



Our Daily Bread: Following Grains Through the Food System

This course is presented in a collaboration of College of the Atlantic, the Organic Research Centre in the United Kingdom and University of Kassel's Faculty of Organic Agriculture in Germany as part of our Trans-Atlantic Partnership in Sustainable Food Systems.

Summary

The aim of the course is to use wheat, oats and rye as a lens to explore how a wide range of factors including history, changing land use patterns, crop development, human nutrition, food processing, sensory evaluation, and socio-economics shape how grains are grown, harvested and ultimately transformed into our daily bread. This field-based course seeks to provide students with deep insights into the past and current production of grains in the United Kingdom, Germany and the United States. Extensive readings will complement the summer fieldwork at farms, mills, bakeries and research sites in Europe, and will provide students with the agronomic background necessary for a historical view of grain production and the possibility of localized grain within the current global economy. Students will lead discussions, interview farmers, write short essays, and undertake a research project designed together with the class.

By the end of the four-week course students will be able to:

- Evaluate the importance of wheat and other temperate grains to the feeding of human and animal populations in past, present and future contexts
- Review current and traditional methods of evaluation of food quality and grain processing (bread production in particular) and relate these to modern nutritional problems
- Describe the growth cycle of wheat in general terms and relate the production cycle to current issues of sustainability including greenhouse gas emissions, carbon sequestration, energy requirements, and soil conservation.
- Compare and contrast the socio-economic importance of wheat to Maine, Germany and the UK

Faculty

Suzanne Morse, PhD, College of the Atlantic, Maine — Newlin Chair of Botany

Roger Hitchings, Organic Research Centre, United Kingdom — Head of Advisory Services

Angelika Ploeger, PhD, University of Kassel, Germany — Department of Organic Food Quality and Food Culture

Participants

Eight to twelve total students will participate in the course, primarily second and third-year undergraduates from College of the Atlantic. Several University of Kassel undergraduates will also participate.



Course Plan

The course will begin with attendance at The Kneading Conference in Skowhegan Maine, July 30–31. It will run for the four weeks of August, to include three weeks in the UK based at the Organic Research Centre and its various research sites, and one week based at the University of Kassel's Faculty of Organic Agricultural Sciences in Witzenhausen, Germany. The course will be divided into four thematic modules, each lasting a week.

Pre-Course: Grain Production and Processing in Maine

Prior to the official start of the course in Europe, students will be expected to build a foundational understanding of the status of grain production and processing in Maine. After the European component of the course, students will use what they've learned to reflect back on the status and future of grain production and processing in Maine.

Field Visits:

- The Kneading Conference, Skowhegan, Maine – Grain growers, millers and bakers from around the state and region converge at this conference to explore current issues.
- Aurora Mills and Farm, Linneus, Maine – Matt Williams grows and mills organic Maine grains in rural Aroostook County. His is the only operation in Maine to mill exclusively Maine grains.

Module One: Introduction and Background (in the United Kingdom)

Topics will include:

- Overview of grain production and processing in Maine – review of pre-course work including The Kneading Conference and the Aurora Mills visit
- History of wheat development and the significance of its contributions to human development
- Wheat biology
- Grain production in the UK and its relationship with the organic sector
- Wheat breeding; innovative ways of improving the robustness of wheat populations

Field Visits:

- Sheepdrove Farm, a mixed farm on the Berkshire Downs with cereals, pigs, poultry, beef and sheep. ORC carries out a range of research projects at this site
- Doves Farm, which produces a wide range of products and has on-farm milling facilities that produce organic flours of all kinds.
- Butser Ancient Farm, which has examples of iron age buildings, many of which are linked to cereal production for food and thatch
- Laverstoke Park, which features a wide range of enterprises run using biodynamic principles

Module Two: Sustainability (in the United Kingdom)

Topics will include:

- Definitions of sustainability, and a broad review of general sustainability issues
- Current activity in the area of sustainability by the Organic Research Centre and the UK organic agriculture sector including environmental benchmarking, emissions and energy assessments, functional and natural biodiversity and sustainable agro-ecosystems
- Issues arising from continued high levels of wheat production including fertility maintenance, biodiversity, soil conservation, pests and diseases

Field Visits — these will involve practical activities including the assessment of biodiversity and soil evaluation:

- Shipton Mill Watermill
- Broadlands Farm, Prince Charles' home farm
- Hi-Peak feed mill

Module Three: Socio-Economics and Processing (in the United Kingdom)

Topics will include:

- The impact of wheat production on regional and local socio-economics
- Global commodity trading — its complexities

Field Visits — In addition to focusing on trading and processing, this week's field visits will also involve visiting farms to look at variety trials and population development, with opportunities to take samples for processing at the University of Kassel during the last week of the course:

- Processors and traders (sites to be determined) — to explore the complexities of grain trading
- Wakelyn's Agroforestry farm, where cereal trials are taking place and students will take samples
- John Innes Centre to see their scientific programs and trials sites which grow a wide range of varieties of wheat and other crops
- Letheringsett Watermill
- Bakery — for comparisons between the UK and Germany

Module Four: Wheat in Germany — Food and Food Evaluation — in Witzenhausen, Germany

Topics will include:

- The role of grains and grain products in human nutrition
- The principles and practice of grain processing with particular reference to organic processing
- Traditional bread culture and production in Germany
- An examination of quality parameters for grain evaluation with a focus on baking
- The role of sensory evaluation as a tool for the determination of food quality in general and for bread and cookies in particular

Field sites will include:

- University of Kassel's sensory evaluation lab
- European Bread Museum
- Jühne — Germany's first bio-energy village
- Bakeries

Learning Activities and Assessment

A range of learning activities will be used including lectures and presentations, seminars, discussions, directed self-study, readings, student presentations, practical activities and fieldwork. Students will keep reflective journals, participate in posting to a class blog, and complete several written assignments. In addition, students will be expected to present their experiences of the course at the conference on food systems to be held at COA in October 2009.