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# FIELD VISION TECHNOLOGY FOR EVALUATION OF PRODUCT QUALITY

**Technologie de vision champ pour évaluation de la qualité de produit / Bildverarbeitungstechnologie auf Feldebene zur Prüfung der Produktqualität**

## ABSTRACT

Camera based field vision technology has become a routine in the sugar beet trial fields for evaluation of the leaf area index (LAI) of the individual plots based on the Normalized Difference Vegetation Index (NDVI). Also measured is the number of emerged plants per plot although sometimes problematic due to weeds in the trial fields. The LAI figures obtained after calculation in complex algoritms are used for evaluation of effect of different seed treatments (seed sorting, activation, pelleting, coating etc.) on speed of emergence, plant establishment and plant growth. The field vision technology is also valuable for evaluation of phytotox, for phenotyping, for determination of vigour and for evaluation of biotic and abiotic stress levels in the trial field. The LAI shows good correlation to white sugar yield in sugar beet seed treatment trials. Because of a scanning speed on 3-4 km/hr the trial fields can be monitored several times during the growing season – i.e. every second day – making this system excellent for monitoring plants growth rates (vigour, biomass accumulation). The LAI data obtained is measured in pixels and treatment effects best given as figures relative to standards in the given trial.

In 2013 more than 1500 km sugar beet trial field rows were scanned with this technology, many of the trials scanned up to 9 times during the early growth season. The data obtained has been correlated with manual counting data and with the visual observations in the field.