operate- relative to other control measures
 - Coverage- 90%, achievable
 - Preventative/ Responsive/ combined
 - Ahead of LSD spread- distance and time
 - Vaccinators- competent/ motivated Other means
- Monitor – assess- decide- execute



Where – value chain

- Field (farms)
 - buildings
 - Fenced pens and pastures
 - Open pasture
 - Roads- main, side
 - Markets/ auction yards/ sale points
 - Processing plants
 - Meat, milk
 - Hides
 - Manure
 - Borders
- laboratories



how

- Risk-based management
- Written directives/ SOP's
 - Different levels
 - Based on legislation and authority
 - Clear, simple, practical
- Responsible partners
 - Farmer, factory QC/QA
 - Training, certified
- Inspection by VS
 - competent
 - Firm and flexible

Movement control

- Zoning- physical boundaries, avoid circles
- Wide protection zone- 50-100 km wide
- Permits, recording, reporting
- Other species- allow, inspect
- Road check-ups
 - Where- fixed/mobile, risk-based
 - Who, when, authority, confiscated animals/products
- Processing plants- top priority
 - Minimize restrictions
 - Optimize control; entrance, vehicles, workers

Kazakhstan- Quarantine



Disinfection

- Target
 - insects
 - virus
- Limited effectiveness
- Costly
- Food safety impact
- Environmental impact
- Cleaning is important



LSD is not FMD

Kazakhstan- disinfection



Carcass disposal (dead/culled)

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- On-farm/ out of farm
- feasibility on farm/ near farm, cost
- Legislation & environment; water, land...
- Amount of carcasses to dispose/time
- Carcass is not an important source of spread
 - Cover, spray with insect repellent
 - Vehicles route- entering non-infected farms/regions
 - Special vehicles/ special routes - extra costs

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Kazakhstan- Disposal and incineration

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Incineration facilities

routine



ISRAEL



mobile- emergency

Int'l
commercial

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When and how to end measures

- LSD has a sweeping mode, no carrier state
- Herd protection; by infection / by vaccination
- Trade disruption - ↑restrictions - ↓reduce compliance
- Active surveillance / maintain awareness
- Repopulation; vaccinated herds- no empty farms
- Vaccinate purchased & born cattle
- Update risk analysis & contingency plan
- Vaccinate for several years (?)... withdrawal

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- Regional collaboration and information
 - Direct
 - Via int'l organizations
- Periodic risk assessment
- Vaccine stockpile
- Risk-based preventative vaccination
- surveillance
- Be ready

Genghis Khan



“He never fought the same battle twice”