The production of crops and other services from agriculture must increase substantially in the future to meet, in a sustainable manner, the demands of an increasing world population, which is faced with limited availability of natural resources. Global changes and events affect, to an increasing degree, the conditions for agricultural production of food, feed and fuel. On the one hand, climate change scenarios indicate an increasing agricultural production potential in some countries, but they also indicate increasing risks for, e.g. extended drought periods, extreme weather and the occurrence of new pests and diseases. On the other hand, increasing production potential may conflict with environmental goals, such as biodiversity and clean water resources.

Under these conditions, maintenance or increase of crop yields will require the development of new crops and cropping systems, as well as novel management practices to adjust to new crops and cultivars, pests and weed problems. In this context, the application of biotechnological methods in the development of new crops and cropping systems is becoming increasingly important and frequently debated by the public.

A number of conflicts between agricultural and environmental goals need to be solved. Scientific knowledge on sustainable agriculture, including organic farming, international collaboration and new research approaches, are required to meet these challenges. The Department of Crop Production Ecology (CPE) at the Swedish University of Agricultural Sciences (SLU) is an independent research and teaching organisation, and CPE staff are prepared to address many of the challenges mentioned in Nordic, European and international contexts.

The main interests of CPE include research, consultancy and teaching within two major areas:
- Cropping systems ecology;
- Functional ecology of crops, weeds and pests.

The mission is to investigate, identify and develop sustainable agro-ecosystems, with the aim of improving productivity and sustainability of food, feed and fuel crops, as well as cropping systems. Expertise in various disciplines (soil science, ecology, plant physiology, statistics, meteorology, computer simulation) is integrated to address the research tasks. As important complements to, and opportunities for, research activities, the department is involved in many teaching and outreach activities and is also commissioned to conduct the official variety testing of forage, potato and cereal crops in Sweden.

The department hosts Mistra Biotech, which is an interdisciplinary research programme focusing on the use of biotechnology to improve our crops and livestock, and various questions related to this: from new methods and crops to the ethical aspects, economics, legislation and consumer perceptions of the technology.

Professor Martin Weih
Head of Department
Department of Crop Production Ecology
Swedish University of Agricultural Sciences (SLU)
Tel: +46 18 672543
martin.weih@slu.se
www.slu.se/vaxtproduktionsekologi
www.slu.se/mistrabiotech