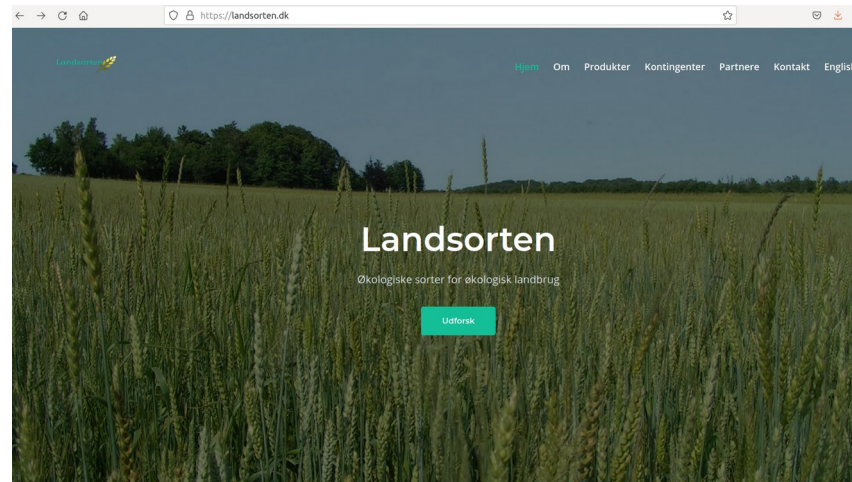


Landsorten

- a seed system for improved crop diversity



GrainLab

Nottingham, 30th April-1st May -2022

Anders Borgen,
Agrologica, Denmark

Project funding by BOOST (Organic RDD-6) and DIVERSILIENCE (CoreOrganic)

Background

- Only certified seed can be legally marketed
- Only only approved varieties in the Common Catalogue can be certified
- Varietal approval costs 5.000£ per variety plus a lot of work to meet the requirements

Therefore, diversity is decreasing because there is no profit in releasing new varieties with a market potential of less than ~50.000ha

Loopholes and new opportunities

- Cheap registration for heritage varieties
- New organic regulation opens for Organic Heterogeneous Material
 - cheap in fees
 - cheap in production (purifying)
- Seed for trials and research is exempted from requirements
 - also farmers and millers can do trials (and they can do very big trials)

The Øland example

- Most grown heritage grain in Scandinavia
 - and even grown in England and other exotic countries!
- 25% of all organic spring wheat in DK
- Still no economic return to the breeder

Who wants to develop a new Wakelyn-YQ on these terms?

Landsorten

- Membership organisation established 2021
- Promoting heritage and organic bred varieties
- Annual fee (most of which is to be returned to the breeders):
 - ~30£ for private non producers
 - ~100£ for producers
 - ~30£ per hectare + ~20£ per ton flour
- 125 members
 - incl. ~70 producers
 - 90% from Denmark, but also a few from UK

The set up

- As far as possible based on home saved seed. Logistic support for home saving.
- No central seed production. All seed is produced by members and sold directly farm to farm.
- Landsorten plans the production
- Bread wheat, malt grain and feed
 - Certified Organic Heterogeneous Material or heritage varieties certified by Landsorten
- Minor crops and varieties are sold as seed for trial production
 - durum wheat, spelt, purple wheat.....

The BOOST project

- Landsorten
 - development of the seed system
- Agrologica
 - breeding varieties and seed research
- Gammel Buurholt Hovedgård
 - Quality seed sorting
- Copenhagen University
 - Seed analysis
- KOST
 - Market development



Buurholt
Mobile seed cleaning and milling



Farmers



Bakers



Millers

Landsorten



KOST
Culinary development
and marketing



University of Copenhagen
quality analysis and research



Agrologica
Breeding and research



Mobile seed cleaning



Mobile stone mill



TriQ protein improve- ment

BoMill Technology

VIDEOER

developing
this

BoMill

TriQ



Upgrading Wakelyns
YQ → Q



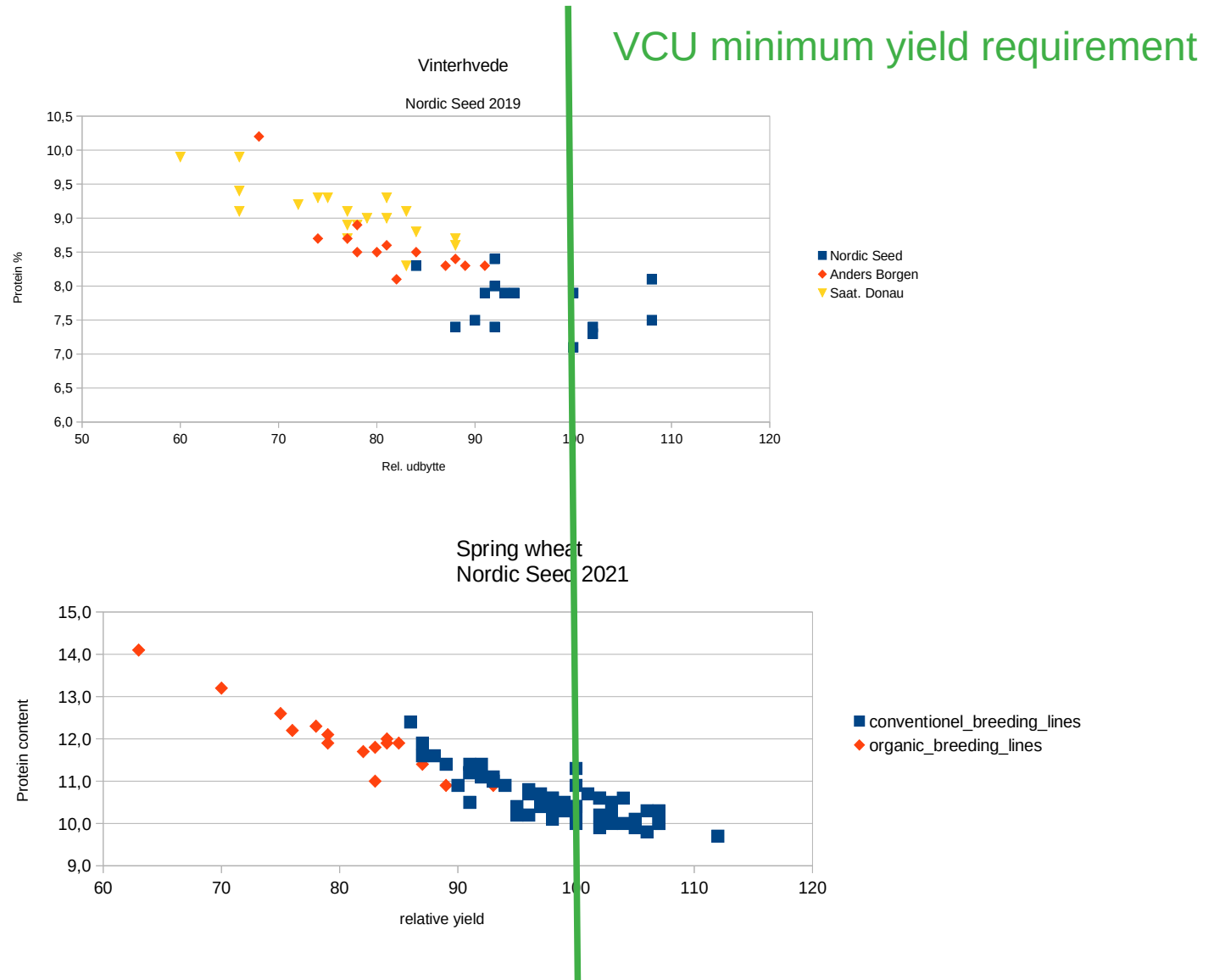
Breeding programs

- Oat
 - increased oil content
 - Naked oat (spring + winter)
- Spring rye
 - improved straw strength
- Barley
 - Improved baking quality in naked barley
 - different colours in naked barley
 - GN-free malting barley
 - resistance against CCN
- White lupin
 - earliness
 - oil content, anthracnose resistance
 - culinary quality
- Lentils
 - growth habit
 - culinary quality
- Millet
 - Foxtail, Barnyard and Proso millet
 - Earliness
- Wheat
 - Resistance to common bunt and CCN
 - Purple, blue, black, yellow and white
 - Dietary fibres, ATI and Fructans and allergies
- Durum
 - Kernel hardness and endosperm colour
- Spelt
- Tritordeum
- Indian dwarf wheat
- Xinchang rice
-
-

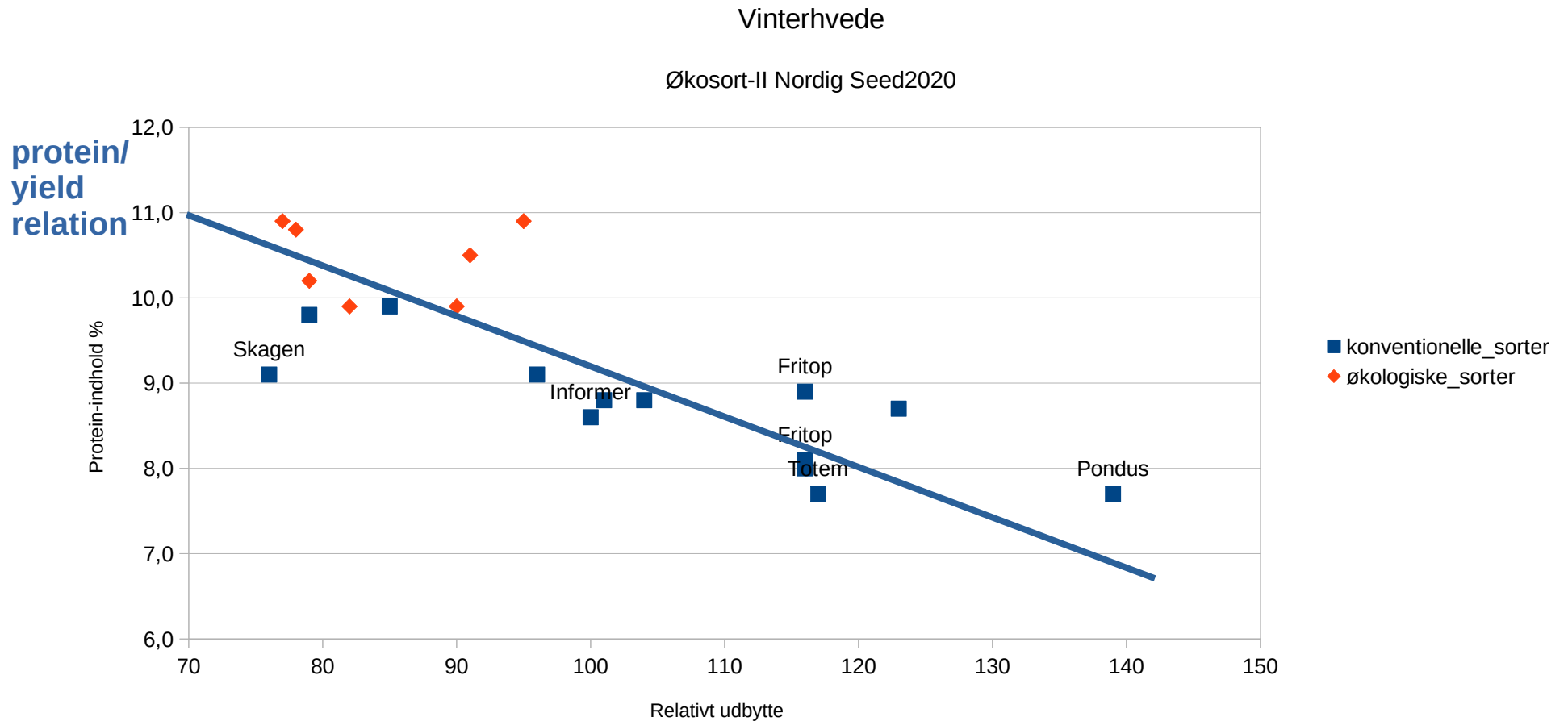
Priority traits

- Protein content in bread wheat
- Weed competition (barley and wheat)
- Diseases (rust, mildew, common bunt, CCN...)
- Quality traits (purple wheat / taste / seed hardness / gluten allergy /)
-

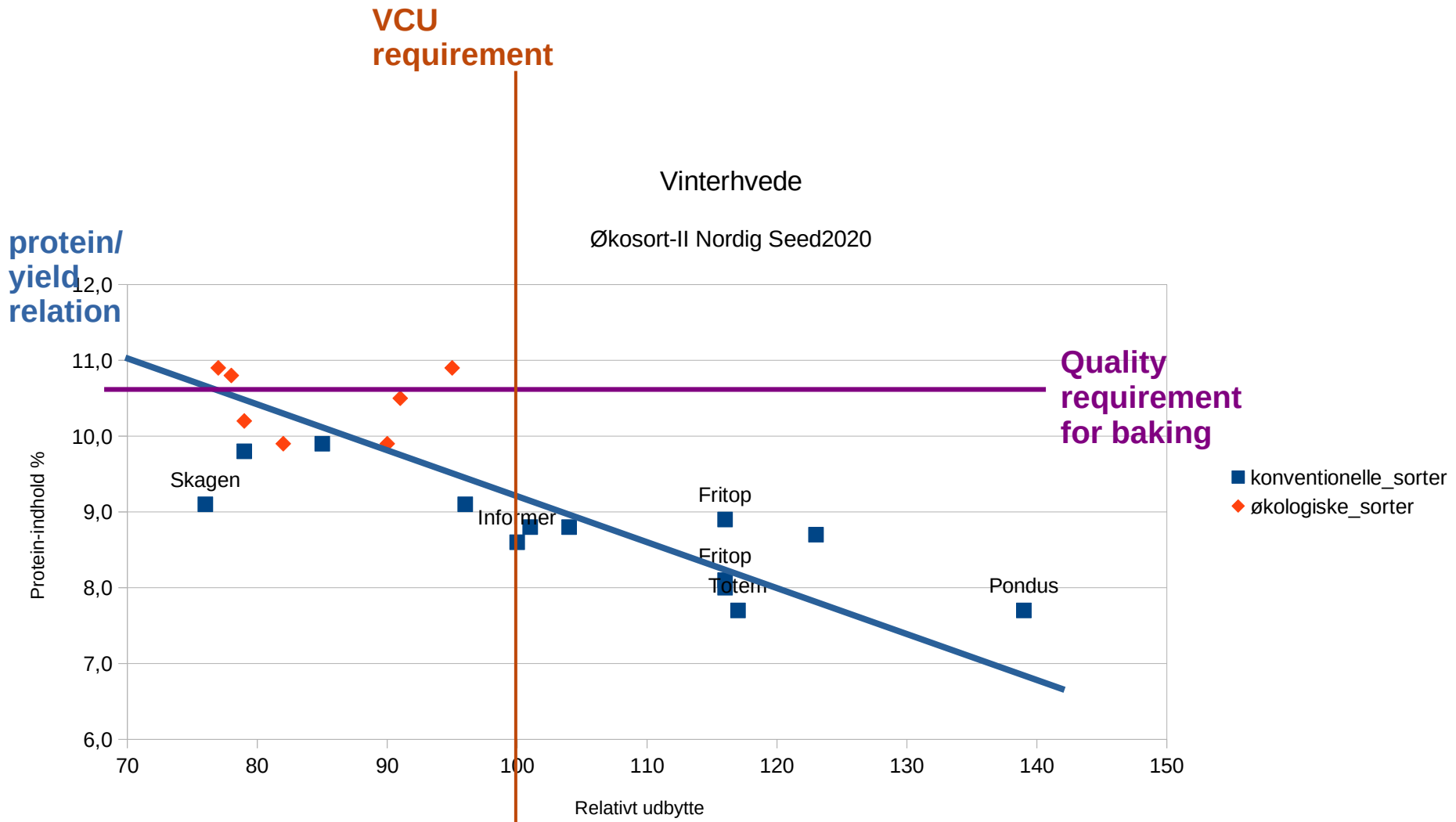
Protein content in organic wheat



Protein content in organic wheat



Protein content in organic wheat



Weed competition in organic cereals




Weed competition in organic cereals



Weed competition in organic cereals





Klosner Disentis

Evergreen og Leurika

Obersaxen

OHM if possible



OHM in production from Landsorten

- **Mariagertoba:** Spring wheat. High gluten content and high gluten index. Mixture of 25 breeding lines. Resistant to common bunt
- **Popkorn:** Winter wheat. High gluten content and high gluten index. Mixture of 50 breeding lines. Resistant to common bunt
- **Pop Nørregade:** Winter wheat. High gluten content and moderate gluten index (GI=~80). Mixture of 25 breeding lines. Resistant to common bunt
- **Pop Feed:** High yielding winter wheat. Mixture of 15 breeding lines. Resistant to common bunt
- **Pop Pjerrot:** White winter wheat. High gluten content. Mixture of 15 breeding lines. Resistant to common bunt
- **Pop Othello:** White winter wheat. Low gluten content for cakes. Mixture of 15 breeding lines. Resistant to common bunt
- **Pop Giraf:** Tall winter wheat (+95cm). Mixture of 150 breeding lines. Resistant to common bunt

Sign up at <https://landsorten.dk>

