



# Precision Hay Production Systems



**HayBoss™**  
**G2**

Moisture Testing | Hay Preservative Applicators | Hay Preservative  
Bale Tagging | GPS Yield Mapping | Dye Spray Marking

# Moisture is the challenge.

## AGCO Hay Preservative is the solution.

The number one issue that challenges today's hay producer is moisture. Wait too long and the hay will lose feed value. Bale too soon and you'll get two things: mold and heat resulting in poor quality hay.

### Mold

At moisture levels of 16% and above, mold, fungi, and yeasts start to multiply, giving the hay a white and dusty appearance and can start to produce harmful mycotoxins. The hay may also start to heat.

### Heat

Hay baled at 16% to 22% will heat to over 115°F, causing discoloration and the loss of its fresh smell.

Between 23% and 26%, hay can reach temperatures of over 120°F in storage, causing brown to black caramelized hay.

Moisture levels of over 27% can result in heating to 140°F and above, and may even combust.

AGCO Hay Preservative and Application Systems will allow you to bale between 16% and 30% moisture, giving you a jump on the weather, reduce leaf shatter, and bale more acres per day. AGCO Hay Preservative eliminates the heating and deterioration caused by the growth of mold, and is effective on all types of baled forage crops, including alfalfa and grass, which are susceptible to spoilage at higher moisture levels.



AGCO Hay Preservative and Application Systems can take you from this...

... to efficient baling and high quality bales with relative ease.





# AGCO Hay Preservative

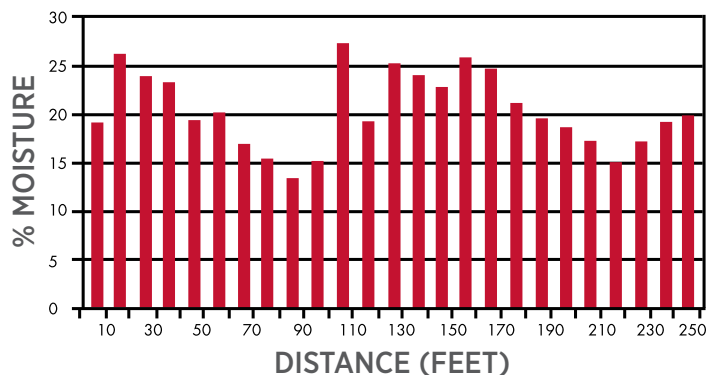
## Maintains bale quality and safety.



Hay moisture not only varies from one side of a cut hay field to the other, it can vary within the windrow itself. Wet hay can lead to high CFU (colony-forming unit) mold counts, which will not only erode your hay quality but also your profits. AGCO Hay Preservative will keep CFU mold counts down and hay quality and profits up.

### Windrow Moisture Taken Every 10 Feet. Second Alfalfa Cutting - Artesia, NM, USA.

As this chart reveals, moisture within the windrow can vary as much as 13% within as little as ten feet. This means parts of the windrow may be dry enough to bale, while other parts of the same windrow are not. AGCO Hay Preservative allows you to bale within a wider acceptable moisture range without sacrificing hay quality.

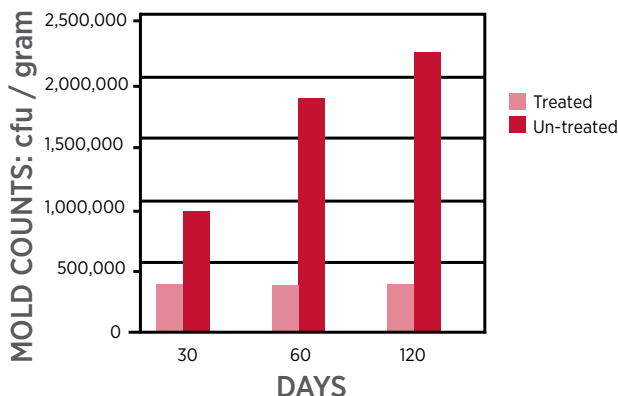


### 3' x 3' Large Square Bales Harvested at 22% Moisture and Treated with AGCO HayPreservative 2002 University of Wisconsin Research

This chart reveals the difference in mold development in treated vs. untreated hay. Even four months after being baled wet the treated hay still maintains a consistently low CFU mold count. AGCO Hay Preservative allows you to bale within a wider moisture range while inhibiting mold development.

If you wait for the wet parts of the windrow to dry, one of two things will happen:

1. That extra day or two can bring rain.
2. The drier part of the windrow will get too dry and excess leaf shatter will result in lower quality and yield loss.



*We have been using AGCO Hay Preservative for 12 years on two AGCO 3x4 balers. If the baler is running, the HayBoss is turned on. When hired help run the balers we have a sense of relief that no wet bales will heat up on us because the HayBoss automatically turns on applying the correct amount of product.*

*Otto and Ryan Huffman,  
Tulelake, CA*



Bales treated with AGCO Hay Preservative yield more and have a higher relative feed value. It's also safe for all livestock. Propionic acid, the main ingredient in AGCO Hay Preservative, is an organic acid occurring naturally in the gastrointestinal tract of horses. It's also produced in the stomachs of ruminants.

More and more livestock owners are choosing to feed hay treated with AGCO Hay Preservative because of the improved bale quality. Hay is greener and higher in feed value. Treated hay can be stored for years and still look and feed as well as when it was first baled. Untreated hay can mold and spoil causing a loss of dry matter, as well as create dust and even spores, both of which are harmful to the animal's health.

Baling alfalfa at 22% vs. 14% moisture.

- 10% more dry matter harvested
- 4% more weight from retained moisture
- 24 points higher feed value\*

\*Mechanical Properties Affecting Leaf Loss in Alfalfa", W.K. Bilanski, CANADIAN



APPLICATION RATE CHART			
Baler Type	Moisture	Stem Moisture	Dew Moisture
Large Square	16% - 22%	6 lb/ton	3 lb/ton
	23% - 26%	10 lb/ton	8 lb/ton
	27% - 30%	DO NOT BALE	16 lb/ton
Small Square	16% - 22%	4 lb/ton	2 lb/ton
	23% - 26%	8 lb/ton	6 lb/ton
	27% - 30%	16 lb/ton	12 lb/ton
Round	16% - 22%	4 lb/ton	2 lb/ton
	23% - 26%	8 lb/ton	6 lb/ton
	27% - 30%	16 lb/ton	12 lb/ton

CONTAINER SIZES	
SIZE	PRESERVATIVE AMOUNT*
13 U.S. gal / 49.2 L	120 lb / 54.4 kg
50 U.S. gal / 189.3 L	450 lb / 204.1 kg
200 U.S. gal / 757.1 L	1,800 lb / 816.5 kg
270 U.S. gal / 1,022.1 L	2,380 lb / 1,079.5 kg
*Preservative is sold per pound, not per gallon. 1 Gallon = 8.83 lb / 4 kg	

AGCO HAY PRESERVATIVE INGREDIENTS	
ACTIVE INGREDIENT Propionic Acid	64.5%
OTHER INGREDIENTS Citric Acid	5.0%
Ammonium Hydroxide, Deionized Water, Dodecylphenol Ethoxylate, Green Dyes	30.5%
EPA REGISTRATION #: 73877-1-72909	Total 100%

# Large Square, Round or Small Square. New or Old.

We have a system that fits the equipment you are running.



AGCO Precision Hay Production Systems include a complete line of applicators to fit all large square, round and small square balers, regardless of manufacturer. Each applicator model is made specifically for the baler for which it has been ordered, making installation and operation as easy and efficient as possible. The applicator has five main components:

## 1. Tank and Frames

### LARGE SQUARE BALERS

The tank system is integrated into the baler's frame for correct weight distribution and maximizing the carrying capacity. The system for large square balers includes a 110 gallon tank, enough preservative to cover 200-400 tons of hay.



### ROUND BALERS

A 25 or 55-gallon tank carries enough preservative for 100-200 tons of hay.



### SMALL SQUARE BALERS

A 25 or 55-gallon tank carries enough preservative For 100-200 tons of hay



## 2. Pumping Systems

### HAYBOSS AUTOMATIC SYSTEMS

Both the HayBoss G2 and the original HayBoss automatic systems are equipped with 3 pumps and built-in flowmeter. The pumps are plumbed in parallel so when the hay moisture calls for additional application, a second and third pump can quickly start up, turning on additional tips. And, when the hay moisture goes down, pumps are immediately shut down, so there is no waste of extra product.

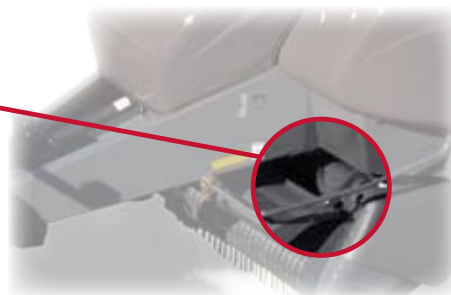
### STANDARD ELECTRONIC SYSTEMS

The standard electronic system is equipped with a single pump and gauge. The pumping rate is increased or decreased by manually turning a dial on a control box in the cab that changes pump speed, therefore varying the output of preservative.



## 3. Spray Devices

Consistent preservative coverage through the hay is critical. Placement of the nozzles in the pick-up area has been accomplished by carefully locating a device to hold those spray tips in the best location to assure complete coverage of the hay being treated. Each baler model has a specific device for mounting the nozzles.







## 4. Control Systems

The most important decision is what type of control system you will require. There are three types of controls:

- HayBoss G2 for large square balers, commercial round and commercial small square balers.
- Standard HayBoss systems for round and small square balers
- Electronic control for all balers

### The HayBoss G2 (for all large square balers and commercial application on round and small square balers)

The HayBoss G2 control system is the product of choice for most large square baler applications. The control ties into the dual star wheel moisture sensor, picking up the signal as the bale is formed. It is set to start applying preservative when the moisture of the crop reaches a set minimum point for treatment (usually around 16%). As the hay moisture increases, the rate of application increases. If hay moistures go down, the application rate follows. Every three seconds, there is an adjustment in rate following the trend in moisture through the field.

### The HayBoss G2 also watches the rate at which the hay is being baled.

As bale formation increases in rate, the application rate increases. An adjustment is made every 5 seconds based on the speed of baling. With the combination of quick updates on moisture and on the baling rate, application is precise, not too much and not too little. All the bales will receive the appropriate amount of preservative and the cost of treatment is kept in check.

The HayBoss G2 applicator on round balers includes a bale door sensor to help calculate a more accurate baling rate and establish individual job records. On small square balers, there is a stroke counter and an end of bale sensor for job records as well.

The Hay Boss G2 can be controlled with AGCO's C1000 or GTA monitor, the Harvest Tec touch panel monitor or other ISOBUS compatible monitor.

**AGCO C1000 MONITOR**  
( 3 1/2" x 6") color normally  
supplied with an AGCO baler



**HARVEST TEC TOUCH PANEL MONITOR**  
(4 1/2" x 5") black and white  
(No longer standard with the HayBoss G2)



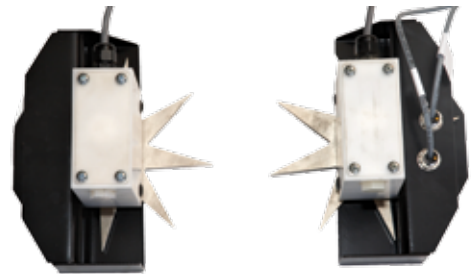
**COMPATIBLE WITH MOST ISOBUS MONITORS**

# Precision in the production of baled hay is driven primarily by the moisture content at baling.

Our unique set of moisture sensors accurately measure the moisture of the crop as it is baled.

## 5. Moisture Sensing - for automatic systems

**On large square balers.** Two star wheels are located right behind the knotters. One is positive and the other negative. They sense between the two wheels 28 times per second averaging and display moisture content every three seconds. The readings are accurate within +/- 2 points between 8 and 70 %. No matter what the crop, the moisture readings will give the baler operator an accurate reading of the crop during baling.



**On large round balers.** Two 8 inch discs are located, one on each side wall of the baler to sense the hay in between. One disc is positive and one negative, sensing 28 times per second and averaging moisture content every three seconds. The readings are accurate +/- 2 points between 8 and 32 % moisture no matter what the crop.



**On small square balers.** Two star wheels are located on the bottom of the bale chute. One is positive and the other negative. They sense between the two wheels 28 times per second averaging and displaying moisture content every three seconds. The readings are accurate within +/- 2 points between 8 and 70 % moisture. No matter what the crop, the moisture readings will give the baler operator an accurate reading of the crop during baling.



# Bale Information at your Fingertips.

## Track bale moisture and application rate on the move.

### HayBoss G2 Equipped with C1000 or Standard HayBoss Monitor

**AUTOMATIC MODE:** The main operating screen. Moisture readings are averaged every three seconds, baling rate is measured every 5 seconds. In this mode, the controller automatically matches application rate with these two parameters. The product is applied in a precise way.

**MANUAL MODE:** Allows the operator to override the automatic features and apply as he chooses.

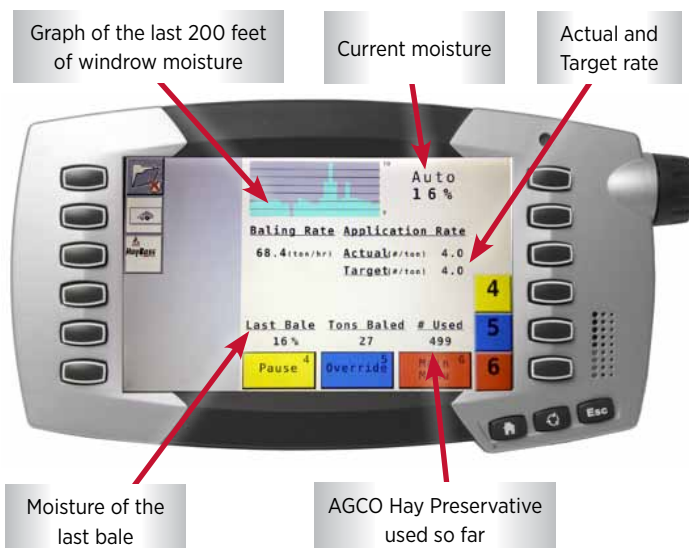
**DIAGNOSTICS:** Gives the operator a chance to check pump outputs and voltage inputs.

**SET-UP:** The moisture points for beginning and kicking up application are adjusted here. The application rate per ton is set at these points. Bale weight estimates are entered if the baler is not equipped with a scale.

**JOB RECORDS:** By field the system tracks:

1. Tons baled
2. Average and high moisture
3. Product used
4. Time and date of baling

There is bale by bale detail to see information for each bale.



*We have been using AGCO Hay Preservative for close to ten years on 2,500 acres of our own alfalfa and in our custom baling business. We have three large square balers set-up with the HayBoss system and it really gets used on the first and last cuttings. In the middle of the season we keep the system on and if the hay hits 16% moisture, the system automatically turns on and we don't have to worry about putting hay in the stack that will develop hot spots. If there is a rain coming, we can go get the hay before it gets rained on.*

**David and Janite Estes, Estes Farms LLC**  
El Reno, Oklahoma

### Standard Electronic Cab Control

For smaller scale operations, AGCO offers the standard electronic cab control.

This control adjusts application as pump speed is electronically adjusted with the turn of a dial. The operator will estimate moisture, baling speed and set application rate from the tractor cab as conditions change







## Expanded Precision from the HayBoss G2 equipped with C1000 or Standard Monitor for Large Square Balers

The HayBoss G2 system is centrally controlled by the G2DCP (G2 Dual Channel Processor), located on the back of the baler's twine box. The G2DCP will:

- Keep job records by individual bales
- Provide downloads of job records and job details
- Power and supply information to the HayBoss G2 Tagger
- Control the dye spray marker
- Control the yield monitor
- Pick up the signal from an AGCO scale kit and use it to adjust preservative application more precisely, write it to the tag and insert it into a file for yield mapping

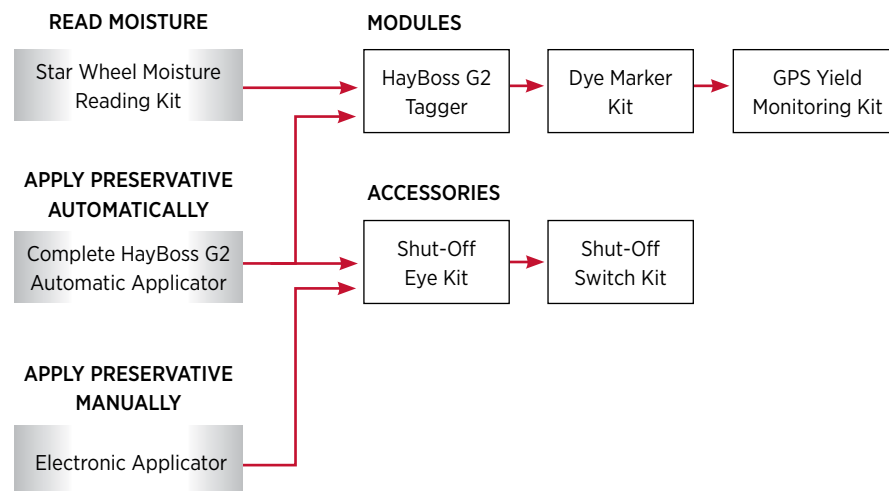
The job record is an important management tool for the precision production of hay. After completing a field, the baler operator can call up the job and view the totals for the field and the records for each individual bale. The job record shows the field name, average and high moisture, preservative used per bale, bale weight (either picked up from the AGCO scale or the estimate entered if the baler is not so equipped) the time and date of baling.

Using a thumb drive to secure this data from the G2DCP (G2 Dual Channel Processor), this information can be downloaded into a MS Excel spreadsheet to analyze moisture and weight trends, verify the proper application, and view the productivity of the baler.

FIELD TOTAL	AVG MC	HI MC	# USED	BALES	TONS	DATE			
D-7	15	34	268	93	74	26 OCT	2013		
INDIVIDUAL BALE DATA-----	-----	----	-----	-----	-----	-----	----	-----	-----
FIELD	AVG MC	HI MC	#/BALE	BALE ID	BALE WT	DATE	TIME	LATITUDE	LONGITUDE
D-7	7	15	0.9	5353602563	1590	26 OCT	18:46	44.9472705	-92.7115307
D-7	9	12	0	5353602564	1605	26 OCT	18:47	44.9472598	-92.7123852
D-7	13	17	0.2	5353602565	1680	26 OCT	18:50	44.9472454	-92.7140442
D-7	14	19	0.4	5353602566	1690	26 OCT	18:51	44.9472198	-92.7134845
D-7	17	23	2.7	5353602567	1780	26 OCT	18:53	44.9472136	-92.711558
D-7	16	20	2.3	5353602568	1730	26 OCT	18:54	44.9472231	-92.7081081
D-7	15	21	1.1	5353602569	1705	26 OCT	18:56	44.945639	-92.7058133
D-7	12	22	1.5	5353602570	1620	26 OCT	18:58	44.9443878	-92.7058344

## Other modules and accessories compatible with the HayBoss G2 System on Large Square Balers

The HayBoss G2 is modular, so you can expand it at any time to add additional precision to your baling operation. Your options are:



# Available HayBoss Modules

## How they work to make you more profitable.

### The HayBoss G2 Tagger

Prove the value of your hay with the addition of the **Individual Bale Identification Module** to your HayBoss G2.

This module is a bale chamber-mounted tagging device (**G2 Tagger**) that permanently attaches a **Radio Frequency Identification (RFID)** tag to every bale. The G2 Tagger lifts the twine and securely wraps a tag around it. The tag contains an antenna for receiving information specific to the bale and a microchip for storing that information. The G2 Tagger unit has a radio frequency transmitter and antenna, so as a tagged bale passes the unit's antenna, the information collected by the G2DCP (G2 Dual Channel Processor) is transmitted to the receiver in the tag and stored in the tag's memory. Tags can then be read at any time with a scanner, either hand-held or loader-mounted.



### Why Tagged Bales?

The uses for tagged bales range from inventory control to management applications. The scanner translates the information from each tag and displays it on screen. A push button keypad can then be used to navigate bale information. Bales can be sorted and grouped, accepted or rejected all based on the operator's criteria. All data is stored in the scanner and can be downloaded via a USB thumb drive for analysis in your choice of spreadsheet software.



For more information, ask for the Individual Bale Identification brochure from your AGCO dealer or online at [www.AGCOparts.com/hay](http://www.AGCOparts.com/hay).





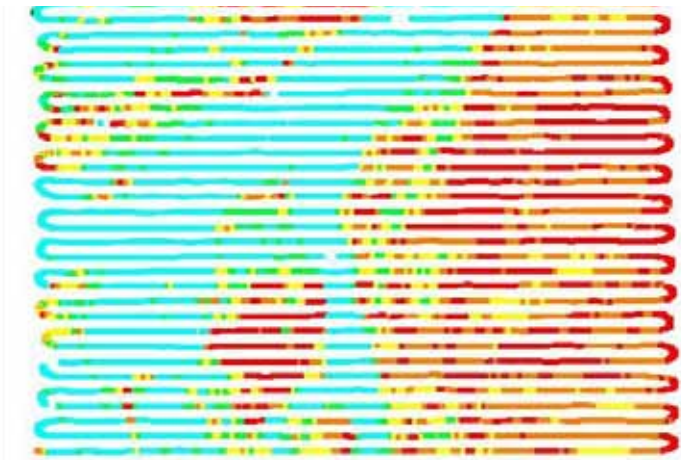
## Dye Spray Marker Module

Set your moisture limit and the Dye Spray Marker will indicate which bales of hay come close to or exceed that limit. It plugs into the HayBoss G2DCP and sprays red, food-grade dye on the bales when the hay moisture is above your set limit. If just a flake or two of the bale is wet, the red mark will be a short stripe on the side of the bale. If more of the bale is over your moisture limit, its entire side will be marked. Now you can easily see the problem bales and can set them aside when you pick them up later for stacking.



## HayBoss G2 Yield Monitor Module

Monitoring yields and making maps of row crops as they are combined is fairly common. The HayBoss G2 Yield Monitor Module lets you do the same in your hay field. A GPS receiver is plugged into the HayBoss G2 processor, which records a location stamp every 15 feet of travel. The yield file will include the weight and moisture of hay baled during that interval. When you are done baling, simply download the standard shape file of yield. It will run on any yield-mapping program and help you with fertility, water and harvest management, ultimately making your baling operation more precise.





This is a guide for the products that will add precision to your baling operation.

	LARGE SQUARE BALERS(3X3, 3X4 AND 4X4	ROUND BALERS (VARIABLE CHAMBER)	ROUND BALERS (FIXED CHAMBER)	SMALL SQUARE BALERS (2 AND 3 TIE)
<b>CONTROL OPTIONS</b>				
HayBoss G2	X	X	X	X
Original HayBoss		X		X
Standard Electronic	X	X	X	X
<b>UPGRADE OPTIONS</b>				
From standard electronic to Original HayBoss		X		X
From standard electronic to HayBoss G2	X	X	X	X
From 500-series HayBoss G2 to 600-series	X			
<b>TANK SIZE</b>	<b>110 Gallon</b>	<b>25 or 55 Gallon</b>	<b>25 or 55 Gallon</b>	<b>55 Gallon</b>
<b>ACCESSORIES/MODULES</b>				
Shut-Off Eye	X	X	X	X
G2 Tagger	X			
Dye Spray Marker	X			X
Yield Monitor	X			
Tie-In To AGCO Scale	X			

## Accessories



**ELECTRONIC SHUT-OFF EYE KIT**  
**PART NO. HT474A**

This optional indicator, which mounts at the hay pickup, starts and stops applicator operation in response to hay movement through the pickup. The result is reduced consumption of AGCO Hay Preservative while making the turn into the next windrow.



**STANDARD ELECTRONIC  
TRANSFER PUMPS**  
**12-VOLT PART NO. HT9212**  
**110-VOLT PART NO. HT9215**

These standard output models will transfer preservative at a rate of 4-gallons per minute. The economical choice when transferring AGCO Hay Preservative from the 13 or 50-gallon sized containers.



**HIGH OUTPUT ELECTRIC  
TRANSFER PUMP**  
**PART NO. HT9214**

For a rapid transfer rate of 14-gallons per minute, this 12-volt pump will get the job done quickly. This transfer pump is a must when transferring AGCO Hay Preservative from the 200-gallon tote to the 110-gallon tank on your large square baler.



**APPLICATOR SHUT-OFF SWITCH**  
**PART NO. HT475**

The floor-mounted applicator shut-off switch enables the operator to easily stop and start the applicator with his foot.