

The Nordic PPP on pre-breeding - - from start to today

PPP-workshop in Bonn 7-9 June, 2017

Anders Nilsson, chair of Steering Committee

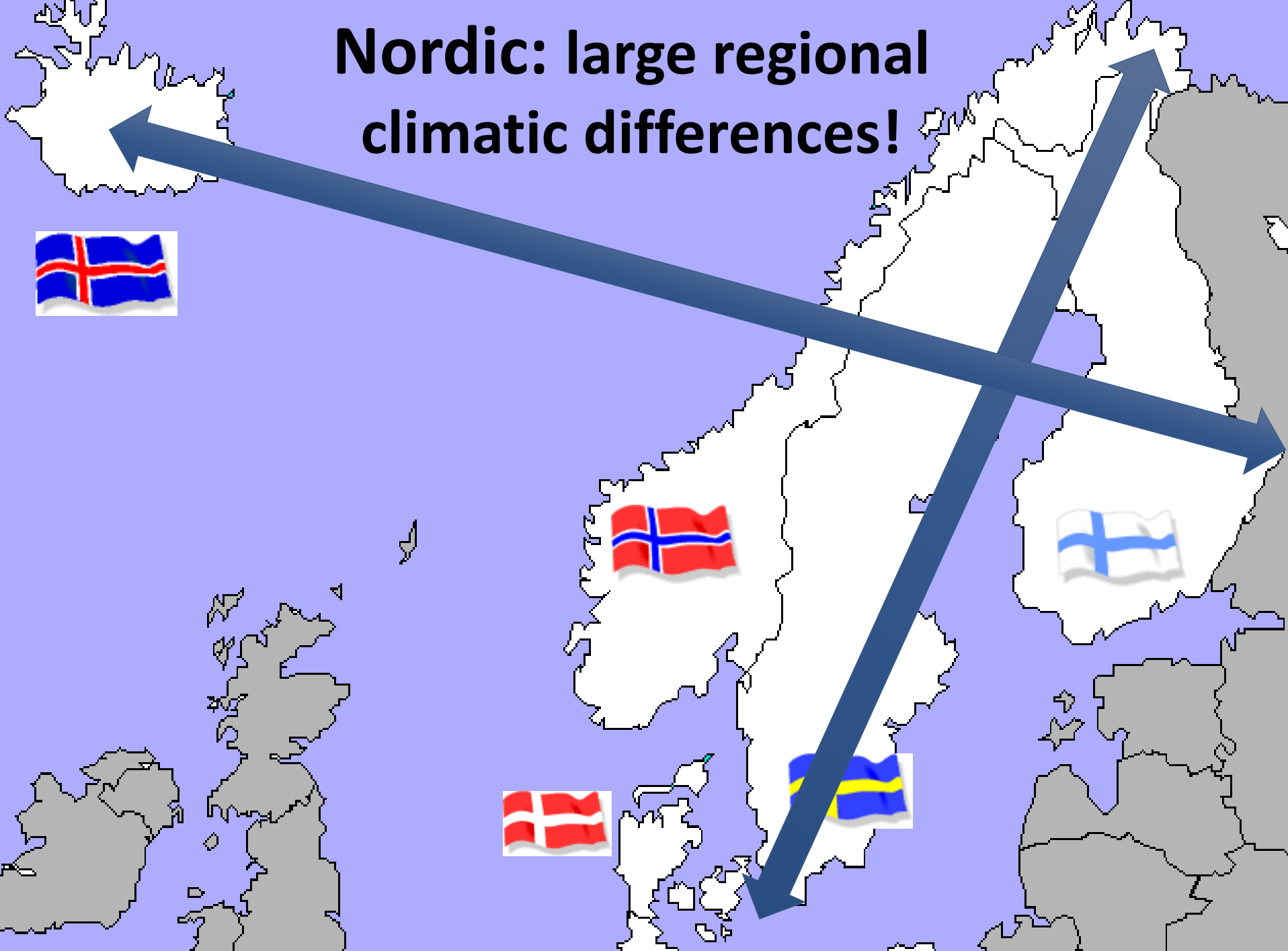
Annette Hägnfelt, PPP secretary, NordGen

Initiation of a Nordic PPP Pre-breeding

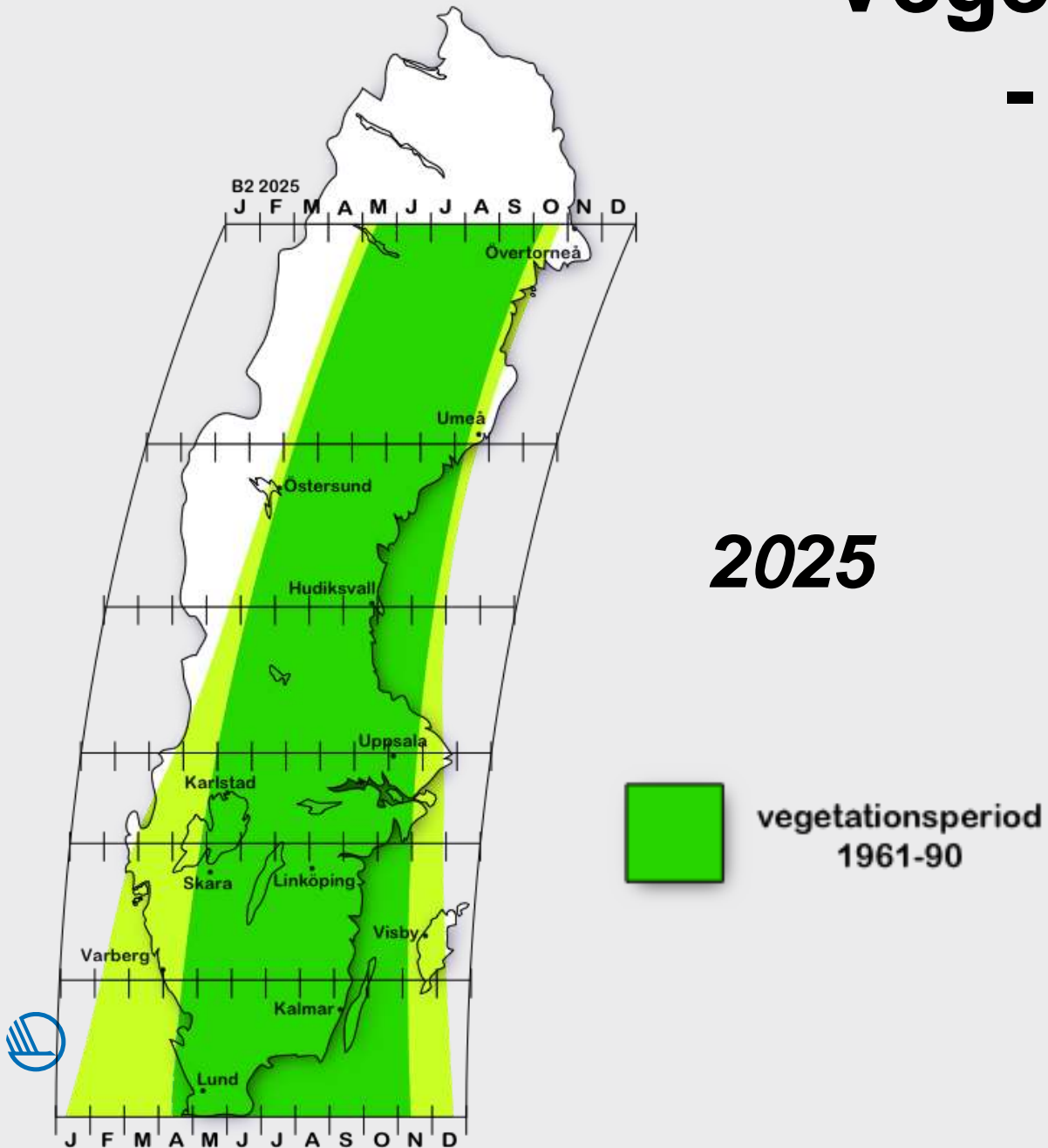
- Assignment in 2007 to investigate how Nordic plant breeding could be promoted from Swedish Min. of Agriculture, in prep. for Swedish chairmanship of Nordic Council of Ministers (NCM) in 2008
- Roland von Bothmer, Prof. in plant breeding, SLU and Anders Nilsson, former Research Director, Svalöf Weibull
- Background: Climate Change and recent structural changes in plant breeding with reduced efforts in the Nordic countries
- Focus on collaborative issues
- First report to the Nordic Ministers of Agriculture in June 2008



Nordic: large regional climatic differences!



Vegetation period - changes



(Fogelfors 2008)

Roadmap to establish

- Several breeders – Denmark 4, Sweden 4, Finland 2, Norway 1 and Iceland 1
- Competitors in the market, mistrust, etc.
- Different agendas
- 5 Min. of Agriculture and 5 National Farmers' organizations
- ... many meetings
- Coll. in pre-commercial phase, broad definition of pre-breeding
- Report to Min. of Agriculture in 2010 – decision to set up the PPP



Setting up the PPP

- Senior officials of Min. of Agriculture act as project ambassadors, active participation
- Meetings with CEO's of leading plant breeding companies
- Agreement on principles – 50/50; broad definition of pre-breeding, pooling v. project-by-project
- Identification of 3 suitable projects for a pilot phase to start Jan 2012
- Invitation to Baltic breeders to join
- NordGen is administrating the PPP
- ... all in all more than 50 meetings before the PPP was up and running



Securing the continuation

- Steering Committee with rep's from the countries (5), breeders (4) and academia (1)
- Evaluation in 2013
- Concept Notes
- Seminars
- Open calls from the second phase (2015-2017)
- Success with the breeders
- Continued efforts to get increased budget from the countries



The Nordic PPP's ongoing projects

1. **NordApp**: Prebreeding for Future Challenges in Nordic Apples – started 2012
2. Combining Knowledge from Field and from Laboratory for Prebreeding in **Barley II** – started 2012
3. PPP for pre-breeding in perennial **ryegrass** (*Lolium perenne* L.) – started 2012
4. Nordic Public Private Partnership Plant Phenotyping Project, **6P** – Part A and B both started 2015



NordApp



Breeding for resistance against

Storage rots

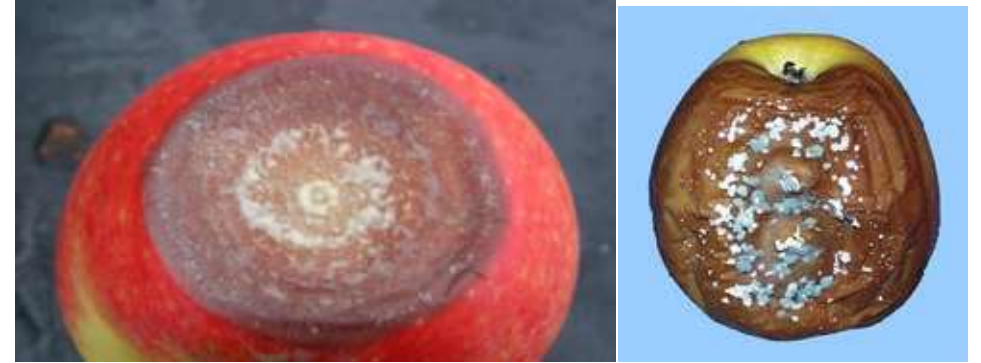
- *Neofabrea* spp
- *Penicillium expansum*

Fruit tree canker

- *Neonectria ditissima*

Networking

- Use of 3 large collections of apple cultivars
- Labour division
- Knowledge transfer



Nordic-Baltic network
Link to EU project Fruitbreedomics
(www.fruitbreedomics.com)

Barley II



Screening for abiotic stress variation

- Long-long-day adaptation
- Early flowering/ early maturing

Biotic stress

- New resistance sources towards scald
- "Easy-to-use" DNA markers

Networking

- Strengtend
- Increased exchange of material
- Access to new genetic resources, such as landraces and wild material. Transfer takes time and with common forces it is achievable



Ryegrass



Base broadening project

- Started with 383 accessions from gene banks worldwide
- Now 150 acc. established in all countries
- Natural selection to create locally adapted germplasm

Networking

- Created an arena for collaboration
- Capacity building
- Synergy among breeding companies and academia



Linked to NOFOCGRAN,
VARCLIM



6P

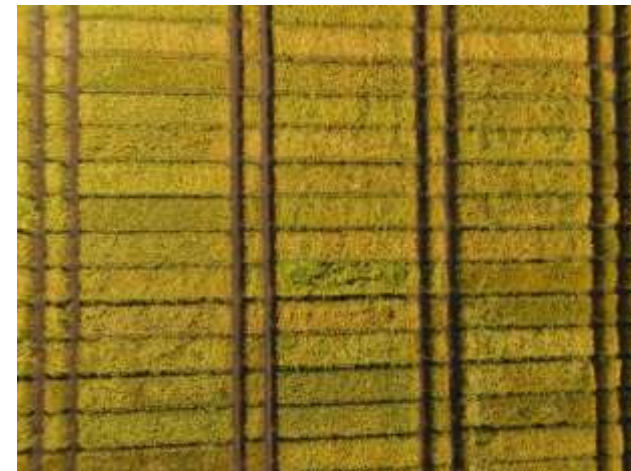


The Nordic Plant Phenotyping Network, NPPN

- Yearly Workshops
- Become a hub of Nordic plant phenotyping activities
- Assembles technical nerds with breeder nerds!

Research and innovation of High-throughput Phenotyping in Field Trials

- Develop non-destructive phenotyping methods
- Regularly use the drones to follow thw breeding plots
- Use different wavelenghts when scoring characteristics



NordApp

SLU

Graminor

Luke

3 entities

BarleyII

Nordic Seed

Boreal

Graminor

LBHI

Luke

Sejet

SLU

PLEN

8 entities

Ryegrass

NMBU

Boreal

DLF Trifolium

Graminor

Lantmännen

LBHI

Luke

Estonian Crop Res

Resear. Inst. of Agr.Latvia

LAMMC

Aarhus univ

11 entities

6P NPPN

PLEN

Boreal

DLF Trifolium

Graminor

Lantmännen

LBHI

LKF Vandel

Luke

Sejet

SLU

Syngenta

Jögeva

LAMMC

Secobra

Findus

15 entities

6P R&I

PLEN

DLF Trifolium

LKF Vandel

Lantmännen

Secobra

5 entities

partners

ass. partners

performers

Thank you
for your
attention

