Lumpy Skin Disease in Israel

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LSD outbreaks in Israel

Dairy - zero grazing  Beef - zero housing

Geographical distribution of LSD until 2012
1989- First epidemic in “Peduyim”

- Late diagnosis
- 14/17 milking herds infected
- Restricted movement - restriction control
- All cows in Peduyim were culled
- Vaccination within 10 kilometers radius (sheep pox)

2006- Second epidemic in “Ein zurim”

Fast diagnosis
Vaccination of the herd
Modified stamping out
Vaccination of herds within 10 kilometers radius
Movement restriction in 10 kilometers zone
Vector control in premises and on animals
2007- Third epidemic in Northern Negev

- Clinical cases in 9 herds: milking and beef
- Vaccination with sheep pox vaccine
- Modified stamping out
- Movement restriction

Accumulative cases

![Accumulative cases graph](image)
LSD – Control Strategy 2007-2012

- Trans-boundary disease from the South (Africa)
- Annual vaccination in southern borders
- Summer disease (June- October)
- VS can detect the first cases (dairy herds)
- Sheep Pox vaccine protects
- Vaccination & culling stops spreading
Northern Golan 2012

Druze cattle herds
Northern Golan
Initial picture  
28.07.2012

- ~ 40 Beef herds
- 4,000 cows
- Mutual grazing
- Poor pasture
- Mountains, forests
- Over crowding
- Zero vaccinated
- 10-60% morbidity
- High mortality

Detection of Incursion

~ 6-8 weeks from index case to VS knowledge

- Remote area near the northern border
- Extensive part time Beef Farmers
- Rural private vets
  - No regular farm visits
  - Limited knowledge of emerging diseases
  - Not reporting to VS
- Not enough active surveillance by the VS

LEBANON  SYRIA

Remote area near the northern border
Extensive part time Beef Farmers
Rural private vets
No regular farm visits
Limited knowledge of emerging diseases
Not reporting to VS
Not enough active surveillance by the VS
Why didn’t we cull infected cattle

- Thousands of infected & incubating heads
- No ability to limit animal movements
- No facilities for repeated clinical evaluation
- No collaboration of farmers for restrain & cull
  Druze Elders (leaders) object to culling
- No access to evacuate dead and culled cattle
- Risk of reintroduction along the border

Immediate control measures

**Beef Herds**
- Zoning & Movements restrictions
- Zone Vaccination – Sheep Pox JOVAC
- Insects control – limited
- Awareness campaign
- No culling

**Dairy herds**
- + Culling clinical cases
Sheep Pox
RM/65

“POX 10” = pox * 10 concentrated

Neethling Vaccine

- Lumpy Skin Disease (LSD) vaccine contains the proven Neethling strain
- Protect bulls against virus excretion in the semen
- Ensures sufficient protection against field strains of Lumpy Skin viruses
- Stimulate immunity in 7 - 14 days
- The vaccine is safe to use in PREGNANT animals

Recommendations
Calves: From 4 - 6 weeks of age
Adults: Yearly vaccinations ensure good
Emergency order to farmers to vaccinate - CVO
2 options of vaccine: “POX 10” / Neethling
Vaccination by gov’t and non-gov’t vets
Mandatory reporting of vaccination to VS
Stop culling clinical cases (did not stop the spread)
~ Vaccination coverage- 90% dairy 70% Beef
New Control measures - March 2013

- Farmers and veterinarians explanation and education

July 2013

Movement of infected cattle
Number of new herds per month

Herd Type by Month of Index Case
Transmission - known & unknown

- Specific vector/s is/are unknown
- Varies in region, season, housing type
- With and without cattle movement
- No effective insect control
- Cattle movement: legal & illegal
  (Transit permit is required prior to moving)

Moshav Kanaf - 5 dairy farms, 1 feedlot
Kanaf farms - variability

<table>
<thead>
<tr>
<th>Farm</th>
<th>Heads in herd</th>
<th>Clinical cases</th>
<th>Duration (d) first- last case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy 1</td>
<td>219</td>
<td>8%</td>
<td>91</td>
</tr>
<tr>
<td>Dairy 2</td>
<td>75</td>
<td>16%</td>
<td>36</td>
</tr>
<tr>
<td>Dairy 3</td>
<td>50</td>
<td>2%</td>
<td>0</td>
</tr>
<tr>
<td>Dairy 4</td>
<td>475</td>
<td>2%</td>
<td>85</td>
</tr>
<tr>
<td>Dairy 5</td>
<td>40</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Feedlot</td>
<td>300</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

Estimated introduction: 26/07/2012
1st Dx: 28/07/2012
Vaccination Pox-1: 10/03/2013
Vaccination Neethling Pox-10: 29/08/2013
Sporadic cases: May 2013
Last reported case: 29/08/2013

Outbreak Timeline
March 2015 Risk Analysis

- Regional epidemiology unclear... threat still exist
- Few suspected cases, tested negative
- Mandatory Vaccination (reevaluated annually)
  - Performed only by private vets
  - Vaccine coverage and portion (estimate):

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Dairy</th>
<th>Beef</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinated herds</td>
<td>90%</td>
<td>80%</td>
</tr>
<tr>
<td>OBP Neethling</td>
<td>80%</td>
<td>50%</td>
</tr>
<tr>
<td>ABIC POX 10 (RM 65)</td>
<td>20%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Future Challenges

- Active surveillance
- Research (KVI, Koret Vet School, int’l)
  - Epidemiology
  - Entomology
  - Vaccine – effective, safe, affordable
- Regional collaboration
- Int’l partners – welcome !!