

Forecasting *Rhopalosiphum padi*  
in Finland and experiences of  
POMO-project

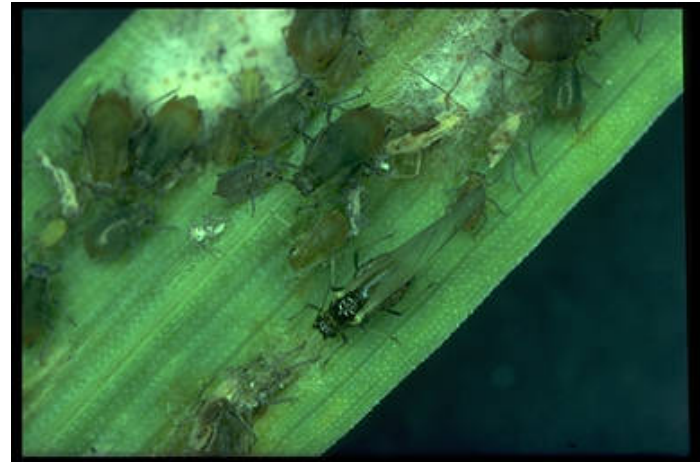
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NJF Seminar 402

October 9.-11.10.2007

# *Rhopalosiphum padi*

- the most important aphid species on cereals
- great differences in annual occurrence
- winter-egg counts
- suction trap catches
- aphid monitoring in cereal crops with yellow sticky traps



# Counting the winter eggs

- the eggs are counted from the same 3-5 trees every year near the fields
- 20-30 twigs (0,5 m) are collected from every tree
- the eggs are counted from 100 buds/tree
- the probable mortality is deducted from the amount of eggs

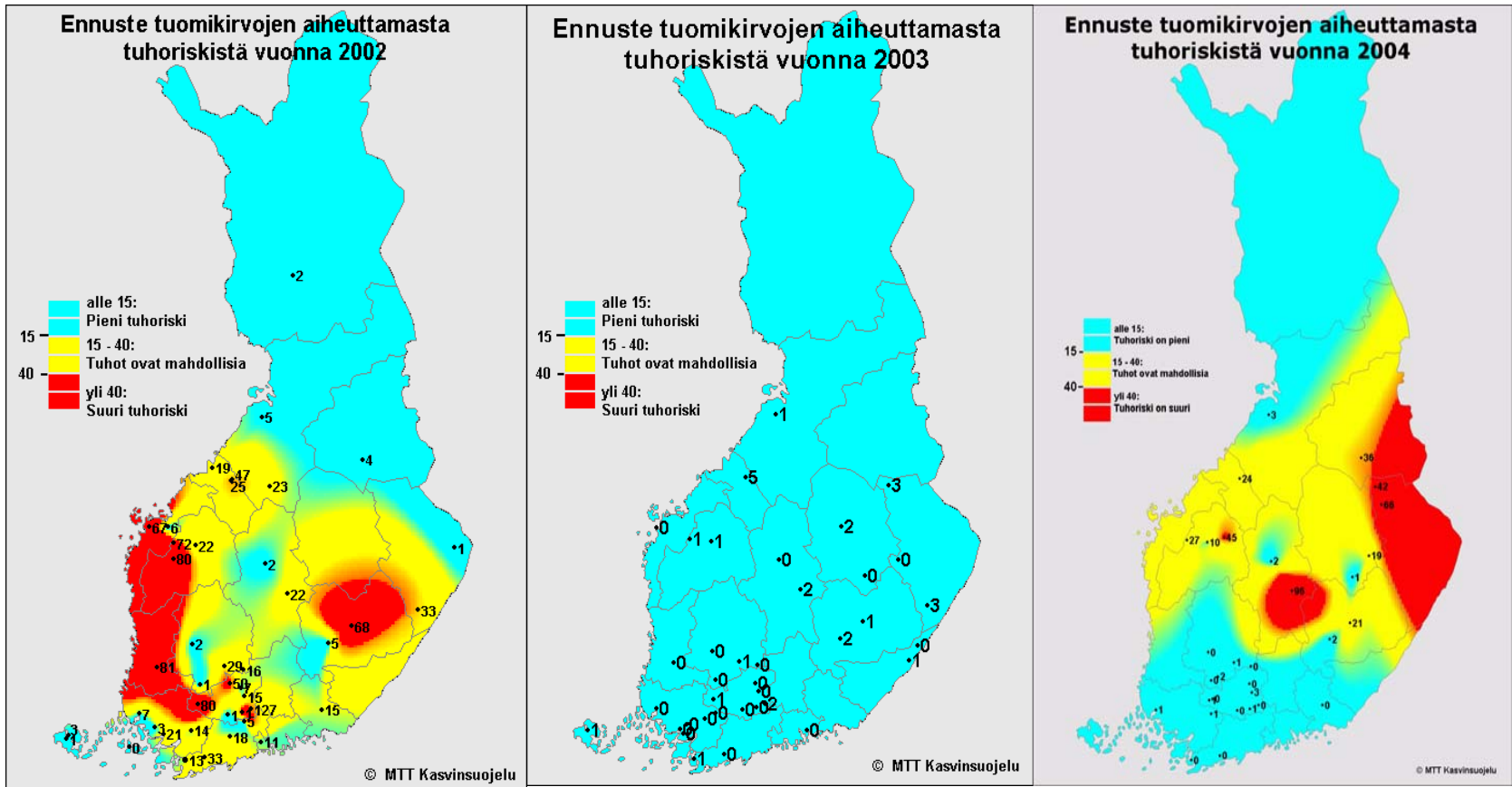
# Mortality values

- Mortality values:
- 65 % the coastal areas of southern Finland
- 75 % the coastal areas of southern Ostrobothnia
- 90 % the coastal areas of northern Ostrobothnia
- 55 % central Finland

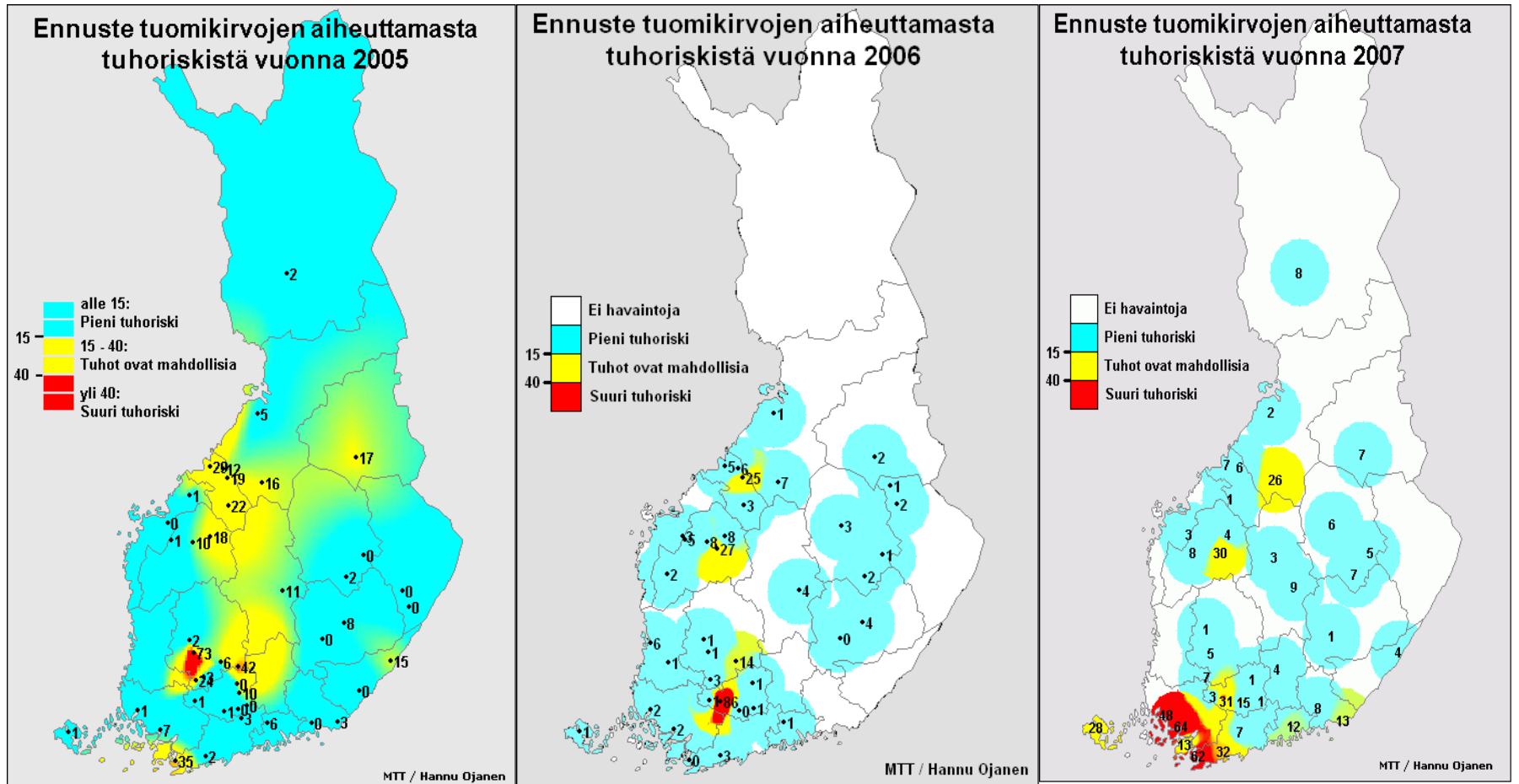
# Susceptibility to risk

- coastal area means the zone of 0-80 kilometers from the coastline
- eggs <15/100 buds; no risk
- eggs 15-40/100 buds; damage is possible
- eggs > 40/100 buds, the risk is high

# *Rhopalosiphum padi*



# Rhopalosiphum padi



# POMO -project

- POMO = Multi-scientific applications of polarimetric weather radars, POMO
- polarimetric radar: it is possible to sort out different forms of rain (water, wet snow, snow, hail, freezing rain) and nonmeteorological targets (insects, birds, sea clutter etc.)



# The aim of POMO WP 7

- The aim of POMO WP 7 is to study if it is possible to estimate the migration beforehand by adding meteorological information to the decision making

# Most harmful insects



diamondback moth



coloradobeetle



bird-cherry aphid



leaf hoppers



flea beetles



Lygus bugs

# Insect trapping

- A field experiment with rotating tow-nets and yellow sticky papers was done
- insects and all relevant meteorological data including weather radar and satellite data was collected
- all the catches were photographed, identified and stored





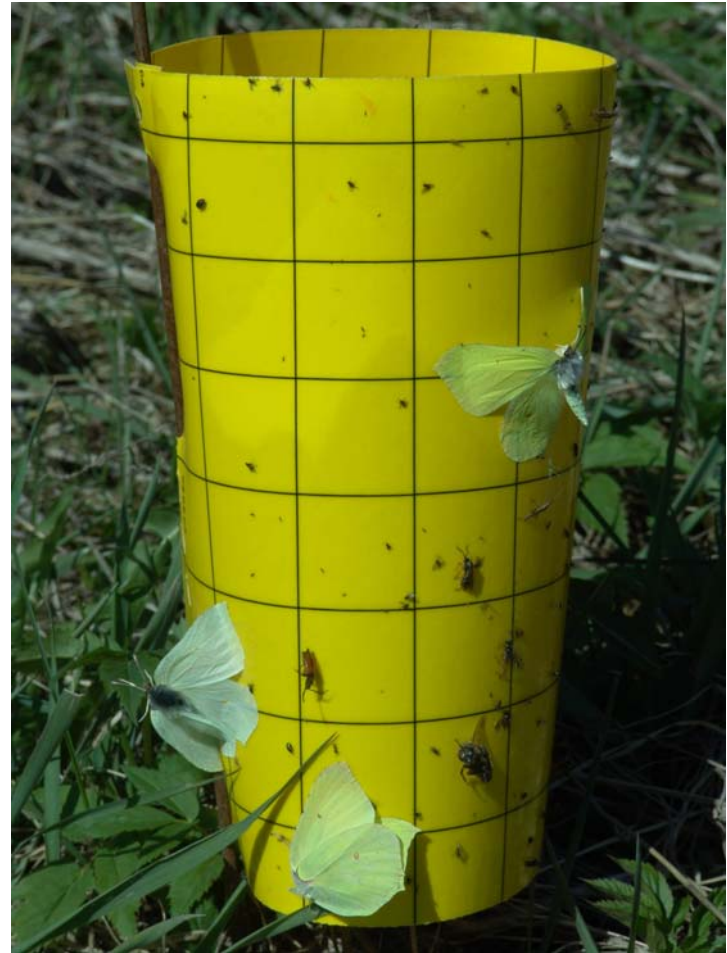
# Rotating tow-net

- Five rotating tow-nets on Jokioinen-Viikki line
- One tow-net in Kumpula
- All tow-nets were examined twice a week from the middle of May to the end of June

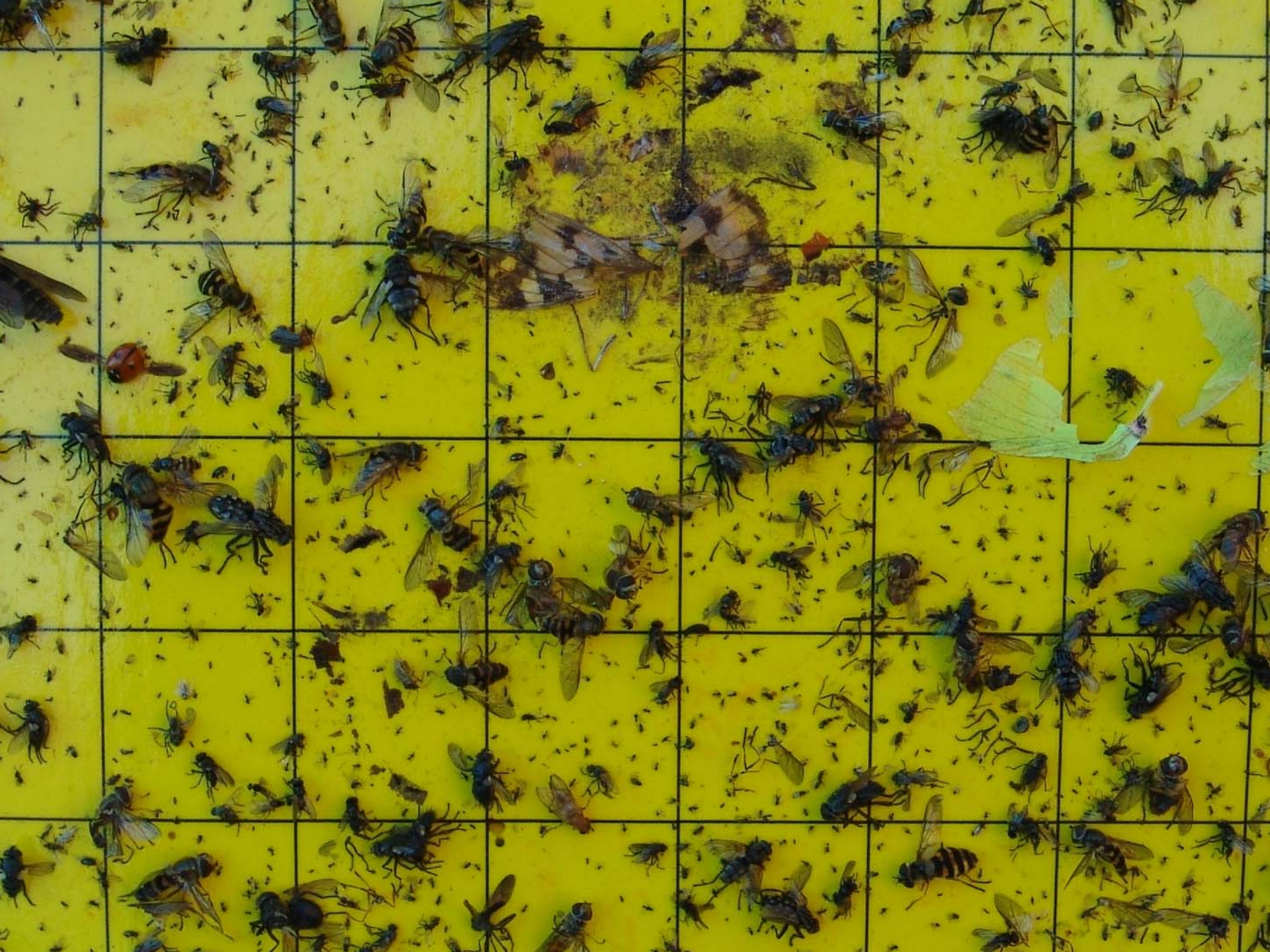


# Yellow sticky papers

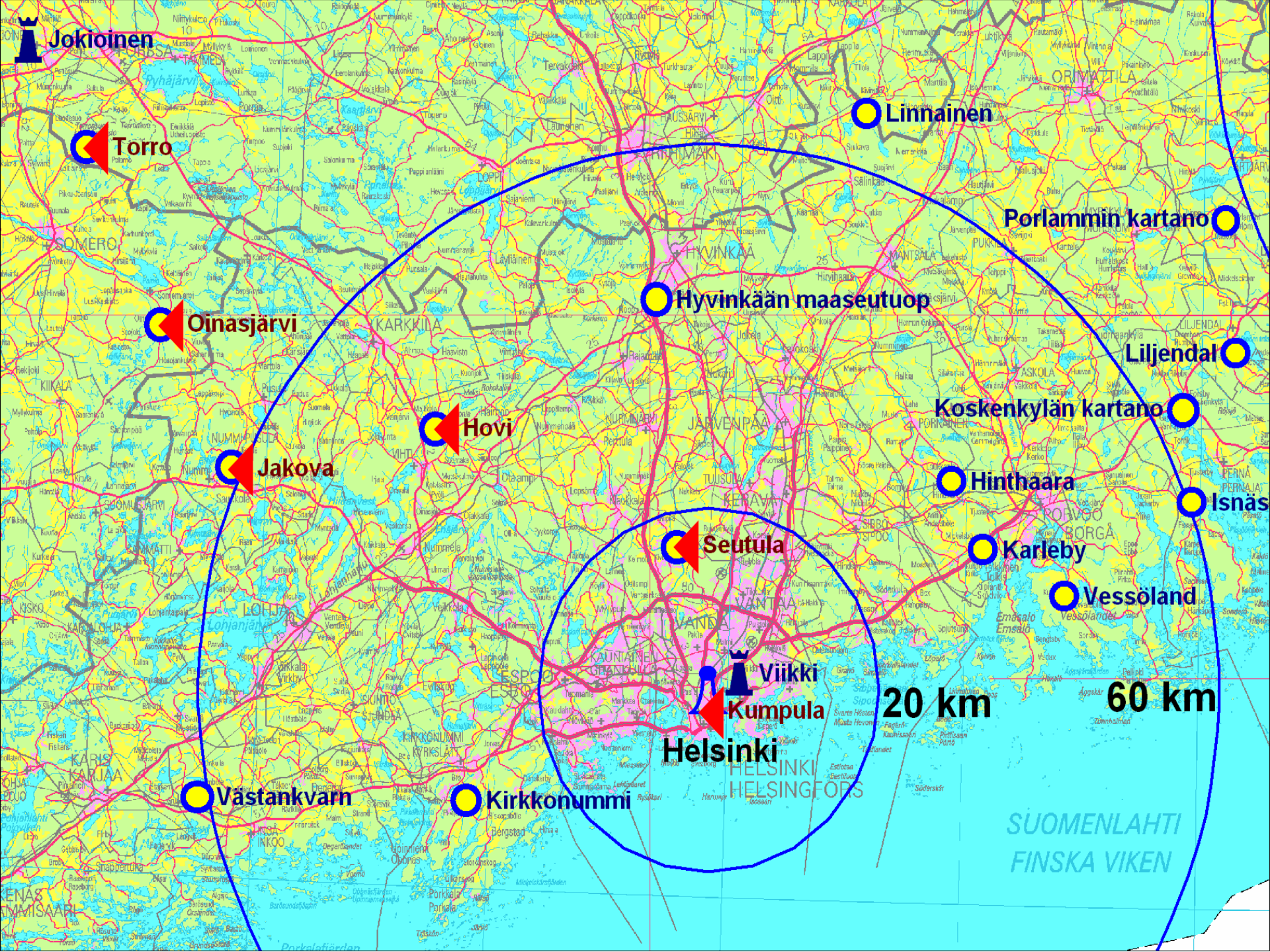
- sticky papers were located in a circle of about 20-60 kilometers from the polarimetric radar in Kumpula
- papers were examined whenever FMI predicted a migration was on its way











Jokioinen

Torjo

Oinasjärvi

Jakova

Hovi

Seutula

Vastankvarn

Kirkkonummi

Viikki

Kumpula

Helsinki

Linnainen

Porlammin kartano

Liljendal

Koskenkylän kartano

Hinthaara

Isnäs

Karleby

Vessöland

20 km

60 km

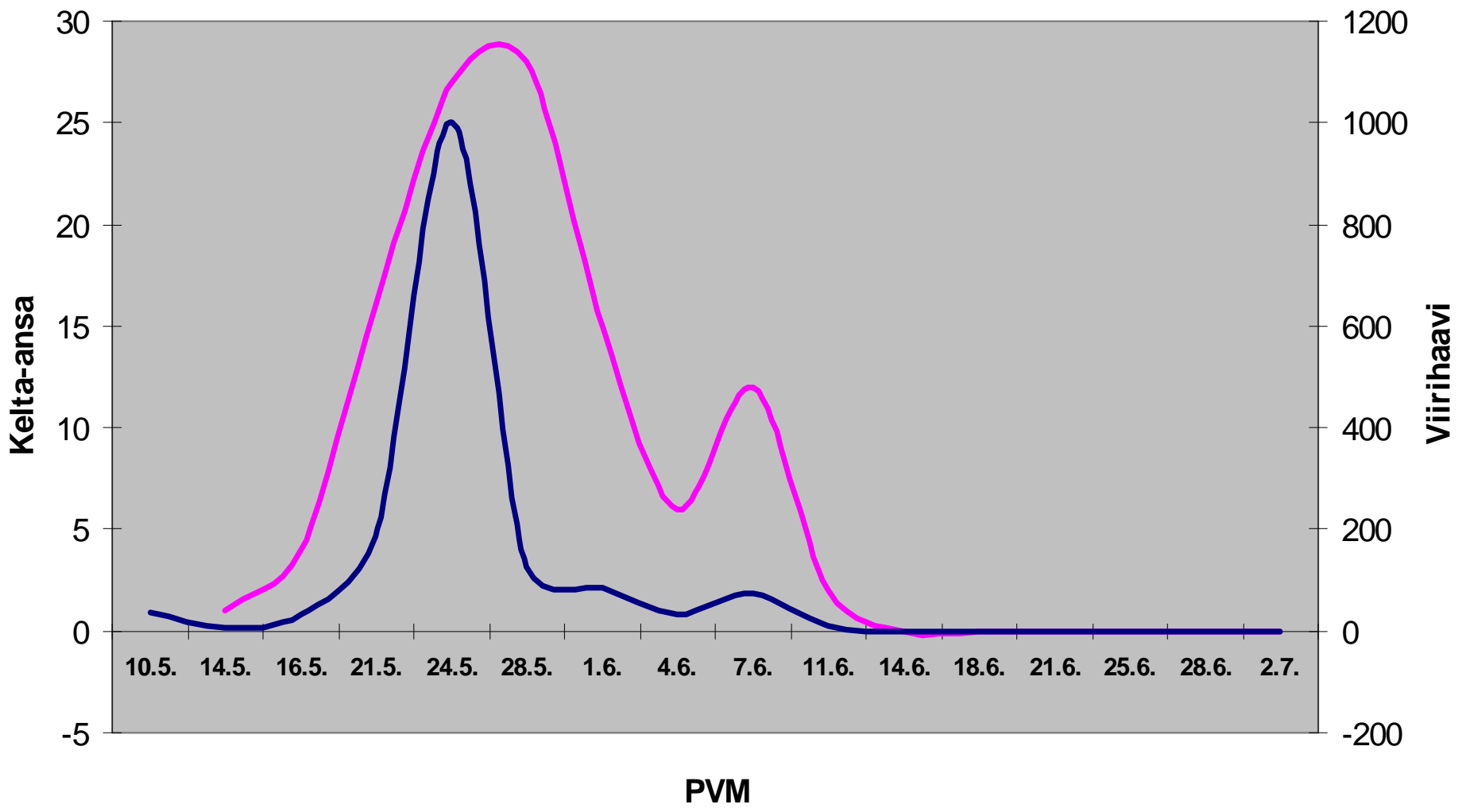
SUOMENLAHTI  
FINSKA VIKEN



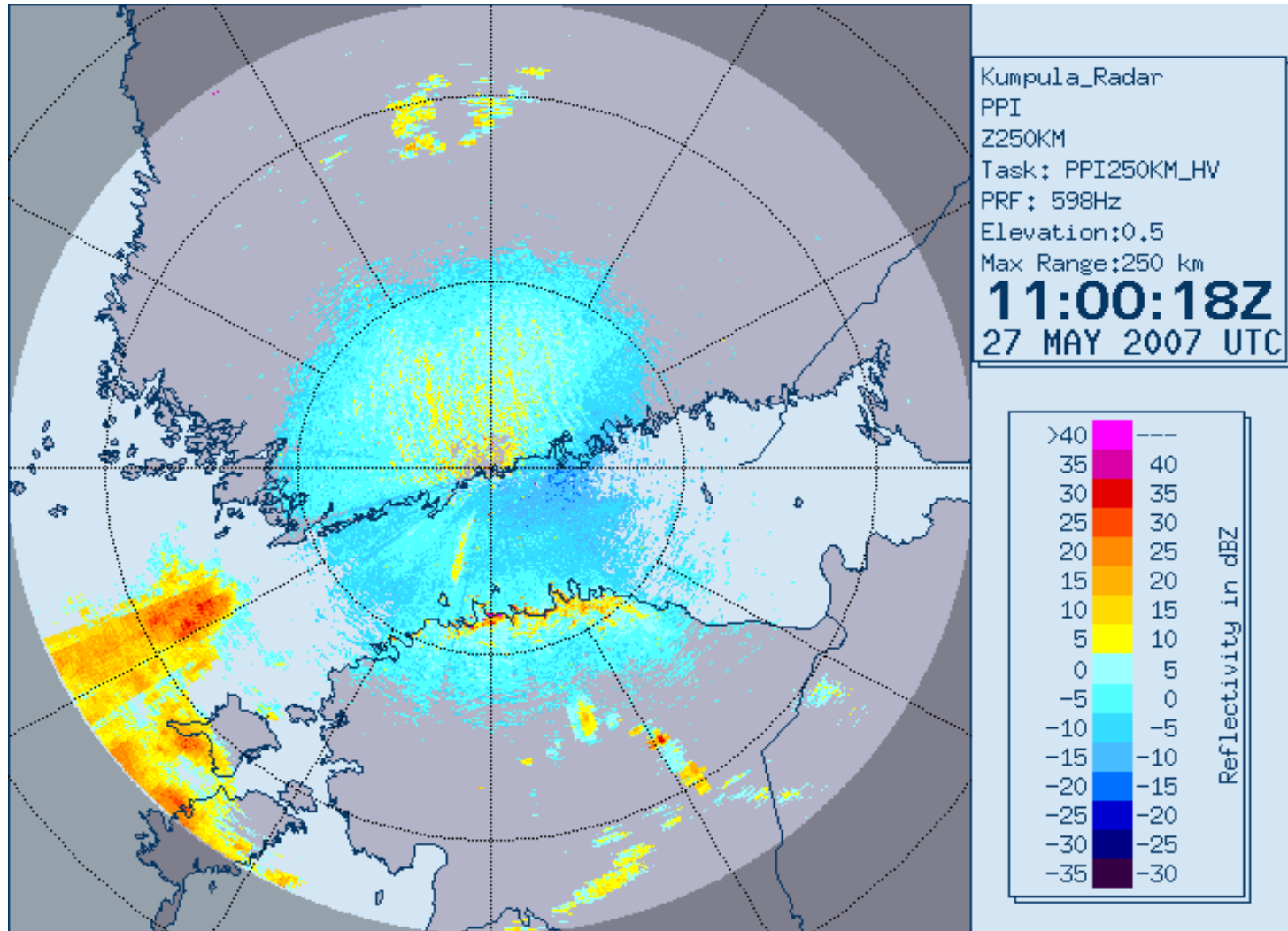
# Some results

- *Lygus* bugs, flea beetles and bird-cherry aphids were the most common insects on traps in May
- *Lygus* bugs and flea beetles were probably domestic and bird-cherry aphids migrated

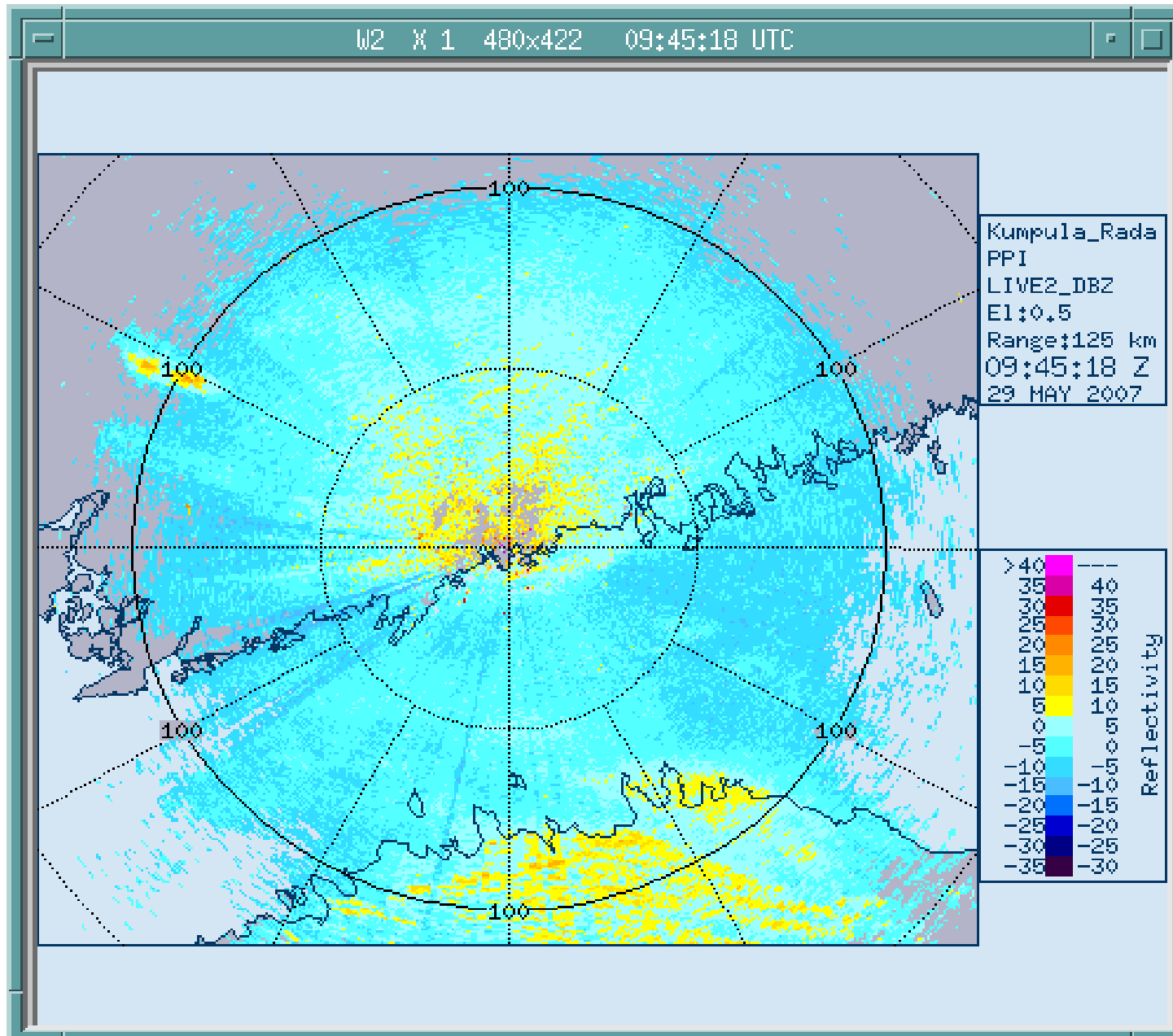
# Aaltojuovakirppa Torro, Tammela



# Insect mass migration from SE/S/SW 27.5.2007



# Migrating aphids coming from Estonia 29.5.2007



| Trap     | Place | date  | time  | Removal |       | <i>R.padi</i> | flea<br>beetle |
|----------|-------|-------|-------|---------|-------|---------------|----------------|
|          |       |       |       | date    | time  |               |                |
| K0719001 | 19    | 24.5. | 13:00 | 28.5.   | 12:00 | 189           | 18             |
| K0719002 | 19    | 24.5. | 13:00 | 28.5.   | 12:00 | 148           | 9              |
| K0719003 | 19    | 24.5. | 13:00 | 28.5.   | 12:00 | 279           | 29             |
| K0716001 | 16    | 26.5. | 14:20 | 28.5.   | 13:10 | 20            | 20             |
| K0716002 | 16    | 26.5. | 14:20 | 28.5.   | 13:10 | 49            | 19             |
| K0717001 | 17    | 26.5. | 12:15 | 28.5.   | 14:45 | 18            | 11             |
| V0704007 | 04    | 27.5. | 10:00 | 1.6.    | 15:45 | 4             | 166            |
| K0719004 | 19    | 28.5. |       | 1.6.    | 12:30 | 73            | 30             |
| K0719005 | 19    | 28.5. |       | 1.6.    | 12:30 | 91            | 12             |
| K0705009 | 05    | 28.5. | 13:30 | 1.6.    | 13:20 | 3             | 4              |
| V0706010 | 06    | 30.5. | 14:30 | 1.6.    | 13:00 | 17            | 1              |

Thank you!

