Abstract for the ISTA conference

Control of seed borne diseases in organic cereals and pulses

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In Denmark, most organic farmers uses organic propagated cereals and legumes for seeding, and all seed lots are tested for infections of seed borne pathogens before sowing. About 50% of all see lots are discarded based on this assessment, but huge differences occur between year and crop, which makes planning of seed production impossible. Some years up to 90% of the seed lots of a crop may be discarded e.g. peas in year 2000. The major cause of this are: *Tilletia tritici* in wheat, *Dreschlera graminea, D. teres* and *Ustilago nuda* in barley, *Fusarium* spp in triticale, and *Ascochyta* spp in peas. This situation calls for research focusing on this specific problem in the organic plant production.

Research in organic seed production, handling and use started 10 years ago in Denmark, and the current research programme will continue until 2005. The strategy now in development of organic control measures will focus on preventive measures to minimize the infection in field during propagation. This includes investigation of the effect of harvest time, sowing time, crop density and crop mixtures. Varieties will be tested for specific resistance to the major systemic pathogens. However, also development of seed treatment are needed, and the current effort will investigate the effect of seed size separation, seed density separation to control *D. graminea , D. teres, U. nuda* and *Fusarium* spp. Brush cleaning will be developed to control *T. tritici* and *Urocystis occulta*. Water-free heat treatment will be developed to control a range of seed pathogens. In combination with development of more precise detection methods using PCR technology, and evaluation of the thresholds used for assessment of seed quality, it is the hope to minimize the number of seed lots discarded because of seed borne pathogens in organic agriculture.