

# Lumpy Skin Disease in Israel



Dr. Even-Tov Boris  
Israeli Veterinary Services



## 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

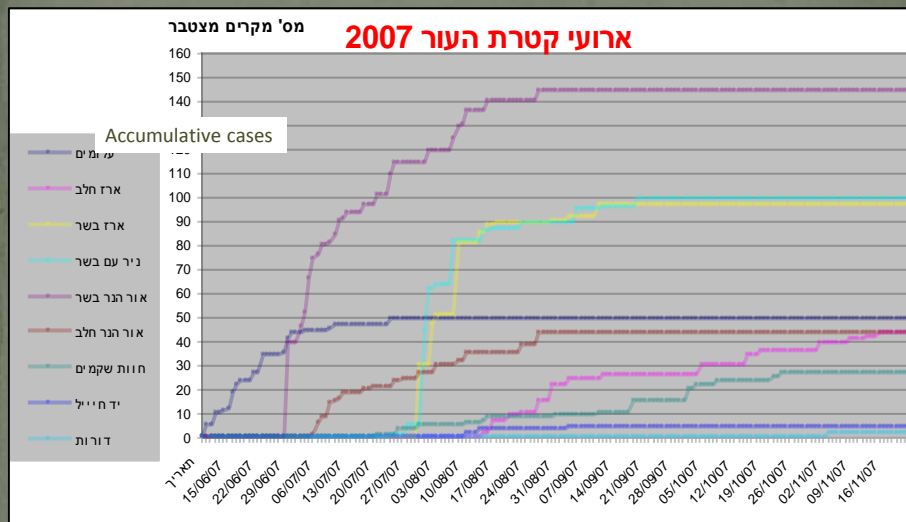
Movement restriction in 10 kilometers zone

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



## 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



28 -07-2012



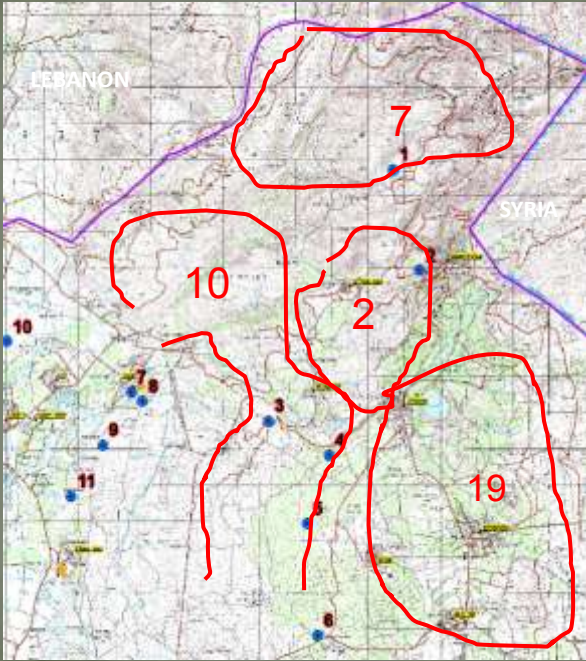


## Northern Golan 2012




## 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



## 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

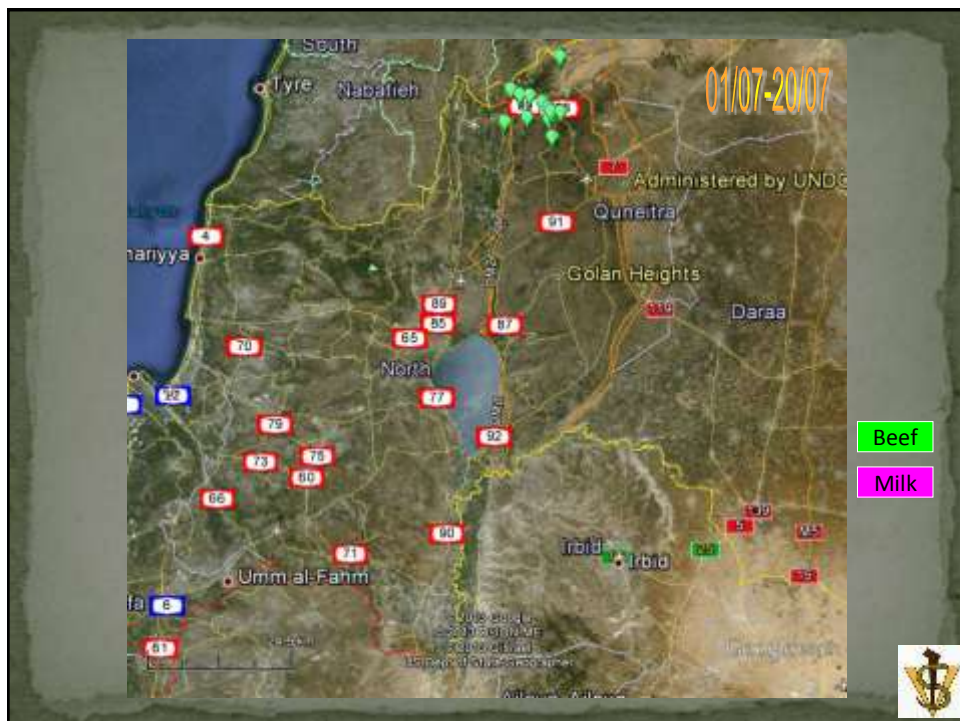
- Zoning & Movements restrictions
- Zone Vaccination – Sheep Pox JOVAC
- Insects control – limited
- Awareness campaign
- No culling

### Dairy herds

- + Culling clinical cases



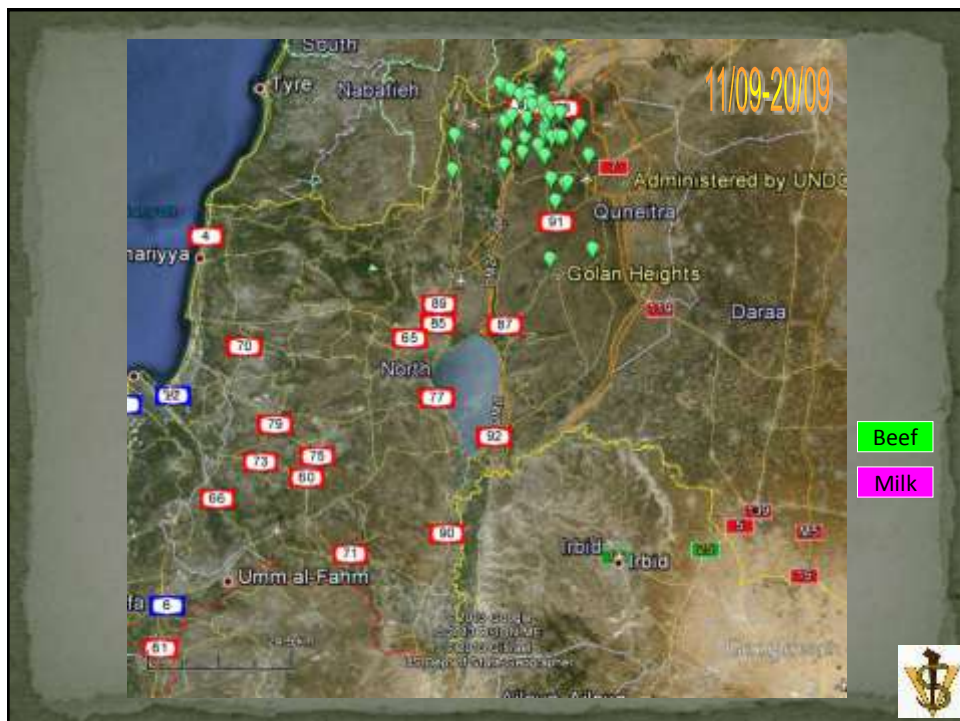




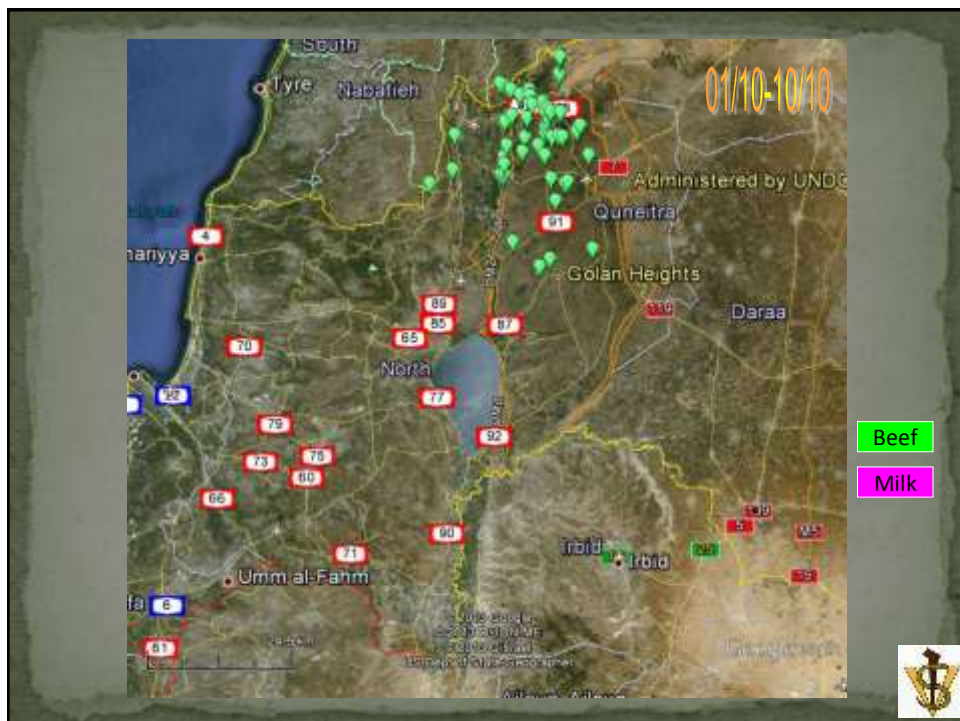




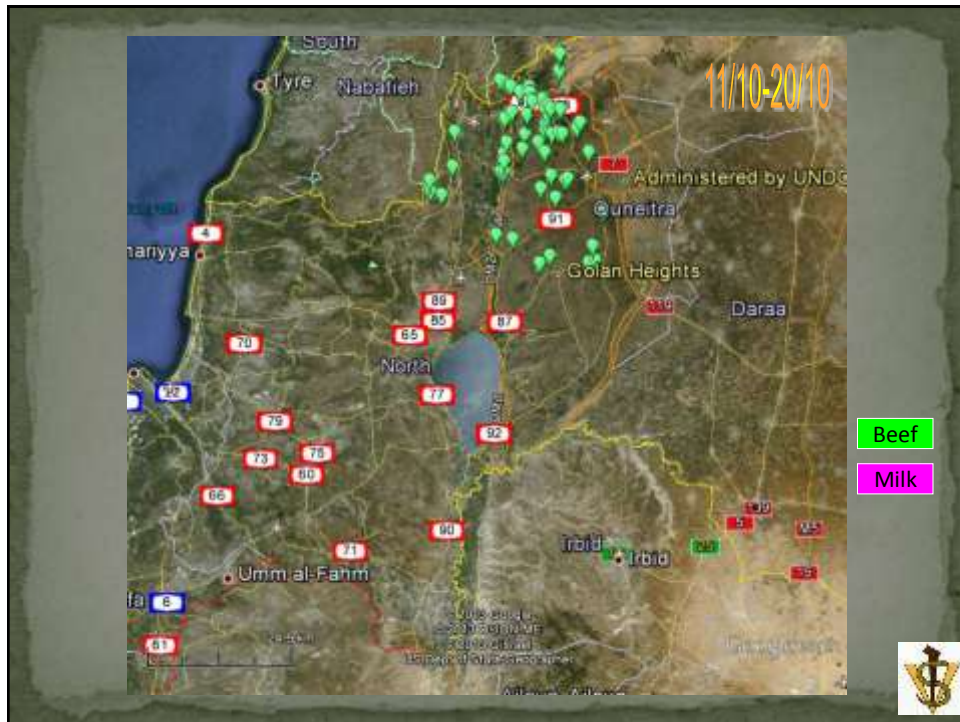












































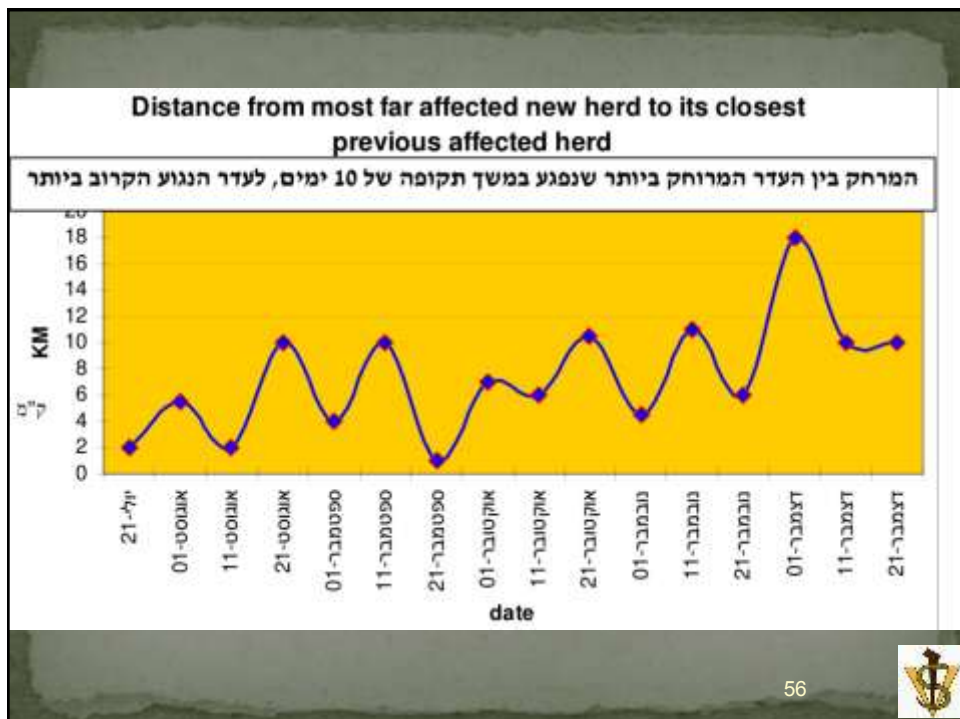














**JOVAC**  
 Jordan Bio-Industries Center  
 Live Attenuated Sheep-Pox Vaccine Strain - RM/65

Sheep-pox is a contagious disease caused by Capripox virus. It is characterized by skin and mucous membrane lesions, but the systemic reaction may lead to animal death. Vaccination is the only prevention method to control the high level of morbidity and mortality caused by this disease.

**COMPOSITION:**  
 Each dose of the vaccine contains:  
 Modified Sheep pox virus,  
 RM/65 strain at least  $10^{5.0}$  TCID<sub>50</sub>\*  
 (\*Tissue culture infective dose 50%)

**INDICATIONS**  
 Prevention of sheep pox.

**METHOD OF IMMUNIZATION**  
**\*Primer vaccination.**  
 -One injection above the age of 3 months.  
 -If vaccination is performed on less than 3 months old lamb, a second injection must be given 6 months later.

**\*Yearly boosters.**  
 If necessary sheep pox vaccine may be administered to pregnant ewes, which will transfer immunity for young lambs during the first 3 months of age.

**METHOD OF USE AND DOSAGE**  
 \*Cold and sterile normal saline (diluent) is used to reconstitute the pelleted freeze-dried vaccine. The reconstituted vaccine must be protected from light and heat and be utilized immediately (limit time is 2 hours).  
 \*Use 100 ml of diluent for vial of 100 doses, and 50 ml for 50 doses vial.  
 \*Inject 1 ml subcutaneously per animal into the sternum area, where there is no wool, behind the elbow.  
 \*A small nodular reaction may appear at the point of inoculation (TAKES), which disappears later.

**RECOMMENDATION**  
 \*Never use a syringe and a needle sterilized with a chemical agent.  
 \*Use aseptic technique.  
 \*Reconstitute the vaccine immediately before use and destroy any unused portion.

**STORAGE**  
 The vaccine can be stored at: +2°C to +8°C for two years.

**PRESENTATION**  
 Vials of 50 doses and 100 doses.

Jordan Bio-Industries Center Tel: +962 6 52 32 342 Fax: +962 6 52 32 210 P.O. BOX (43) Amman 11941 Jordan  
 E-mail: jovac@jovic.com.jo

## 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



March 2013

Beef

Milk



## New Control measures- March 2013

- 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

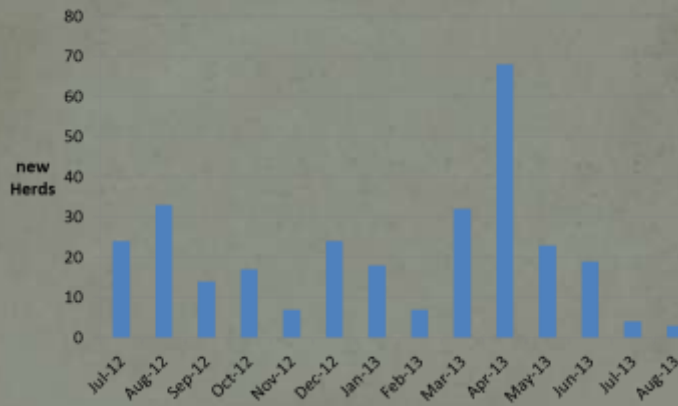
Beef

Milk

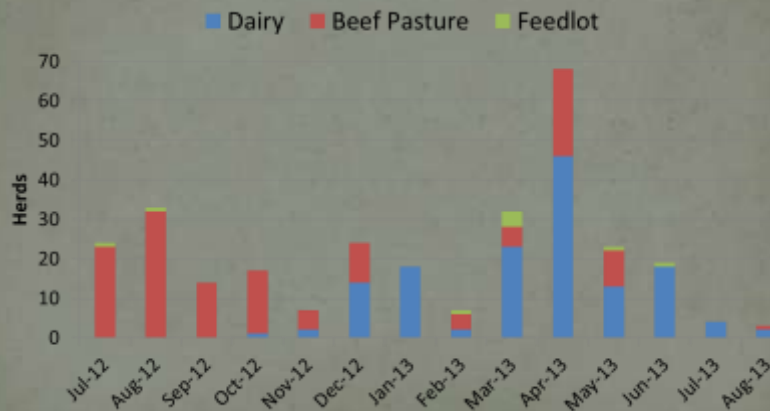




## Number of new herds per month



## 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

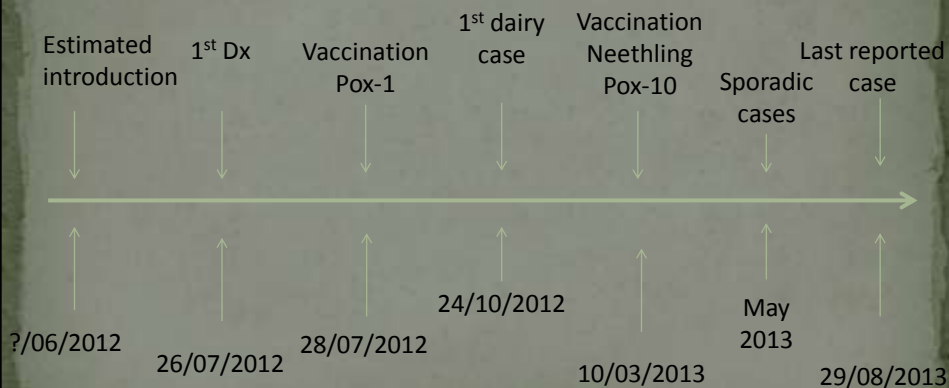


## Kanaf farms - variability

Farm	Heads in herd	Clinical cases	Duration (d) first- last case
Dairy 1	219	8%	91
Dairy 2	75	16%	36
Dairy 3	50	2%	0
Dairy 4	475	2%	85
Dairy 5	40	0%	0
Feedlot	300	0%	0



## 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):

Vaccine	Dairy	Beef
Vaccinated herds	90%	80%
OBP Neethling	80%	50%
ABIC POX 10 (RM 65)	20%	50%



## Future Challenges

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

