

# Organic bread-wheat in New England, USA



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In October 2010, researchers, farmers and millers from Maine and Vermont, USA, organized a trip to Denmark, in order to learn about local bread wheat production, milling and use from their more experienced counterparts with climates similar to their own.

They have received a grant over four years for the project antititled *Enhancing Farmers' Capacity to Produce High Quality Organic Bread Wheat* in which they will carry out research, development and education to improve the production and quality of organic bread wheat in the two states.

In October 2010, agronomist Ellen Mallory from University of Maine visited Denmark with a group of 22 researchers, extensionists, farmers and millers. The aim was to boost the bread wheat production in Maine and Vermont. They have received a grant of \$ 1.3 million over 4 years from the USDA for the project: *Enhancing Farmers' Capacity to Produce High Quality Organic Bread Wheat* in which they will carry out research, development and education to improve the production and quality of organic bread wheat in the two states.

As part of the project, the researchers organized the trip to Denmark, and a similar one to Quebec in 2009, in order to learn about local

bread wheat production, milling and use from their more experienced counterparts with climates similar to their own.

A few years earlier, in 2006-2007, Ellen Mallory and her husband Eric Gallandt, both from University of Maine had spent a year in Denmark as she finished her Ph.D.-thesis while he spent his sabbatical working with Danish researchers on weed management. During their stay, among other activities, Ilse Rasmussen took them to visit some organic farms in Denmark – where they talked with farmers who grew organic bread wheat.

### The bread wheat history

Bread wheat hasn't been grown in significant quantities in Maine or Vermont

for over 100 years. Disease pressures and the development of railroad transportation caused the area of major production to shift to the interior of the United States where it was more economical to produce wheat.

However, the recent "locavore" movement has changed that equation and created a demand for locally-grown bread wheat. Consumers in New England, as elsewhere, are increasingly aware of how food gets to their plate and want to support an agriculture that supports local farmers, local environment and local communities.

Recognizing this opportunity, organic dairy farmers and others, who started growing organic grains for feed, began trying to sell

into human markets that offer twice the price. The problem was that most of the regional knowledge of how to grow high quality wheat suitable for baking was long gone.

### Research activities in the Bread Wheat project

10 investigators in the fields of agronomy, weed science, plant pathology, food science and economics are evaluating wheat varieties for characteristics as yield, quality, and taste; researching organic fertility, weed, and disease management strategies; using research results and regional data to estimate profitability and risk for the farmers; and developing tools for farmers such as interactive enterprise budgets and a region-



New England map (Wikipedia).



More information: Follow the weblinks below

- » [Northern New England local bread wheat project](#)
- » [Project website on visit to Denmark](#)
- » [CROPSYS](#)
- » [AG-TEC-ORG](#)
- » [Organic Eprints on bread wheat](#)
- » [AGROLOGICA – Anders Borgen’s website](#)



Anders Borgen demonstrates experiments to the group.

specific production guide. Spring and winter wheat variety trials, with over 25 varieties of each type, are being carried out under organic conditions at two sites in each state. Innovative weed management systems from Europe are being evaluated in spring wheat: either very narrow rows in order to increase the competitiveness of the crop against weeds, or wider rows, to allow for mechanical weed control. For winter wheat, different supplemental “top-dress” nitrogen sources and timings of application are being evaluated for effects on nitrogen availability and crop uptake, grain yield and grain protein.

### Networking and education

The project also has an active networking and educational component. One of the unique aspects of the project is the involvement of all the key players along the bread wheat “food chain” – farmers, millers, bakers, and researchers. Workshops, field days and tours foster learning among these groups as well from outside experts.

The group came to Denmark to be inspired by what is going on in research and practice. Their trip was arranged by Anders Borgen, a free-lance researcher who is involved in breeding and research on his own organic farm. The group visited 8 farms, some of which have their own mills and bakeries. At Mørdrupgård, Per Grupe is also working on developing

varieties particularly suited to organic farming practices, very similar to the work now being carried out in Maine and Vermont. Focus on this area is picking up in Denmark: In the beginning of November, a workshop on future development of cereal varieties for organic farming including user-driven breeding was held in Denmark, arranged by Organic Denmark.

### Briefed on Danish research results

In addition, the group visited ICROFS where they were briefed on results from projects such as CROPSYS, an organic crop rotation experiment which has been

conducted at 3 locations in Denmark since 1997 and AG-TEC-ORG, an EU-project which aims to identify agronomic and food processing technologies that improve baking quality and nutritional value of organic wheat and reduce mycotoxin contamination. The Danish research and practice has shown it possible to grow quality bread wheat on good soils with only one year out of four dedicated to green manure. The participants were very interested in the CROPSYS results on greenhouse gas emissions, carbon sequestration and how the different systems were rated based on production. The organic systems with green

manure had a lower emission per unit of production compared to organic systems without green manure and conventional systems.

### Inspiration across the world

The visitors from New England were impressed by the enthusiasm and consistent focus on quality among the organic wheat producers, processors and users they visited. They were puzzled, however, that in Denmark, soft wheat varieties are grown for bread. In the US, soft wheat is used for cakes and cookies, and hard wheat varieties with higher protein contents are considered better suited for bread. This could be inspiration for organic producers in Denmark on how to increase quality of bread wheat – albeit not the yield!

Many of the publications from research in Denmark and Europe can be found in the Open Access repository Organic Eprints, and the US researchers were keen to include this database in their further work. Hopefully their own results will later be deposited, so that Danish and other researchers can benefit from their work.

This visit has shown that visitors and hosts alike can be inspired by how things are done in other parts of the world. ■

