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Testing Stand for Yield Measurement Systems in Combine Harvesters

by

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Introduction

For precision farming new ideas in agricultural engineering are needed.

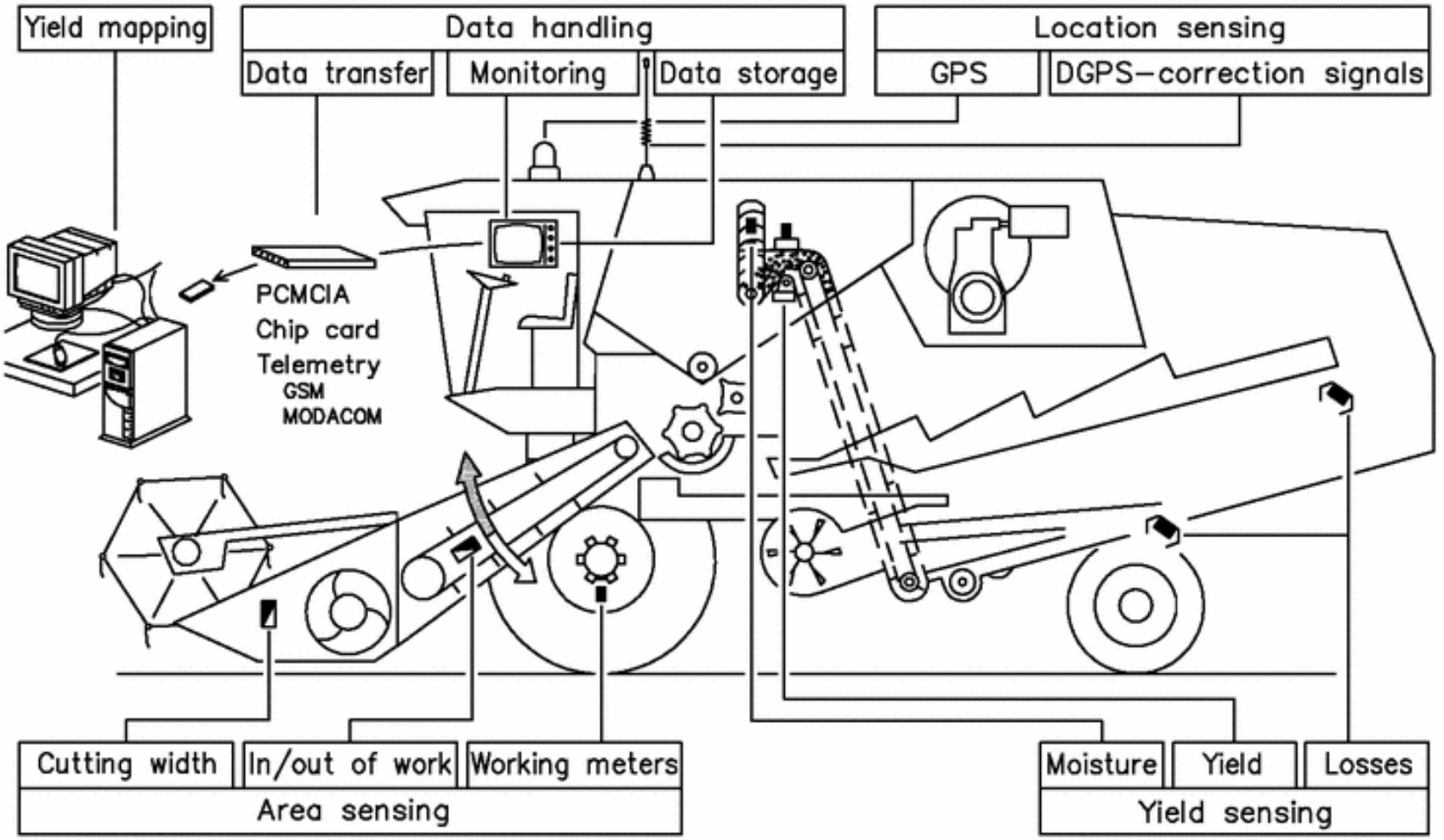
To ensure a closed data flow documenting all working steps in the field yield measurement has a decisive roll. Those data string can be processed into yield maps, lane analyses or working time analyses. Therefore current yield and moisture measurements are stored in combination with the position information from a DGPS system.

Since 1990 yield measurement systems are available on the market. Extensive studies on the measuring accuracy of the individual measuring systems were carried out in the years 1991 to 1995. The results showed various accuracies of the yield measurement systems, but details about the error sources couldn't be evaluated within the field trails.

It was the aim, to have a possibility to test the yield measurement systems within well defined conditions on a testing stand.

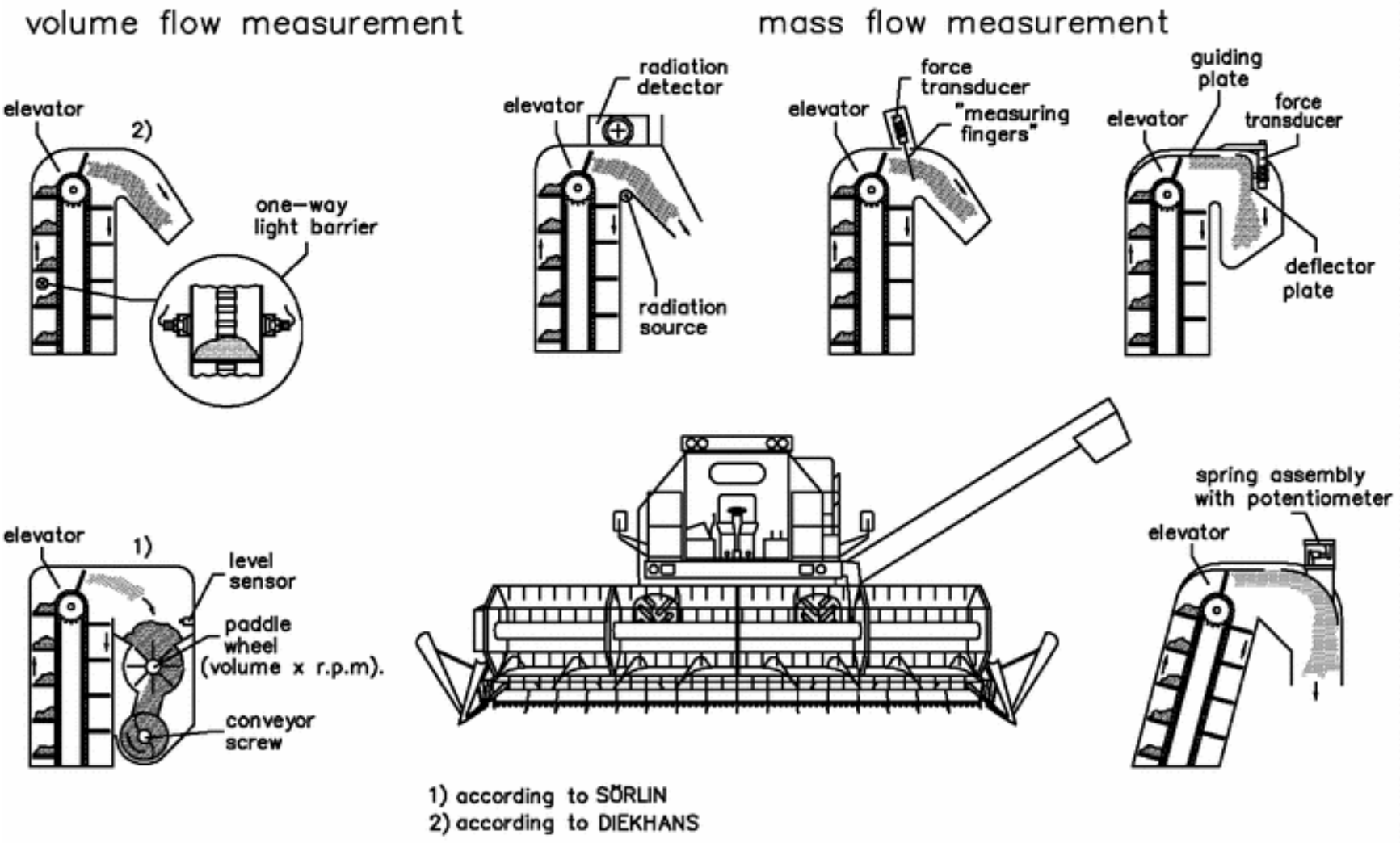
State of the Art

Components for local yield detection in combine harvesters



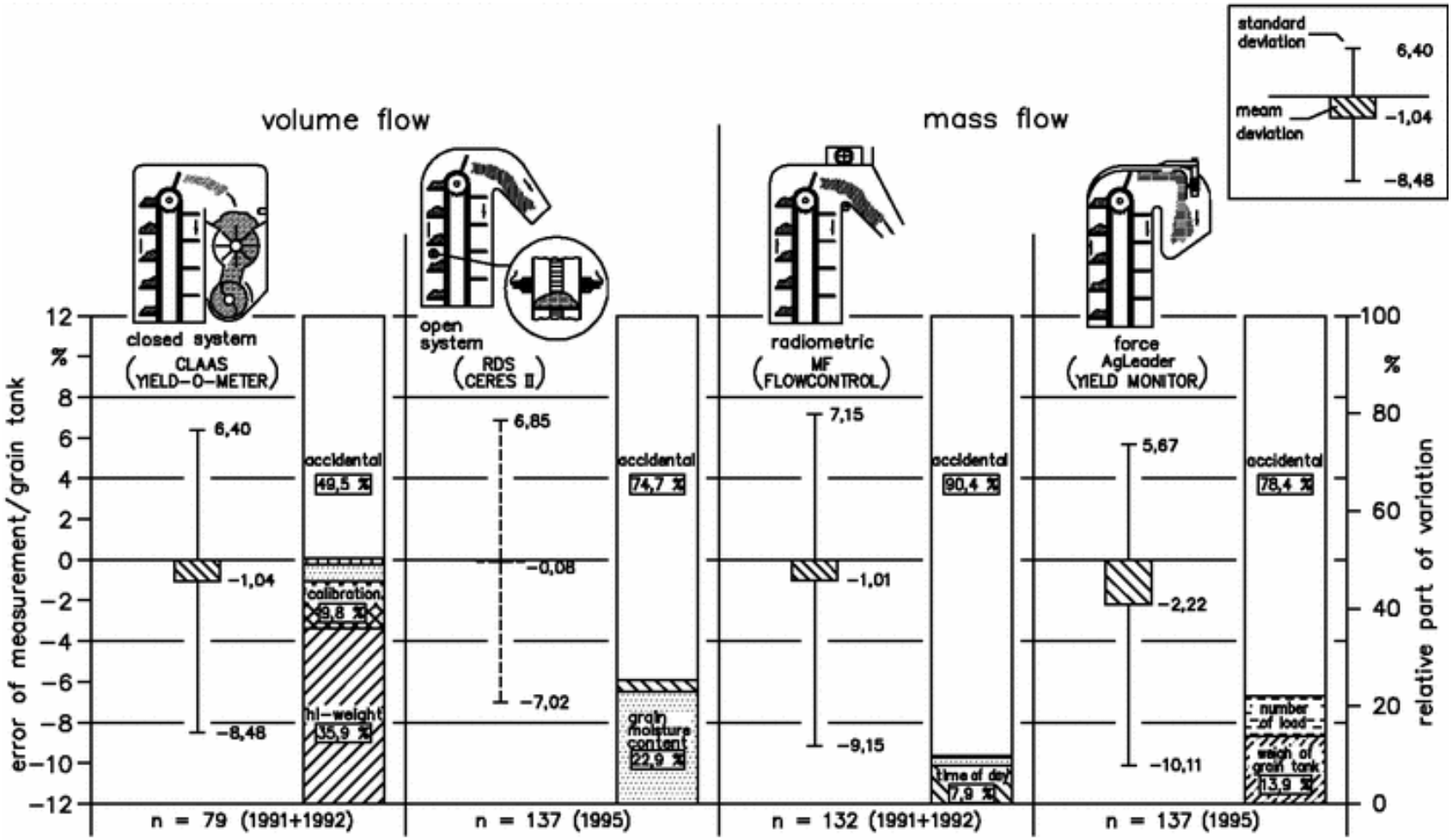
Problem

Continuous yield measurement systems for combine harvesters

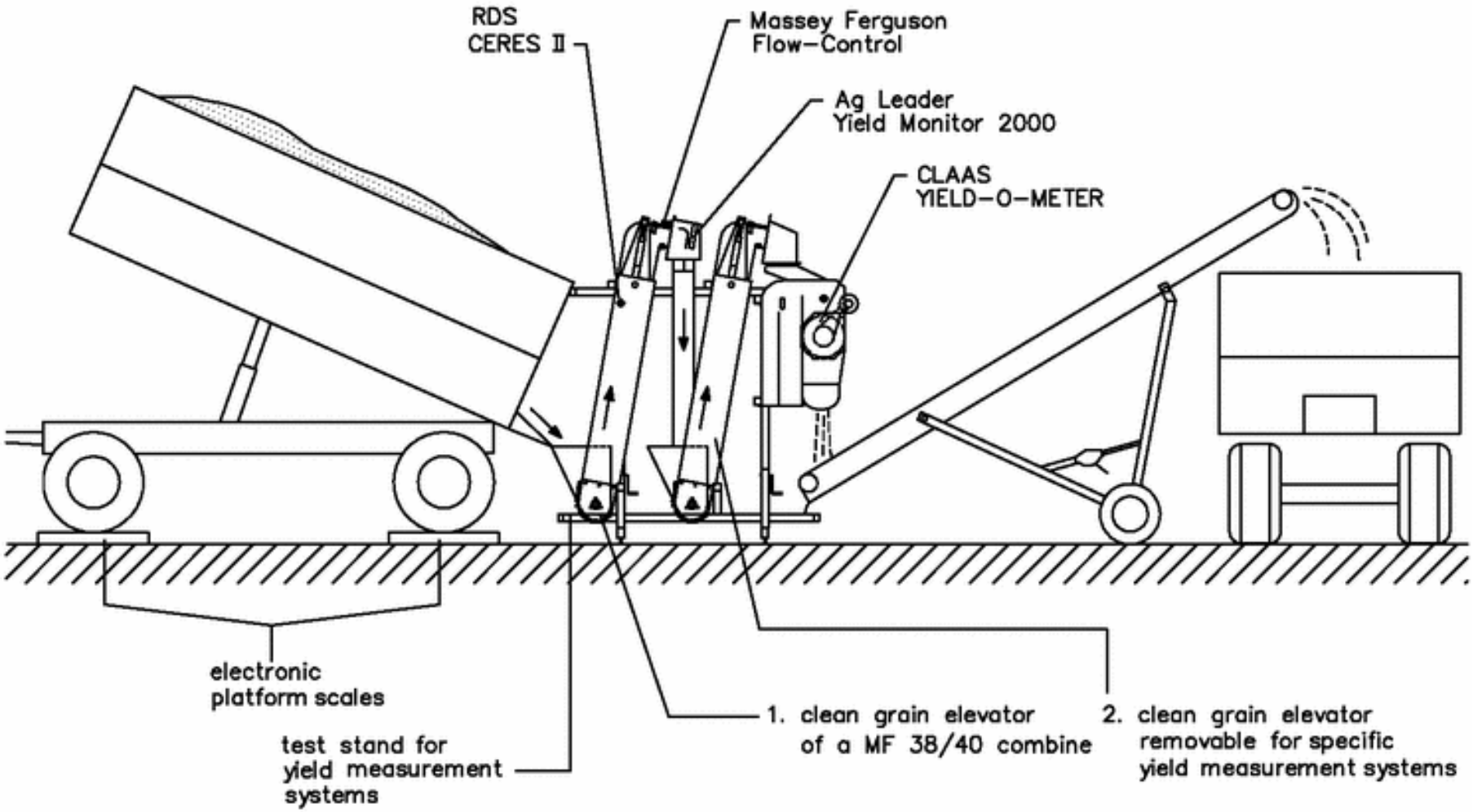


Solution

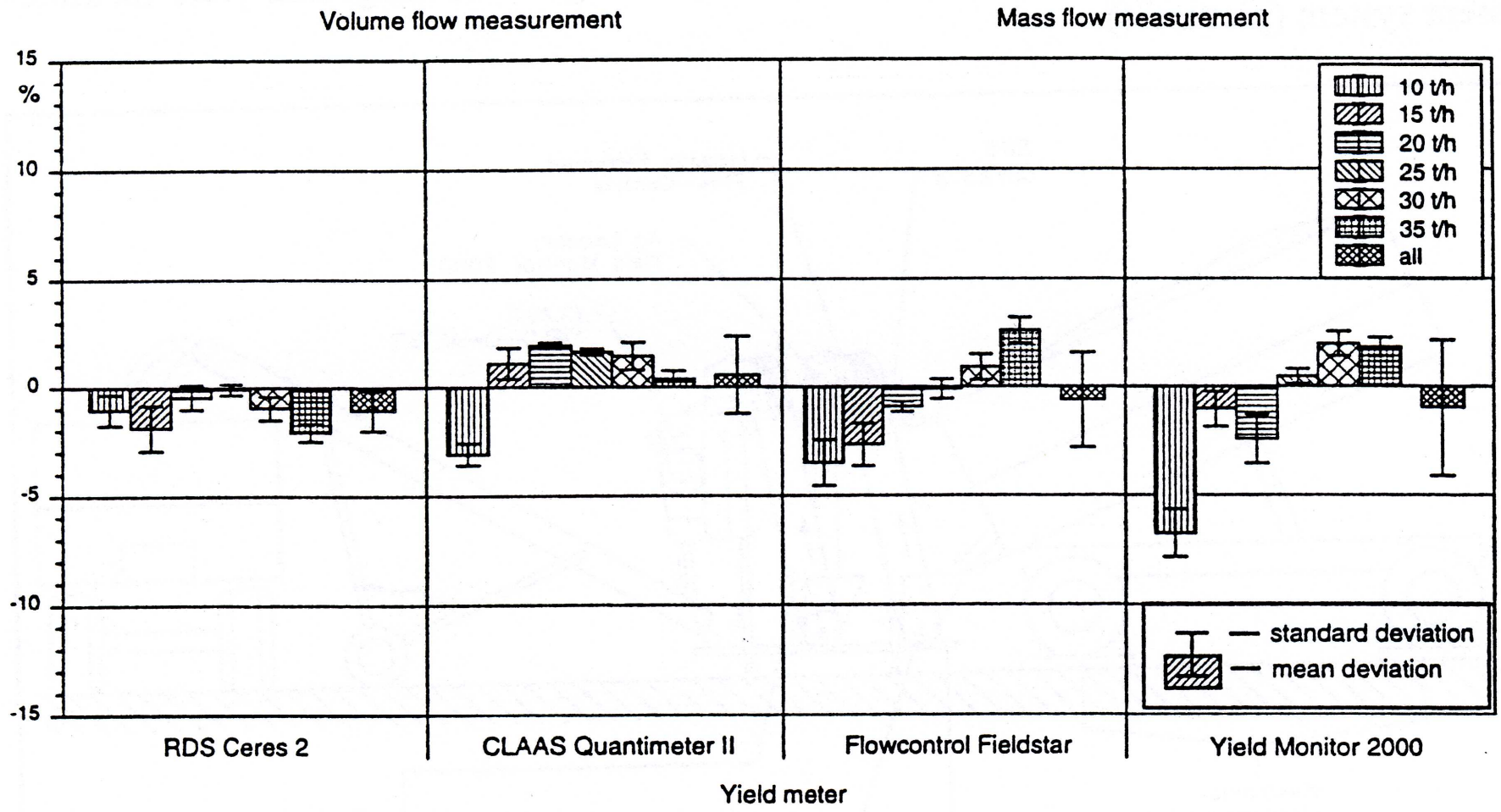
Accuracy and error sources of yield measurement systems in combine harvesters



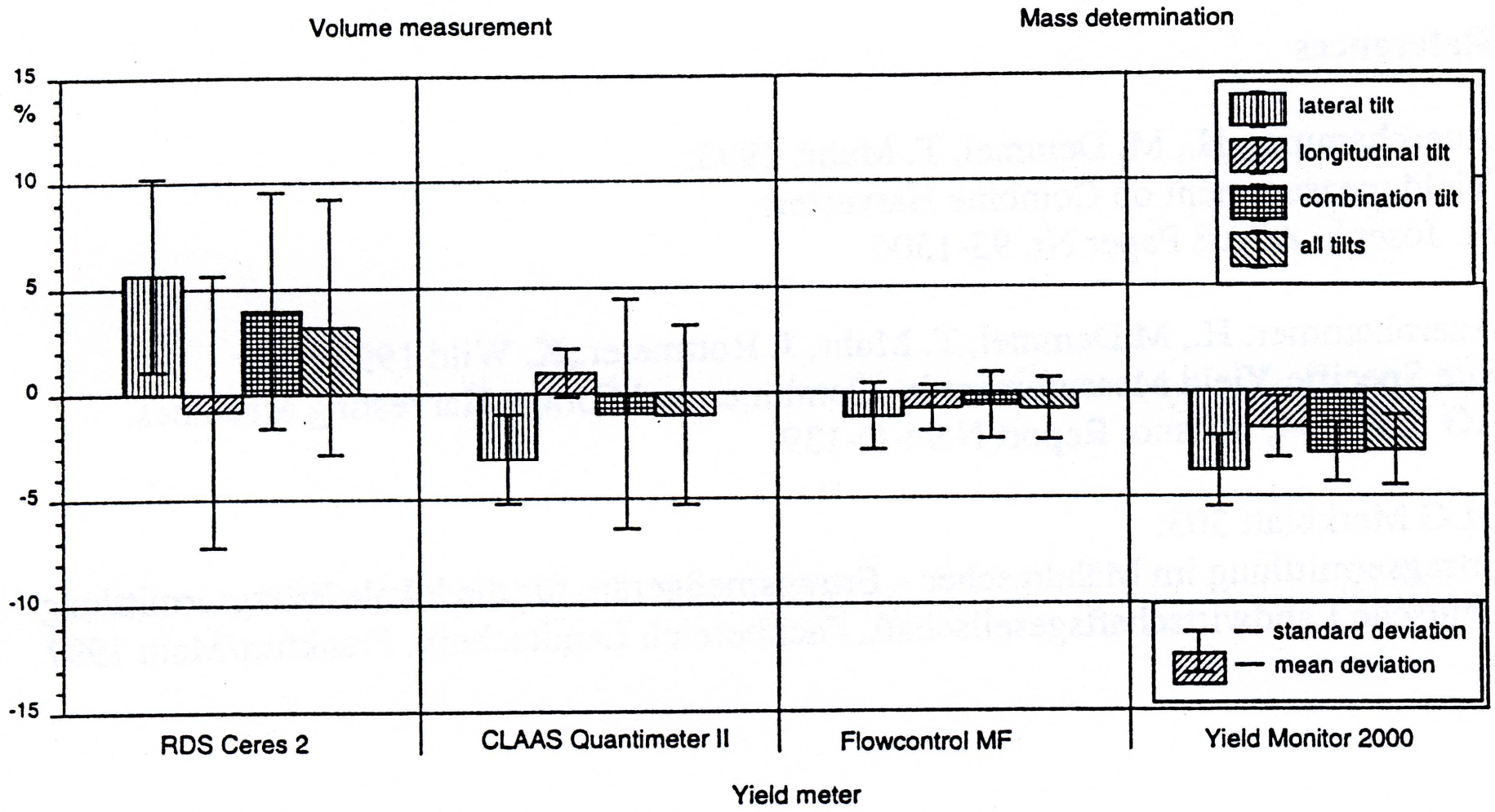
Test stand for yield measurement systems in combine harvesters



Relative mean error and standard deviation in dependency of the throughput



Mean deviation and standard deviation depending on the tilt



Summary and Outlook

- With the four yield meters which have been presented and examined, initial practice-fit systems are available for continuous yield determination in the combine harvester.
- Other manufacturer-related systems and systems universally suitable for retrofitting are on the market.
- Tests with available systems also will be done in future.
- Within those tests different kind of crops and moisture content has to be examined.
- So far test series for the examination of the dynamic behavior of the yield measurement systems were started.