YieldSense Accuracy: Wet Lbs, Bushels, or Dry Yield: 10/4/13

If customers raise questions of accuracy, there are three principle areas to probe: Wet lbs, Dry bushels, and Dry Bu/acre (i.e. Yield). This document explains the details behind these calculation and troubleshooting recommendations:

Overview:
We have used pounds (lbs.) as the way to compare YS prediction to a measured load. Most reported results are within the 4% bogey that we established. But often, customers will see that dry bushels per acre are not matching the existing yield monitor or the elevator tickets – we have heard that in high moisture corn, YS is typically reporting higher Dry Yield (Bu/Acre). That’s because there are more factors than “lbs” that go into this Bu/Acre calculation.

There are two variables in addition to Lbs that can cause the difference: (1) shrink factor and (2) harvested acres.

(1) YieldSense’s shrink calculation only takes into effect the loss of weight that occurs when grain is dried, which is consistent with other yield monitors. However, elevators typically set their own higher shrink factors that include the loss of kernel fragments and fines during the drying process--therefore there isn’t one standard shrink factor.

(2) Harvested acre counters can vary between Yield Monitors. YS does row-by-row acre accumulation via swath coverage. This improved method can produce smaller harvested acres compared to other systems that use larger sections. So the same pounds over fewer acres can make it appear as if we are over reporting bushels.
Troubleshooting Guidance:

Scenario #1: Grower reports that YieldSense is not correctly predicting Wet Lbs – as compared to elevator scale.

Recommendations:

1) Confirm that grower has measured several loads and entered actual weights in YieldSense or FieldView Load List. (Make sure it is not an anomaly).

2) Have grower “True-up” a recently completed field by entering Combine Totals for a field (see instructions in newsletter). Then have grower measure another load to see how YS predicts.

3) If YS continues to measure Lbs incorrectly, submit a support ticket so our team can analyze the data and provide a recommendation.

Scenario #2: Grower reports that YieldSense Total Bushels do not match the grain elevator.

Clarifications:

- Grain elevators convert from wet lbs to Dry Bushels using a total shrink factor (commonly between 1.3 to 1.4) that includes both moisture shrink and handling losses.
- YieldSense uses a wet-to-dry conversion that only includes moisture shrink (1.18). This is the industry standard approach on other Yield Monitors as well – we have tested and confirmed that our wet-dry conversion is consistent with other yield monitors.
- Various elevators use different standard moisture percentages – YieldSense uses 15.5% for Corn and 13.0% for Beans
- Yield Monitors measure moisture point by point in the field, while grain elevators use an average value for the entire truckload.
- The end result is that bushels calculated by Yield Monitors (including YS) will differ from the elevator – could be 3-5% higher bushels due to these various factors.
We will explore future enhancements to make it easier for growers to adjust/reconcile YieldSense with the elevator – but not this season.

**Recommendation:** Explain these factors that can impact Dry Bushel calculation differences and clarify if Wet Lbs are accurate.

**Scenario #3:** Grower reports that **Bu/Acre (Yield)** is over-reporting on YieldSense compared to their other Yield Monitor

**Clarifications:**
- Yield is calculated from bushels/acre. A small difference in acres will impact perception of yield.
- YieldSense does a better job of acre calculation than many competitors because of its row-by-row Automatic Swath feature (compared to large sections on other monitors) and Streaming Coverage.
- As a result, we are seeing that our harvesting acres are lower than other monitors in fields with lots of point rows. Less acres means higher yield per acre (yield)

**Recommendation:** Ask grower to compare acres harvested between YieldSense and other display and clarify if Wet Lbs and Dry Bushels are accurate.