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Yield Monitor Performance Test Standard

STANDARD

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Keywords: Calibration, Flow sensor, Material flow rate, Steady state flow, Step flow, Transient flow, Yield

1 Purpose and Scope

1.1 This Standard is intended to provide the basic requirements for a uniform procedure to measure and report yield monitor accuracy. The goal is to provide a series of repeatable tests that may be used as a basis to evaluate and compare yield monitors under a wide range of operating conditions.

1.2 This Standard covers grain and bulk crop yield monitors. Because crop conditions are variable and uncontrollable, the procedure provides for laboratory testing with controlled material flow rates. The Standard includes evaluation of all sensors required for the yield monitor including moisture sensors. The Standard applies to all technologies associated with evaluating yield, mass flow, force, and volume measurements during crop harvest.

1.3 This Standard defines tests that include all components contained in the commercial yield monitor except the positioning device. Harvester inputs required for determining yield that cannot be duplicated on the test fixture are simulated to permit testing of all yield calculations.

2 Terminology

2.1 yield monitor: A system of sensors and associated electronics mounted on a harvester and used to quantify the yield for the crop being harvested on an instantaneous and averaging basis.

2.2 yield sensor (flow sensor): The sensor(s) that measure the mass or volume flow or mass accumulation of the crop in a short time interval.

2.3 test monitor: The yield monitor to be evaluated.

2.4 test run: The events necessary to record a single set of measurements.

2.5 test: All the events and data of several test runs and the test stand qualification information.

2.6 test stand: A stationary system including precision flow or load measurement system, material conveyance system and test monitor. See Figure 1.