HarvestMaster™
Information Machines for Agriculture

Yield and/or Load Monitor

for

Conveyor Harvested Crops

Measure Before You Manage

In any business, if you want to manage performance, you must first measure performance. In agriculture this means: If you want to manage crop yield, you must first measure crop yield.

- Are my trucks overloaded?
- How long does it take to load a truck?
- What is the total tonnage for the day? The field? The season?
- Why do some acres yield so much more than others? And what can I do to make all the plots yield the optimum amount?

Tomato Harvest, Australia

HarvestMaster yield and load monitors help answer these questions, letting you improve production efficiency and add to your bottom line.

Yield Monitor

- Crop weight or volume measurement, combined with DGPS (Differential Global Positioning System) information, determines yield hundreds of times per acre
- Data collected while harvesting provide the basis for a map of crop yield
- Yield maps serve as a tool for identifying problem areas and for helping evaluate the effectiveness of field management practices

Load Monitor

- Use the system without DGPS for load monitoring
- Records truck load, truck weight, loading duration, time of departure, and harvest totals for the day, field, and season
- Use this information to better manage the time of trucks in the field and avoid overload fines
- Upgrade to a yield monitor later by adding nothing more than a DGPS antenna and receiver

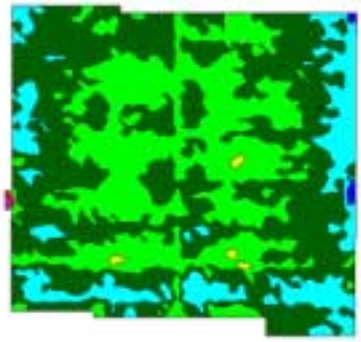
"In addition to all its other benefits, the HarvestMaster Yield Monitor pays for itself by helping us maximize truck weight while still avoiding DOT fines."

Gary Wagner–Owner
A.W.G. Farms, Inc., Crookston, MN

Sugarbeet Harvest

HM-500 Benefits

- Displays and records individual truck weights
- Validates other precision ag technologies that are employed
- Shows acres covered
- Gives summary of yield and acres for load, day, field and season
- Lets you mark problem areas, such as rocks or weed patches
- Serves as a basis for more effective management of crop inputs



"The Yield Monitor helped us accurately assess the extent and distribution of a decline in production in an older vineyard of Muscat wine grapes. The yield maps revealed blocks of vines which were not economicaly viable."

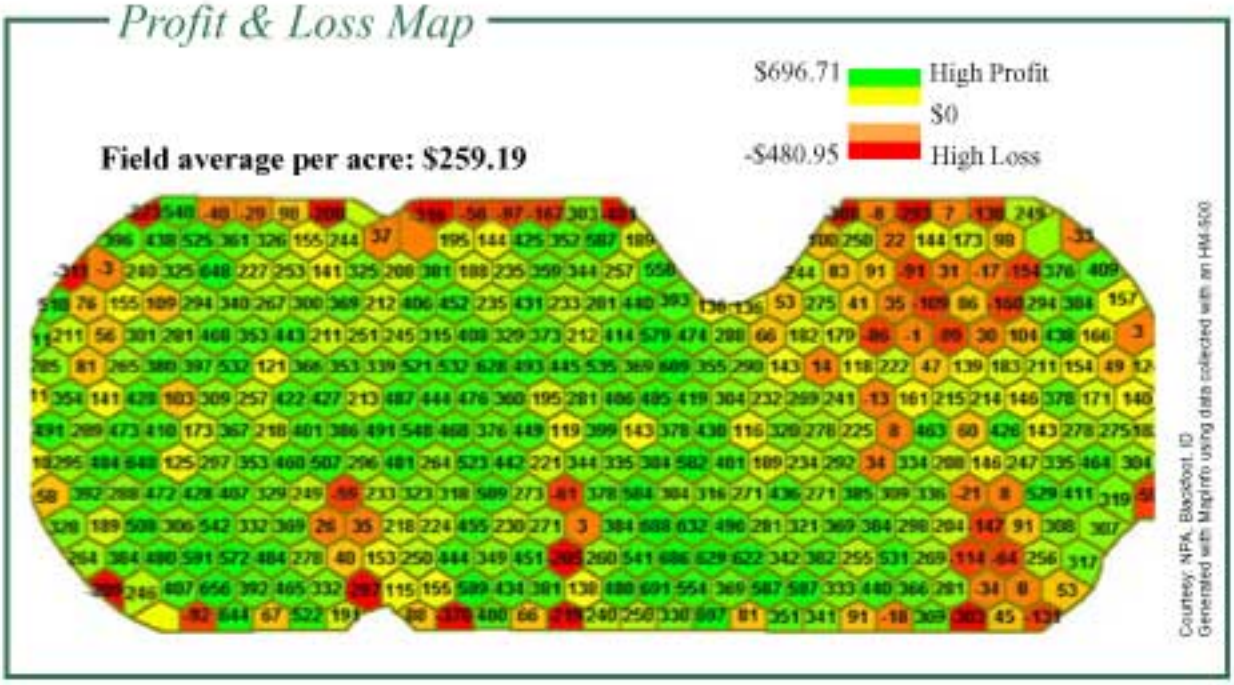
Gil den Dulk--Owner
Allan Fulton--Agronomist
den Dulk Farming Co., Hanford, CA

Grape Harvest, Australia

HM-500 Features

- Real time display of yield and truck load weight
- Signal filters to compensate for machine vibration
- Environmentally sealed enclosure and connectors
- Engineered for use on harvesters of potatoes, sugarbeets, tomatoes, grapes, onions and carrots.
- Modular system capable of being used for GPS applications throughout the year
- Protected from radio frequency interference
- On-board troubleshooting and sensor checkout menus
- Menu driven data collection software
- Data can be analyzed in most mapping packages (S.S. Toolbox, ArcView, AgMapp, FarmWorks, Map Info, etc.)

Profit & Loss Map



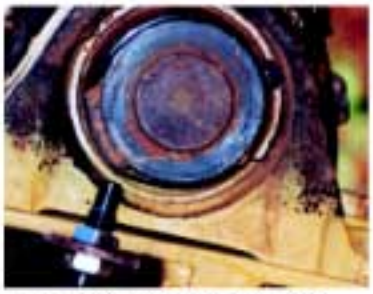
"The HarvestMaster Yield Monitors we use on both potatoes and sugarbeets let us identify differences in production, verify inputs with our 'on-farm' test plots, and isolate disease problems. We've found the equipment a breeze to operate and work with."

Terry Helms--Agronomist
Cranney Farms, Oakley, ID

Potato Harvest

What Do I Need?

HarvestMaster makes it easy. A load monitor requires only the SCCU (Signal Control and Conditioning Unit), a mobile field computer, weight or volume sensors, and speed sensors. Converting a load monitor to a yield monitor requires only the addition of a GPS antenna and receiver.



The Belt Speed Sensor and Ground Speed Sensor measure, respectively, the speed of the conveyor belt and the speed of the harvester and feed this data to the SCCU.

The SCCU receives position and yield data and sends that information to be stored in the mobile field computer.

The Pro4000 mobile field computer receives and stores yield, position, weight, and time information.

Alternate mobile field computers:
Ag Leader PF3000,
AIM Navigator,
WAG Vision System,
Rugged W95/W98 PC

&

An optional tilt sensor.

The idler wheel Load Cells continuously calculate product weight on the conveyor, then send this information to the SCCU for processing.

or

The Profile Yield Sensor Array (patent pending) uses ultrasonic sensors to measure the volume of the product as is passes along the conveyor and sends the data to the SCCU, which uses a density formula to calculate the weight of the product.

And if you've chosen to map yield....

The GPS receiver is mounted on the harvester and uses the signal to input field position to the SCCU as each plot is harvested. These data, plus the yield information, go into your favorite GIS (Geographic Information System) package for creating yield maps.

Placing an Order

The HM-500 Load Monitor is made up of two modules:

1) The Basic Load Montior Package.

2) A mobile field computer (the Pro4000 or other compatible hand held).

The Yield Monitor requires one additional component:
3) A differential GPS unit.

When placing an order, select a package from each module according to your specific situation and needs. Replacement parts and individual components are also available. For further ordering information and prices, please contact the dealer nearest you.

Basic Load Monitor Package

#1 For most conveyor-harvested crops

HM-501	Signal Conditioning and Control Unit (SCCU)
CA-MC-H5	RS-232 Cable (SCCU to PC), 9 Pin, 40' long
CA-PW-H5	12 VDC System Power Cable
HM-505	Idler Wheel Load Cell Pair (left & right)
HM-BS-H5	RPM Sensor (incl. bracket & magnet)(for belt speed)
HM-BS-H5	RPM Sensor (incl. bracket & magnet) (for ground speed)
CA-BS4	4 lead Belt Speed Cable
HM-510-H5	Mounting Bracket Kit for HM-501
HMA-TS	Tilt Sensor for HM-500*
CA-GPS-H5	SCCU to GPS Cable**

*Included if Load Cells are mounted on an angled potion of the conveyor.
**Included if GPS system is to be used

Note: For sugarbeet harvesters, the easiest configuration places the Load Cells on the discharge conveyor only. This leaves skips in the data when beets travel into the storage tank and peaks when the tank is unloded. Custom configurations for using a storage tank on the harvester are available in the Technical Support section of our web site: www.harvestmaster.com.

#2 For grapes and other select crops

HM-570	Signal Conditioning and Control Unit (SCCU)
CA-MC-H5	RS-232 Cable (SCCU to PC), 9 Pin, 40' long
CA-PW-H5	12 VDC System Power Cable
HM-BS-H5	RPM Sensor (incl. bracket & magnet)(for belt speed)
HM-BS-H5	RPM Sensor (incl. bracket & magnet) (for ground speed)
CA-BS2-H5	2 lead Belt Speed Cable
HM-575	5-point Profile Yield Sensor
	-or-
HM-573	3-point Profile Yield Sensor

Mobile Field Computer

HarvestMaster Pro4000 FieldBook Package
The Pro4000 comes with an RS-232 communication cable (to communicate with your PC), and a battery charger

P4204	HarvestMaster Pro4000 (2MB RAM/4MB Storage)
CA-2009	RS-232 FieldBook to PC Cable (9 pin)
PW-110T	110V Wall Mount Charger
HMA-CR-H5	Pro4000 Instrument Cradle
MF-ATA-10	10MB ATA Memory Card

GPS Units

AgGPS - 122 High Accuracy GPS Receiver
For differential correction provided by the Coast Guard GPS beacon signal.

AgGPS - 124 High Accuracy GPS Receiver
For differential correction provided by the Coast Guard GPS beacon signal. Includes display and keyboard.

AgGPS - 132 High Accuracy GPS Receiver
For both Coast Guard beacon signal and geo-stationary satellite differential correction.

HarvestMaster is an authorized supplier of Trimble Ag GPS equipment.

Technical Specifications*

Enclosure: Weather-proof steel sheet metal
Temperature: Operating: -4 F to 140 F (-20 C to 60 C)
Humidity: 0 to 100%
Power: 12 - 17 volts DC, automotive .5 amps
System Accuracy: Typically 2 to 5 percent. Accuracy is highly dependent on the quality of installation of the weighing rollers and speed sensor, including roller positioning. Profile Sensor accuracy depends on crop density.

Unit must be calibrated after installation by adjusting to loaded out truck weight.

Warranty: 2 year limited warranty.

*For a complete list of HM-500 technical specifications, visit our website, www.harvestmaster.com.

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