

We would like to invite you to an Inaugural Workshop:

A new look at **old rots** – research on **apple diseases** at Aarhus University

15 June 2015. 10.00 - 14.00

AU Food, Kirstinebjergvej 10, 5792 Aarslev, Cantinen,
finishing with a Reception

A seminar on apple diseases and storage rots including a display of 'attractive' fruit rots will be held as the inaugural lecture by Aarhus University's affiliated professor Roland W. S. Weber, Esteburg Fruit Research and Advisory Centre, Jork, Germany

Program

- 10.00 – 10.15 **Welcome** by Michelle Williams
- 10.15 – 11.05 **Roland Weber** first part
- The sooty blotch complex: species identity, infection biology and control options
 - Rubbery rot and black summer rot: two new diseases of apple
 - Biodiversity of storage rots in Denmark and Northern Germany
- 11.05 – 11.30 **Marianne Bertelsen**: Protected apple production – effects on scab and storage rots
- 11.30 – 12.00 **Break** and display of storage rots
- 12.00 – 12.35 **Roland Weber** second part
- A new look at hot-water treatments of apples
- 12.35 – 13.00 **Merete Edelenbos**: Hot water treatment to reduce storage rot. Physiological disorders and effect on fruit quality.
- 13.00 – 14.00 **Reception** and display of storage rots

If you wish to **participate** in the Lecture, including reception please register on:
https://auws.au.dk/Lecture_on_apple_diseases, not later than **Thursday 5 June 2015**.



Appetizer

Practical research on apple diseases from a mycologist's perspective

Roland W. S. Weber
Esteburg Fruit Research and Advisory Centre, Jork

This event is dedicated to the memory of John Webster (1925-2014), one of the most distinguished exponents of whole-organism mycology

In the prevailing climate of Denmark and neighbouring countries, fungi are the principal cause of yield losses of apples and other horticultural crops. Fruit infections may occur at any time from flowering onwards. Diseases which break out shortly before or even after harvest are particularly troublesome to fruit farmers because control options decrease as the season progresses. This is particularly true of the expanding sector of organic production. Because fundamental research activities and applied field trials are usually being conducted by different people at separate institutions, the value of either approach to practical farming is often compromised. The correct identification of a fungal pathogen and knowledge of its critical infection parameters are prerequisites for meaningful trials aimed at controlling the respective disease. Using practical examples from Denmark (Årslev) and Northern Germany (Jork), I will demonstrate how basic mycological exploits can serve applied research.

More than 80 species of fungi have been associated with the sooty blotch-flyspeck disease complex, but only one of them (*Peltaster cerophilus*) is of practical relevance to organic farmers in our regions. Thus, research specifically focused on the infection biology of *P. cerophilus* can be used to devise novel control strategies of an entire disease complex. Two new fruit-rot diseases – the preharvest black rot caused by *Diplodia seriata* and the postharvest rubbery rot caused by *Phaciidiopycnis washingtonensis* – have been described in Denmark and Northern Germany. Both fungi, as well as *P. cerophilus*, are associated with fruit mummies of apple trees in different ways. The removal of fruit mummies may therefore offer benefits beyond those which become evident in trials of individual diseases.

Danish and Northern German apple producers boast a particularly impressive kaleidoscope of postharvest diseases which will be presented in my lecture using living material. Because of the different (and mostly unknown) biological features of the causal fungi, preharvest fungicide applications are only moderately effective in integrated and organic production. However, a common feature of many pathogens is their presence as latent inoculum in or on the fruit skin at harvest. Simple trials have repeatedly demonstrated a high efficacy of hot-water treatments against certain storage rots, but these studies have neither characterised the full range of rots nor elucidated the underlying mode of action. Ongoing collaborative research at Årslev and Jork has achieved these goals, concluding that the efficacy of hot-water treatments is due chiefly to a heat-shock reaction of the fruit rather than a heat-mediated killing of fungal inoculum. This finding has a direct bearing on the development of new technologies to introduce the unwieldy hot-water technology into practical fruit production.

It is hoped that an integrated approach to fruit-rot research as outlined in my lecture can be explored further in the course of my affiliation to the Department of Food Science at Aarhus University.

