

**Research Group**  
**„Information System Site Specific Agriculture“ (IKB - Duernast)**

**Partial Project 1:**  
**Analysis and Validation of Local Yield Data**

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Yield mapping is an important basis of site specific farming. Yet in local yield data there are a lot of errors. Errors of particular importance are those of positioning, of flow measuring, those related to cutting width, the time delay of flow measuring in relation to pick-up, and errors in measuring the moisture content. These errors are the more carrying weight, the better the resolution according to yield classes and to grid sizes is. The best possible resolution of yield maps to be aspired is therefore limited by the size of the errors. In the first step of examination, it will be tried to quantify the errors in local yield detection.

The errors of flow measuring will be determined using the test-stand for different yield-detection systems already available in Duernast, under various conditions (different flow levels and inclinations of the test stand) for the several sorts of cereals and corn.

Variations of the time delay and errors of the moisture measurements can also be approximated on the test-stand.

Errors of positioning by DGPS can be recorded using a laser or infrared tachymeter including a tracking function.

The following data analysis is based on the long-term yield data of the FAM-project in Scheyern and on the additional data from Duernast. Both locations should be compared concerning the causes of errors, to submit the transferability to other locations.

In the second step the available yield data will be adjusted according to the results of the error analysis. Based on the remaining errors in the data sets to be estimated, the admissible highest resolution by yield classes, and grid sizes and interpolation ranges respectively, is determined. The differentiation to homogeneous sites will be made taking into account the different working widths of the utilised harvesting and application devices, and spatial relations of yield data. The latter will be determined by geostatistical methods.

Using the yield data from Scheyern and from Duernast, the temporal stability of the yield patterns will be examined.