

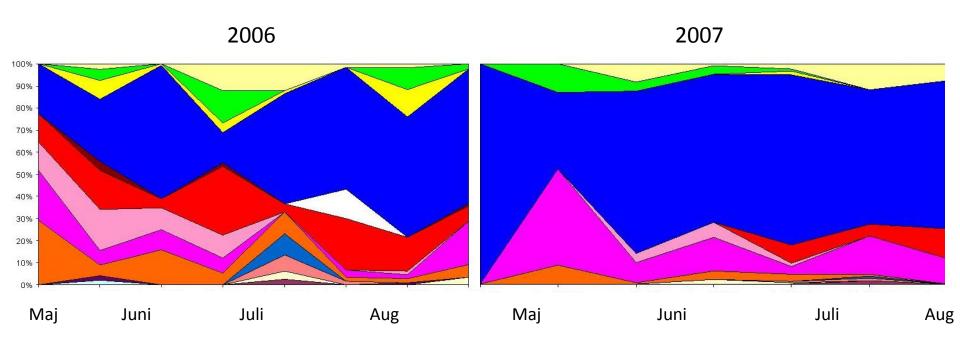
# Variation of *P. infestans* within and between fields

Lina Grönberg



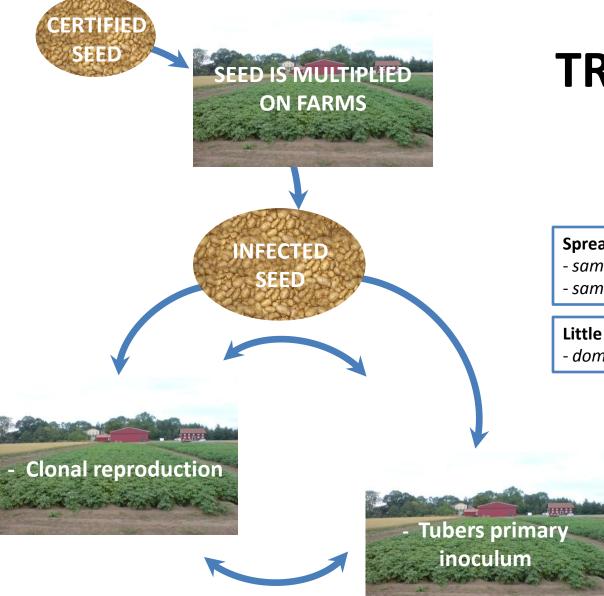
# P. INFESTANS POPULATIONS

UK



Different colours represents different genotypes





## **TRADITIONAL!**

#### **Spread between fields:**

- same genotypes found in several fields
- same genotypes found from year to year

#### Little differentiation between fields:

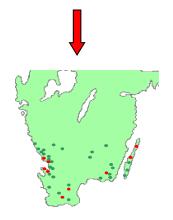
- dominating clonal linages



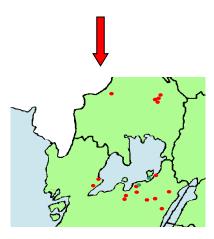
#### **OOSPORE FORMATION IN FIELDS**

#### **Sweden**

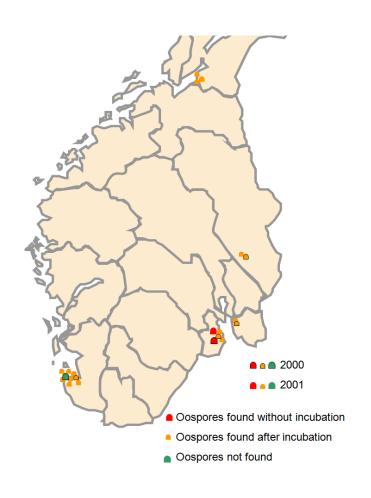
#### 10 of 32 fields 2001



16 of 18 fields 2002



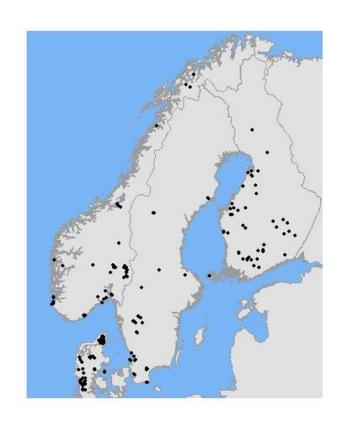
#### **Norway**





# P. INFESTANS POPULATIONS

#### **Nordic countries**



191 Nordic isolates genotyped with SSR



169 genotypes!



#### **NEW NORDIC POPULATION STUDY**

#### A stratified sampling method was used:

- country
- field
- disease foci
- Sweden -16 fields
- Denmark -5 fields
- Finland -9 fields
- Norway 12 fields

= 850 samples





# **METHODS**



- Dried leaflets
- CTAB-based protocol
- SSRs: 4B, G11, D13,
  Pi63, Pi16, Pi70, Pi04





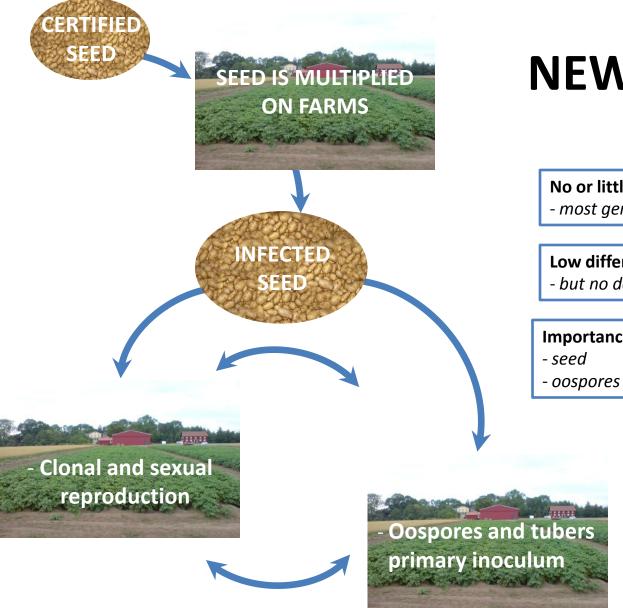
"Unique genotypes" **RESULTS** Clonal genotypes Trafil Kuopio Sverige Sweden Sundsvall O Jyväskylä Norge Norway Tampere Pori Lappeenranta meenlinna Kouvola Vyborg (Bыборг) Gävle Borlänge Turku Bergen Espoo O Helsinki Norrtälje O Västeras Tallinn Eskilstuna Stockholm Karlstad Örebro drikstad 0 Södertälje O Haninge Nyköping Norrköping O Eesti Uddeva Skövde Estonia Tartu Linköping Kristiansand Trollhätta 0 Pskov Jönköping O Göteborg Boras Gotland Kungsbacka Varberg. Rīga Växjo Latvija Latvia Liepāja Karlskrona O Arhus Šiauliai Helsingborg O Daugavpils Københav O O Klaipėda Navapolack (Наваполацк) О Lietuva nmark Malm Lithuania

## **RESULTS**

- Clones exists but not dominating
- Index of association
  - no association in most fields
- Recombination in most fields

	%	Stat	Val.	Prob.
Among countries	1%	Frt	0,01	0,01
Among fields/countries	12%	Fsr	0,117	0,01
Within fields	87%	Fst	0,126	0,01





#### **NEW CONCEPT?**

No or little dispersal between fields:

- most genotypes found only once

Low differentiation between fields:

- but no dominating lineages

Importance of inoculum sources:





## CONCLUSIONS

- Sexual reproduction of *P. infestans* does occur frequently in the Nordic countries
- No clonal lineage dominates
- Limited dispersal between fields

## OTHER PARTICIPANTS IN THE PROJECT

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