Mirus 4.3.0 and the M2.0 Moisture Algorithm for H2 GrainGages

Introduction

HarvestMaster is excited to announce the release of Mirus 4.3.0. This release includes many improvements that increase efficiency and streamline the user experience. This document will highlight some of the advantages of Mirus 4.3.0 and provide in-depth information about one of its most exciting features, M2.0 Moisture.

Mirus 4.3.0

Below is a list of some improvement's users can expect from Mirus 4.3.0. For a more in-depth description please review the official Mirus 4.3.0 release notes available at HarvestMaster.com.

- New Moisture Technology - Please keep reading for more details about M2.0 Moisture
- Improved cycle speed
- Improved Test Weight accuracy
- Insert count is now part of the calibration process
- Units more clearly displayed
- Quick Notes improved
- Improved stability
- Multiple bugs fixed

New Moisture Technology

One of main goals of HarvestMaster has always been to provide the most accurate on-combine grain measurement data in the research industry. HarvestMaster has incrementally improved the data quality available to researchers with products like the original HM1000B GrainGage and the High Capacity GrainGage.

With the release of the H2 GrainGage, HarvestMaster again increased the accuracy of plot weight and test weight data. Feedback from breeders and statisticians has shown weight and test weight of the H2 is better than any other on-combine weigh system. Drastic improvements in moisture accuracy with an H2 GrainGage have not come at the same rate, but Mirus 4.3.0 will change that.

For 2021 harvest, Mirus 4.3.0 includes a new moisture algorithm for H2 GrainGages. This moisture algorithm, M2.0 Moisture, is a shift from the traditional moisture curve measurement. Instead of a traditional moisture curve, M2.0 Moisture uses preset calculations specific to each grain type.

One of the major areas of change with M2.0 Moisture is that it factors bulk density (test weight) into the moisture calculation, a practice done by most of the industry moisture-measurement devices like Perten and Dickey John. Including test weight in the moisture calculation is extremely important with cereals where test weight on similar moisture samples can vary up to 10lb/bu.

Below is an example of the improvement in moisture accuracy of wheat samples when including test weight with the new M2.0 Moisture model.

Ref Moisture (%)	Moisture without Test Weight (%)	M2.0 Moisture (%)	Test Weight (lb/bu)
10.4	10.3	10.4	59.4
11.1	13.3	10.7	64.0
11.3	9.9	11.8	54.1

M2.0 Moisture Advantages

- Simple to use—select grain type—preset algorithm for calculating moisture for the following grains are available
    - corn, wheat, barley, soybean, canola (OSR), and oats
- Tested over the last 2 years on over 1000 plots with over 150 different varieties of grain
- Factors test weight into the final moisture measurement
- Does not use a traditional moisture curve with multiple data points
- Cycle 2 – 3 grain samples in typical range of moisture and test weight to set the Offset Coefficient
- Moisture model based on collected data with multiple varieties
- Results of field testing show a dramatic improvement in accuracy over EM2 moisture curves used previously with H2 GrainGages and greater comparison to benchtop standards
- No need to collect and cycle grain with multiple moisture samples through the full moisture range
- No need for planting large calibration plots at each location
- Eliminates out-of-order moisture readings
- Models for corn, wheat, barley, soybean, canola, and oats – more models to come
- Calibration does not change through the season or maturity zones
- Can be used with all EM2 or EM3 moisture sensors
- No upgrade charge for switching to M2.0 Moisture model
- Mirus 4.3.0 for all H2 GrainGages
- Training Video and user guide available for download

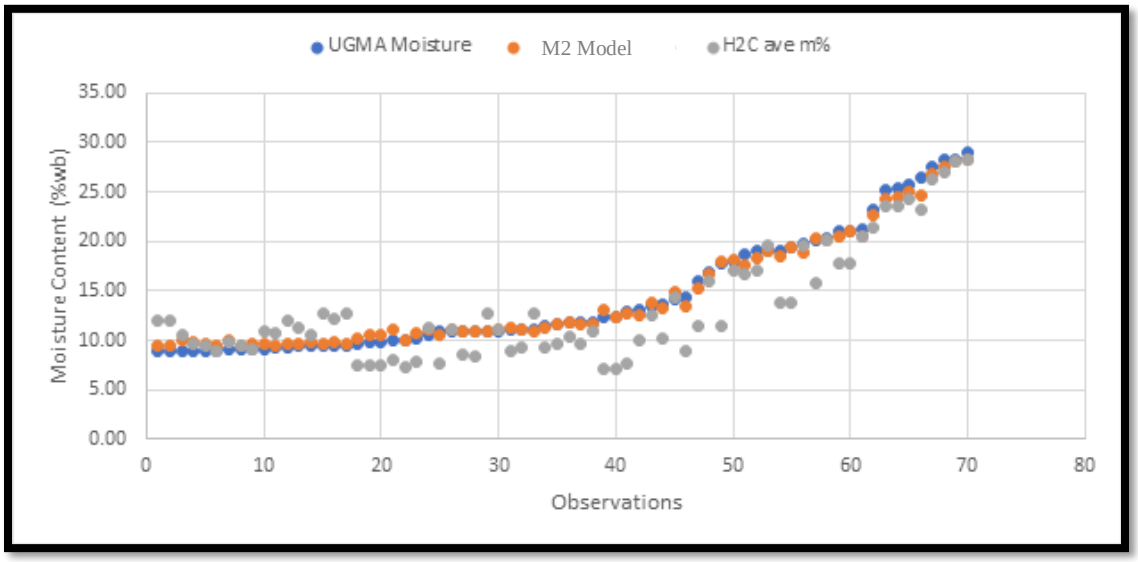
Disadvantages

- Only available in 2021 with Mirus software – available for SDK and other 3rd party harvest programs in 2022
- No moisture models for less common harvested crops – flax, sorghum, triticale, edible beans. Standard EM moisture curves should be created for these crops.

Conclusion

HarvestMaster is excited to offer Mirus 4.3.0 for the 2021 harvest season available for download at harvestmaster.com. We're confident our customers will see improved measurement results and enjoy an improved version of Mirus where several other software improvements have been made. Please review the data below that shows moisture outputs from the same samples calculated by three different methods including EM Moisture (previous model), M2.0 Moisture (new model), and a reference UGMA moisture. For questions or training, please contact HarvestMaster for more details and support.

Wheat Data



Corn Data