Abstract

The cleaning process on a combine harvester is a complex process, which is influenced by a wide range of parameters such as e.g. machine settings, and field- and crop-related parameters. Because of the pressures on time faced by combine operators, optimal settings for the cleaning section are usually estimated only once for each crop, and as a consequence, differences in temporal- and site-specific conditions are neglected.

Previous literature showed the importance of making use of the most appropriate settings to reduce grain losses. In order to gain insight into the cleaning process of a combine harvester, machine behaviour was registered for different machine settings. Different measurement devices were installed on a test combine to extract information from the combine harvesting process. In order to rank the candidate input variables as possible regression variables for the prediction of the sieve losses, an input selection methodology based on the principles of natural selection is presented. Results indicate that that the sieve losses are affected in a non-linear manner by differences in the pressure profile of the cleaning section and the upper sieve opening.