

From the [list of publications of Anders Borgen](#)

**Borgen, A., N.Krebs and C.Langkjær 2005:** Novel development of heat treatment techniques for seed surface sterilisation. Abstract Booklets. ISTA, 5th SHC Seed Health Symposium, Angers France 10th -13th May 2005 p.28

Heat treatment to prevent seed borne diseases, e.g. in the form of hot water or warm humid air, will normally heat up the entire seed. Heat treatment of the seed embryo will always have a negative side-effect on seed vigour and the duration of several minutes are difficult to implement in seed plants treating huge volumes of seed. However, in the case of common bunt in wheat and similar diseases, where the inoculum is transmitted as fungal spores on the surface of the seed, an uniform and efficient surface sterilisation will be sufficient to prevent the transmission of the disease.

To test the effect of surface heat sterilisation of seed, an equipment was developed, where seeds were exposed to a combination of steam and ultrasound. The principle is that the ultrasound will create a fluctuation of the air molecules in the chamber, and thereby increase the access of the hot steam to the surface of the seed.

In this equipment, common bunt in wheat was eliminated after 4 sec. treatment and in spelt after 8 seconds. A 16 times increase of the duration of the treatment did not decrease germination speed of the seed, tested in a cold sand test. This demonstrates that surface transmitted diseases can be controlled efficiently and environmentally friendly by equipment adaptable to commercial seed plants.