Yield maps for corn and soybeans were developed using data obtained from a simple yield monitor and by using the GPS system for site location. A yield monitor was installed in the exit portion of the clean grain elevator of a combine. The principle used for the yield monitor was a series of light emitters and receivers such that the greater the grain flow rate, the smaller the amount of light seen by the receivers. The flow rate and voltage changes from the monitor appeared to be linearly related in a laboratory study. The monitor, however, needed to be calibrated with the dynamics that occur under actual field conditions.

A differential GPS system was used so that corrected location data were obtained in real time. The speed of the combine was obtained using the speed output device of the combine. The voltage from the yield monitor and the frequency transducer for speed were digitized using a Daytronic signal conditioner. A program was written for a laptop computer that queried the GPS receiver and the signal conditioning unit to obtain the data. The data were stored in a spreadsheet format with each row of data containing a reading for GPS time, latitude, longitude, GPS speed, combine speed, and yield monitor mV output.

Calibration was accomplished by weighing the grain collected over a period of time to obtain a scale factor that converted the mV output of the yield monitor to a flow rate. Knowing combine speed and cutting width, instantaneous yield could be calculated.

Trade names are used in this paper solely for the purpose of providing specific information. Mention of a trade name, proprietary product, or specific equipment does not constitute an endorsement, guarantee or warranty by the University of Nebraska, to the exclusion of other products that may be suitable. Yield maps of corn and soybeans were prepared using SAS graph techniques. The combine path could be overlaid to the yield maps to visualize the relationship between the yield and data collection. Where data were missing,