Report of the Workshop "Foliar diseases"on COST action meeting 12.04.2016
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Three contributions:

Martin Koller. *Disease management in organic greenhouse crops: prevention and treatments*
Presents the pest and disease management in 4 steps: 1) cultural practise, 2) natural enemies, 3) Bio control agent, 4) strengthener, fungicides on the example of tomato: powdery mildew, cladosporium, late blight, botrytis. For example the main management tool for this problem: climate control, may work on 3 diseases together but not for mildew but this can be regulated with some fungicides.

Maarten Vrensen: *Role of resistant vegetables cultivars in disease management*
Explains the breeding strategy for bremia in lettuce, cladosporium in tomato, downey mildew in tomato, aphids in pepper an shows the difference among the different pest and diseases, depending on resistance type – monogenetic – polygenetic – and the change of the disease adepted to the resistant genes.

Peter van Weel: *Low cost climate control for disease prevention in greenhouses*
An overview over climate problems in the greenhouse climate management has been given, especially dripping water, falling cold air, cold and warm spots inside the plant canopy.

Discussion

The most discussed topic was the regulation of relative humidity as a central element of greenhouse climate control.
One view: Botrytis, Phytophthora, Cladosporium can be controlled by climate regulation, Mildew can be controlled by other methods as fungicides. (Mildew control by climate regulation the air becomes too dry and can reduce the flowering). An other view: Botrytis can be controlled also by canopy training; climate control is not only related to infection conditions but more to optimum plant growth.

The practiser's observation that mildew infection starts on spots with low temperature and high humidity (up to water drips) led to discussion about ventilation, condensed and dripped water and cold air e.g. falling from the energy screens. That is summarized in a recommendation to a homogenous canopy temperature regulated by improving techniques (ventilation, closed energy screens, better management of the energy screens, sensors, etc). The challenge in organic greenhouse management has been seen much higher because the plants are grown in soil which storages energy (heat) as well as water (evaporation) and will induce a highly developed regulation system. (CO_2 fertilisation may become unnecessary because of the increasing CO_2 level in the atmosphere.)

Actions needed
Knowledge about climate conditions, plant physiology and disease outbreak has to be improved by research and developing programs. Resistance breeding and plant treatments (chemicals, strengthener, biologicals) will be part of a healthy leaf strategy in the 2nd and 3rd line. It was not specially addressed who, which institution or program should realize that, so everyone who is concerned is invited to contribute to better solutions.