

GRAIN YIELD MONITOR CALIBRATION PRIOR TO CORN HARVEST

Key Points

- Yield monitors and related equipment should be calibrated prior to harvesting corn.
- Calibration is necessary for each specific crop to be harvested.
- Properly calibrated grain yield monitors can help provide a more accurate yield estimate for the products planted across the farm and by location of the products in the field.
- Recalibration during harvest may be necessary if environmental conditions change.

Prior to Calibration and Harvest

- Read and understand user manuals for the yield monitor and combine prior to harvest.
- Check for software updates for the yield monitor console and the computer. Troubleshooting from the combine cab or office can be easier when the latest software version is installed, as updates allow for optimal yield monitor function.
- Clean and inspect the mass flow and moisture sensors. Periodic cleaning during the harvest season is usually necessary.
- Inspect impact/wear plates, paddles, pads, grain elevator chain, GPS receiver, and other components for wear and performance and replace if necessary. If any of these components are replaced or removed, a full calibration will be necessary as these changes can alter the flow of grain through the measuring devices.
- Inspect electrical and mechanical connections and cables for wear and replace if needed.
- Download yield data from the previous season and save to a computer or remote drive. Delete old data from the yield monitor data card to prepare for new data this season.

Obtaining Accurate Yield Data

- Calibration at the beginning of harvest is critical to obtain accurate yield data.



Figure 1. A combine harvesting a field of corn.

- The yield monitor requires a different calibration for each type of grain to be harvested. Recalibration may be necessary if significant moisture content changes occur throughout the season.
- Calibration typically involves harvesting several samples from representative areas of the field. This is followed by weighing several loads and testing grain moisture content; however, be sure to check the manufacturer recommendations for steps specific for the yield monitor being calibrated.
- Consider backing up data onto a computer or data storage device frequently throughout the harvest season.

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Mass Flow Sensor

The mass flow sensor or impact sensor must be calibrated to achieve an accurate grain weight.

- Harvest three to five separate calibration loads, each load should represent different flow rates by harvesting at different speeds. The different flow rates represent different yield levels to the yield monitor.
- Calibration loads should be between 3,000 and 6,000 pounds, or 50 to 60 bushels.
- Weigh each load with a weigh wagon or other accurate scale.
- If significant changes are made to elevator chain, paddles, or flow sensor during harvest, it will be necessary to recalibrate. If grain test weight changes, recalibration may be necessary.

Moisture Sensor

- Test the grain moisture content of the calibration loads with a handheld moisture meter or with a moisture meter at the grain elevator.
- Some growers prefer to use an average moisture reading from at least five loads.
- Others calibrate their moisture sensor for corn below 22% moisture and recalibrate for corn above 22% moisture. Corn at 25% moisture moves through a combine very differently than corn at 17% moisture.

Lag Time Setting

- Lag time is the time it takes for grain to flow through the combine from the header, thresher and clean grain elevator until it hits the mass flow sensor.
- Count the number of seconds it takes from the time the header engages the crop until you start to see grain enter the bin on the combine.
- For most machines this is around 12 seconds; however, each machine is different and lag time can also be affected by crop condition.

- Yield maps should show each pass lining up on the headland. If every other pass is longer and shorter, you probably need to adjust the lag time setting.

Ground Speed and Distance

Precise ground speed and distance traveled are necessary to accurately record yield per acre. The ground speed indicator should be working.

- The calibrated distance should be checked against a known distance to help ensure the correct distance is recorded. Use a distance of at least 500 feet.

Header Height

The header height determines the beginning and ending of data logging into the monitor and the area accumulation.

- Raise and lower the header to make sure the stop height switch operates correctly. Failure to disengage the header height switch at the ends of rows can result in inaccurate acreage estimates and inaccurate yield data.

Grain Temperature Sensor

- Take grain temperature readings close to the combine moisture content sensor and after the combine has been under normal operating temperatures for several hours.

Daily Pre-Harvest Routine

- Develop an in-season yield monitor checklist of all adjustments and settings.
- Go through the yield monitor checklist every morning prior to beginning harvesting, much like a checklist that a pilot may go through prior to take-off.

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Utilizing Your Yield Information with Climate FieldView™

Climate FieldView yield analysis tools can be used to examine the yield data by providing fact-based information to help improve decision making on the farm.

- Open the FieldView app and confirm you are on the Overview screen.
- Tap on the Yield Analysis card for the crop you would like to analyze.
- Confirm the correct operation, year, and crop in the upper right corner.
- Select the Field, Hybrid/Variety or Soils tab to specify your report type.
- Sort your data by Field Name, Avg. Yield, or Harvested Acres and tap any row for more detail.
- Share your Yield Analysis Report with others by tapping the share button.

Sources

(Sources verified 8/28/2020)

Luck, J. and Fulton, J. 2014. Best management practices for collecting accurate yield data and avoiding errors during harvest. University of Nebraska Extension. <https://extensionpubs.unl.edu/>

Grisso, R., Alley, M., and McClellan, P. 2009. Precision farming tools: Yield monitor. Virginia Cooperative Extension Publication 442-502. <http://pubs.ext.vt.edu>.

Nielsen, R.L. 2018. Yield monitor calibration: Garbage in, garbage out. Purdue University Extension. <https://www.agry.purdue.edu>.

Legal Statement

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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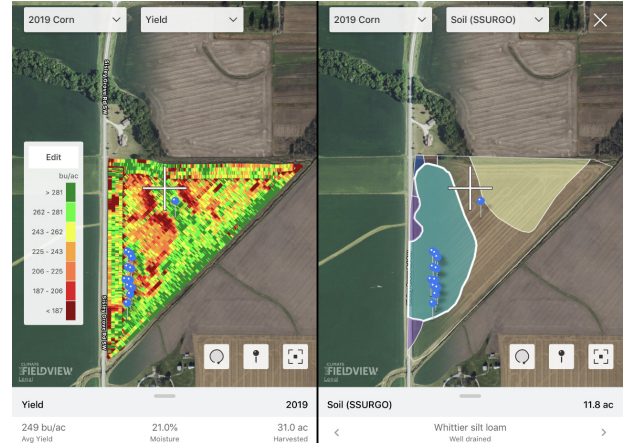


Figure 2. Proper calibration of the yield monitor helps to ensure an accurate estimates of crop yields and acreage.