

## RH800 & 2000 BASIC OPERATIONS GUIDE



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This is an interactive PDF. Click on an icon tile and navigate to a chapter of interest.





Notes



Seed Calibration



Chemical Calibration



Drum Operation



Pictograms

Users can advance or go back single pages by using quick navigation links shown below, right.

Users can navigate to the Menu by clicking on the Menu icon shown below, left.





## LEGAL & SAFETY

This manual contains technical information regarding Bayer SeedGrowth<sup>™</sup> Equipment. Please read and understand these instructions completely before proceeding to install and operate the equipment. Bayer reserves the right to change specifications, models, components, or materials at any time without notice. For additional equipment information contact us at 1.800.634.6738. Please have this manual available when contacting Bayer.

Always use caution and common sense when working with any chemical. Read the product label and SDS carefully and follow their instructions exactly as described.

Optimal operating conditions for this piece of equipment requires an ambient temperature 32° F to +104° F (0° C to +40° C), relative humidity less than 90% (minimum condensation). Make necessary provisions to protect this piece of equipment against excessive dust, particles containing iron, moisture and against corrosive and explosive gases.

Our technical information is based on extensive testing and is, to the best of our current knowledge, true and accurate but given without warranty as the conditions of use and storage are beyond our control. Variables, such as humidity, temperature, change in seed size or variety and viscosity of chemical products can all affect the accuracy of the chemical application and seed coverage. To ensure the desired application rate and optimum seed coverage, check the calibration periodically throughout the day, and make adjustments as needed.

Any person who is involved in the installation or periodic maintenance of this equipment should be suitably skilled or instructed and supervised using a safe system of work. Isolate the treater before removing guards for maintenance.

# D EXPOSURE CONTROL

Always use caution and common sense when working with chemicals. Read the product label and SDS carefully and follow their instructions exactly as described. The following Personal Protective Equipment (PPE) recommendations and best practices help promote safe use in seed treatment.

> Note: Exposure Control signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.



Wear disposable or reusable coveralls with long sleeves.

Hand protection required



Wear chemical-resistant gloves.

Wear rubber boots

Wear chemical resistant rubber boots.

#### Labels

Label recommendations and directions for handling must be followed, including treatment procedure (use of sticker) as well as the safety requirements.

#### **Clean seed**

Use well cleaned seed to avoid creation of polluted dust that will contaminate the machine, treating facility, workers, farmers and the environment during sowing.

#### Cleaning



Use a vacuum to clean machines. Avoid using compressed air for cleaning.



Wash soiled reusable clothing separately. Workers must take a shower after each shift.



Keep products in a locked room that has been approved for crop protection products.



Wear respiratory protection.



**Eye protection required** Wear protective eyewear.





Seed treatment equipment must be checked and calibrated regularly to ensure accurate and safe application.



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#### **Empty containers**

Non-returnable empty containers must be triple rinsed before they can be disposed. For others the recommendation of the producer must be followed.



Spillage must be avoided; it must be thoroughly cleaned up to avoid contaminating the environment and waterways.











Laundry



## **REFERENCE SYMBOLS**

Symbols and signal words are used to identify the level of hazard and help avoid personal injury.

> Note: Safety signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.



**Shock Hazard** 

Warning

Alerts that dangerous voltage may be present.



Alerts that a hazard may cause serious iniury or death.



Caution Alerts that a hazard may cause minor or moderate injury.

Hand crush - moving parts Alerts crushing is possible.



**Pinch point** 



Keep hands away from pinch points.



**Rotating shaft** 

Do not wear loose clothing around turning parts.



Disconnect





and maintenance.

Tools

Parts

Tip

Note

Required tools for installation

Required parts for installation



**Use guards** Keep guards in place. Do not remove during operation.

Disconnect to de-energize before opening.



Lifting

Requires two people to safely lift an item.



Calls attention to special information.



Emphasizes general information worthy of attention.



Provides a problem or exercise that

illustrates a method or principle.





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**Center of gravity** 

Requires the use of proper rigging and lifting

techniques based on the lift plan.

Lift points



Indicates the center of gravity of the machine to help assist when rigging and lifting.

# FORTOGRAMS

Each Signifier displayed here is specific to this User Manual.





Menu



Chemical



Previous



Seed



Advance



Calibration



Drum & Frame



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## **EXPLANATORY NOTES**

### Ensure that all components of the treating system are connected and ready for use prior to operating the system. Refer to the RH Basic Installation Guide for proper installation and connection of system components.

Treating begins once the Seed Wheel Mode Switch is turned **ON** and the Inlet Sensor detects seed in the hopper. If the Operator needs to stop treating seed, turn **OFF** the Seed Wheel Switch. Each Pump automatically stops as well. To restart, Turn the Seed Wheel Mode Control Switch to **AUTO**. Each Pump automatically begins as well. If the Seed Wheel or Pumps stop working, the system will automatically shut down the treatment process. Push the **E-STOP** button for an emergency stop **ONLY!** 



LS Pump Control



Tank Agitation Power Cord



Portable Calibration Scale

## **RH Basic 4-Pump Complete Control Panel**

The RH Basic Complete Control Panel operates the RH system: Main Power, Seed Wheel Control, Pump Controls (4), the Drum Drive VFD. The remote Supply Tank LS Control, the Tank Agitation Motor and Portable Digital Scale require an external power source. If optional Flow Meter, Powder Feeder and Conveyor Controllers are used, an external power source will be required as well.







## **SEED CALIBRATION**

A new measurement will need to be made each time seed size or seed variety changes, for accuracy!



### **Seed Calibration**

Step 1: Turn ON (touch) the Portable Scale Power On/Off Switch.

Step 2: Set the empty Seed Calibration Cylinder on the Scale and touch the ZERO button to zero out the Scale.





#### Example: RH800 LB/MIN

750 lbs/min. is the intended amount of seed to be treated. Total grams in the Calibration Cylinder = 1050g. The chart matrix would suggest... **750 lbs/min & 1050g = 33.3 rpm Seed Wheel speed setting.** 



Step 3: Remove the empty Cylinder from the Scale and fill it to the top with desired seed.

- Screed off any excess seed by hand or a flat edge, to level the seed at the top of the Beaker.
- Set the filled Cylinder on the Scale.
- Note the digital value displayed (approximately 1,050 grams for soybeans).

**Step 4:** Use the **RH800 SEED WHEEL REFERENCE CHART** on page 7-10 to determine the approximate seed wheel rpm (seed wheel charts are for reference only and the results are approximate).



## LB/MIN

## **RH800 BASIC SEED WHEEL RPM REFERENCE CHART**

	1200	13.6	15.5	17.5	19.4	21.3	23.3	25.2	27.2	29.1	31.0	33.0	34.9
	1190	13.7	15.6	17.6	19.6	21.5	23.5	25.4	27.4	29.3	31.3	33.3	35.2
	1180	13.8	15.8	17.8	19.7	21.7	23.7	25.6	27.6	29.6	31.6	33.5	35.5
(g)	1170	13.9	15.9	17.9	19.9	21.9	23.9	25.9	27.9	29.8	31.8	33.8	35.8
<del> </del>	1160	14.0	16.1	18.1	20.1	22.1	24.1	26.1	28.1	30.1	32.1	34.1	36.1
Ð	1150	14.2	16.2	18.2	20.2	22.3	24.3	26.3	28.3	30.4	32.4	34.4	36.4
ЧE	1140	14.3	16.3	18.4	20.4	22.5	24.5	26.5	28.6	30.6	32.7	34.7	36.8
> ~	1130	14.4	16.5	18.5	20.6	22.7	24.7	26.8	28.8	30.9	33.0	35.0	37.1
Ш	1120	14.5	16.6	18.7	20.8	22.9	24.9	27.0	29.1	31.2	33.3	35.3	37.4
<b>⊿</b>	1110	14.7	16.8	18.9	21.0	23.1	25.2	27.3	29.4	31.5	33.6	35.6	37.7
Ę	1100	14.8	16.9	19.0	21.2	23.3	25.4	27.5	29.6	31.7	33.9	36.0	38.1
Ō	1090	14.9	17.1	19.2	21.4	23.5	25.6	27.8	29.9	32.0	34.2	36.3	38.4
	1080	15.1	17.2	19.4	21.6	23.7	25.9	28.0	30.2	32.3	34.5	36.6	38.8
Ó	1070	15.2	17.4	19.6	21.8	23.9	26.1	28.3	30.5	32.6	34.8	37.0	39.2
Τ	1060	15.4	17.6	19.8	22.0	24.2	26.3	28.5	30.7	32.9	35.1	37.3	39.5
2	1050	15.5	17.7	20.0	22.2	24.4	26.6	28.8	31.0	33.3	35.5	37.7	39.9
	1040	15.7	17.9	20.1	22.4	24.6	26.9	29.1	31.3	33.6	35.8	38.0	40.3
CA	1030	15.8	18.1	20.3	22.6	24.9	27.1	29.4	31.6	33.9	36.2	38.4	40.7
	1020	16.0	18.3	20.5	22.8	25.1	27.4	29.7	31.9	34.2	36.5	38.8	41.1
	1010	16.1	18.4	20.7	23.0	25.3	27.7	30.0	32.3	34.6	36.9	39.2	41.5
	1000	16.3	18.6	20.9	23.3	25.6	27.9	30.3	32.6	34.9	37.2	39.6	41.9
		350	400	450	500	550	600	650	700	750	800	850	900
		DESIRED TREATER FLOW RATE (LB/MIN)											

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## KG/MIN

## **RH800 BASIC SEED WHEEL RPM REFERENCE CHART**

	1200	12.8	15.0	17.1	19.2	21.4	23.5	25.7	27.8	29.9	32.1	34.2	36.4
	1190	12.9	15.1	17.3	19.4	21.6	23.7	25.9	28.0	30.2	32.3	34.5	36.7
	1180	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8	37.0
(g)	1170	13.2	15.4	17.5	19.7	21.9	24.1	26.3	28.5	30.7	32.9	35.1	37.3
<u> </u>	1160	13.3	15.5	17.7	19.9	22.1	24.3	26.5	28.8	31.0	33.2	35.4	37.6
Ū	1150	13.4	15.6	17.9	20.1	22.3	24.5	26.8	29.0	31.2	33.5	35.7	37.9
Ш	1140	13.5	15.8	18.0	20.3	22.5	24.8	27.0	29.3	31.5	33.8	36.0	38.3
> ~	1130	13.6	15.9	18.2	20.4	22.7	25.0	27.3	29.5	31.8	34.1	36.3	38.6
μ	1120	13.7	16.0	18.3	20.6	22.9	25.2	27.5	29.8	32.1	34.4	36.7	39.0
AIA	1110	13.9	16.2	18.5	20.8	23.1	25.4	27.7	30.1	32.4	34.7	37.0	39.3
ONT/	1100	14.0	16.3	18.7	21.0	23.3	25.7	28.0	30.3	32.7	35.0	37.3	39.7
	1090	14.1	16.5	18.8	21.2	23.5	25.9	28.3	30.6	33.0	35.3	37.7	40.0
	1080	14.3	16.6	19.0	21.4	23.8	26.1	28.5	30.9	33.3	35.6	38.0	40.4
Ó	1070	14.4	16.8	19.2	21.6	24.0	26.4	28.8	31.2	33.6	36.0	38.4	40.8
F⊿	1060	14.5	16.9	19.4	21.8	24.2	26.6	29.1	31.5	33.9	36.3	38.7	41.2
Ř	1050	14.7	17.1	19.6	22.0	24.4	26.9	29.3	31.8	34.2	36.7	39.1	41.5
	1040	14.8	17.3	19.7	22.2	24.7	27.1	29.6	32.1	34.5	37.0	39.5	41.9
A C A	1030	14.9	17.4	19.9	22.4	24.9	27.4	29.9	32.4	34.9	37.4	39.9	42.4
	1020	15.1	17.6	20.1	22.6	25.2	27.7	30.2	32.7	35.2	37.7	40.3	42.8
	1010	15.2	17.8	20.3	22.9	25.4	27.9	30.5	33.0	35.6	38.1	40.7	43.2
	1000	15.4	18.0	20.5	23.1	25.7	28.2	30.8	33.4	35.9	38.5	41.1	43.6
		150	175	200	225	250	275	300	325	350	375	400	425
	DESIRED TREATER FLOW RATE (KG/MIN)												

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## LB/MIN

## **RH2000 BASIC SEED WHEEL RPM REFERENCE CHART**

	1200	18.1	20.0	21.8	23.6	25.4	27.2	29.0	30.9	32.7	34.5	36.3	38.1
	1190	18.3	20.1	22.0	23.8	25.6	27.5	29.3	31.1	32.9	34.8	36.6	38.4
	1180	18.5	20.3	22.1	24.0	25.8	27.7	29.5	31.4	33.2	35.1	36.9	38.8
(g)	1170	18.6	20.5	22.3	24.2	26.1	27.9	29.8	31.6	33.5	35.4	37.2	39.1
<del> </del>	1160	18.8	20.7	22.5	24.4	26.3	28.2	30.0	31.9	33.8	35.7	37.6	39.4
Ū	1150	18.9	20.8	22.7	24.6	26.5	28.4	30.3	32.2	34.1	36.0	37.9	39.8
Ш>	1140	19.1	21.0	22.9	24.8	26.7	28.7	30.6	32.5	34.4	36.3	38.2	40.1
> ~	1130	19.3	21.2	23.1	25.1	27.0	28.9	30.8	32.8	34.7	36.6	38.5	40.5
ONTAINEF	1120	19.4	21.4	23.3	25.3	27.2	29.2	31.1	33.1	35.0	36.9	38.9	40.8
	1110	19.6	21.6	23.5	25.5	27.5	29.4	31.4	33.4	35.3	37.3	39.2	41.2
	1100	19.8	21.8	23.8	25.7	27.7	29.7	31.7	33.7	35.6	37.6	39.6	41.6
	1090	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40.0	42.0
	1080	20.2	22.2	24.2	26.2	28.2	30.2	32.3	34.3	36.3	38.3	40.3	42.3
Ó	1070	20.4	22.4	24.4	26.5	28.5	30.5	32.6	34.6	36.6	38.7	40.7	42.7
I⊥	1060	20.5	22.6	24.7	26.7	28.8	30.8	32.9	34.9	37.0	39.0	41.1	43.1
Ř	1050	20.7	22.8	24.9	27.0	29.0	31.1	33.2	35.3	37.3	39.4	41.5	43.6
	1040	20.9	23.0	25.1	27.2	29.3	31.4	33.5	35.6	37.7	39.8	41.9	44.0
A U	1030	21.1	23.3	25.4	27.5	29.6	31.7	33.8	35.9	38.1	40.2	42.3	44.4
	1020	21.4	23.5	25.6	27.8	29.9	32.0	34.2	36.3	38.4	40.6	42.7	44.8
	1010	21.6	23.7	25.9	28.0	30.2	32.3	34.5	36.7	38.8	41.0	43.1	
	1000	21.8	24.0	26.1	28.3	30.5	32.7	34.8	37.0	39.2	41.4	43.6	
		1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
	DESIRED TREATER FLOW RATE (LB/MIN)												

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## KG/MIN

## RH2000 BASIC SEED WHEEL RPM REFERENCE CHART (KG/MIN)

	1200	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40.0
	1190	18.2	20.2	22.2	24.2	26.2	28.2	30.3	32.3	34.3	36.3	38.3	40.4
	1180	18.3	20.3	22.4	24.4	26.5	28.5	30.5	32.6	34.6	36.6	38.7	40.7
(g)	1170	18.5	20.5	22.6	24.6	26.7	28.7	30.8	32.8	34.9	36.9	39.0	41.0
<del> </del>	1160	18.6	20.7	22.8	24.8	26.9	29.0	31.0	33.1	35.2	37.3	39.3	41.4
Ū	1150	18.8	20.9	23.0	25.1	27.1	29.2	31.3	33.4	35.5	37.6	39.7	41.8
Ц	1140	19.0	21.1	23.2	25.3	27.4	29.5	31.6	33.7	35.8	37.9	40.0	42.1
> ~	1130	19.1	21.2	23.4	25.5	27.6	29.7	31.9	34.0	36.1	38.2	40.4	42.5
μ	1120	19.3	21.4	23.6	25.7	27.9	30.0	32.2	34.3	36.4	38.6	40.7	42.9
AL	1110	19.5	21.6	23.8	26.0	28.1	30.3	32.4	34.6	36.8	38.9	41.1	43.3
Ę	1100	19.6	21.8	24.0	26.2	28.4	30.6	32.7	34.9	37.1	39.3	41.5	43.7
õ	1090	19.8	22.0	24.2	26.4	28.6	30.8	33.0	35.2	37.4	39.7	41.9	44.1
	1080	20.0	22.2	24.5	26.7	28.9	31.1	33.3	35.6	37.8	40.0	42.2	44.5
Ō	1070	20.2	22.4	24.7	26.9	29.2	31.4	33.7	35.9	38.1	40.4	42.6	44.9
⊢	1060	20.4	22.7	24.9	27.2	29.4	31.7	34.0	36.2	38.5	40.8	43.0	
Ř	1050	20.6	22.9	25.2	27.4	29.7	32.0	34.3	36.6	38.9	41.2	43.4	
	1040	20.8	23.1	25.4	27.7	30.0	32.3	34.6	36.9	39.2	41.6	43.9	
A ∪	1030	21.0	23.3	25.6	28.0	30.3	32.6	35.0	37.3	39.6	42.0	44.3	
	1020	21.2	23.5	25.9	28.2	30.6	33.0	35.3	37.7	40.0	42.4	44.7	
	1010	21.4	23.8	26.2	28.5	30.9	33.3	35.7	38.0	40.4	42.8		
	1000	21.6	24.0	26.4	28.8	31.2	33.6	36.0	38.4	40.8	43.2		
		450	500	550	600	650	700	750	800	850	900	950	1000
		DESIRED TREATER FLOW RATE (KG/MIN)											

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## **SEED WHEEL SPEED**

аuto	33.3 FWD RUN REV	
	RUN STOP	



#### Step 5: SEED WHEEL MODE

• Turn the Seed Wheel Control Switch to AUTO.

**Step 6:** On the Seed Wheel Control Touch Pad, set the Seed Wheel Speed to the value previously determined from the **RH800 SEED WHEEL REFERENCE CHART** on page 7 (33.3rpm).

- Use the UP & DOWN arrows to increase or decrease speed.
- Press the **GREEN RUN** key.
- The Seed Wheel will begin rotating.
- Press the **RED STOP** key, the Seed Wheel will stop rotating.

This comletes the Seed Wheel calibration.



# **E CHEMICAL CALIBRATION**

Note: Tank agitation begins when power cord is plugged into power source. Unplug Power Cord to stop agitation.





### **Chemical Calibration**

Step 1: Connect each (up to four) Tank Agitation Power Cords to an external power source (1-4).



Note: Refer to the Treatment Product Label on the chemical jug for the regulated application rate. Follow the direction exactly as stated on the label!



Warning! Exercise extreme caution when working with chemicals! Wear proper PPE >>





Step 2: Open the Tank Cover Lid and pour in desired chemicals.

• Allow chemicals to agitate for a few minutes.



Step 3: Ensure the Pump Flow Valve is in the **TREAT** mode.

Continued  $\square$ 





**Step 4:** Ensure the Pump Recirculation Valve is in the **RECIRCULATION** mode.







### Step 6: Ensure the Pump Head is CLOSED.







**Step 7: CLOSE** the Drain Valve under the Calibration Cylinder.



- Step 8: Push the LS Pump Control switch to FWD.
- The Power light will also indicate that the power is **ON** when lit.

POWER

- Step 9: Ensure the Main Power Switch handle is in the ON (DOWN) position.
- The Power light will also indicate that the power is **ON** when lit (white = energized).

### Continued $\bigcirc$





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Step 11: The Pump will run, purging the treatment lines of air and send chemical to the Treater Chemical Inlet Assembly.



Step 12: Turn PUMP #1 Switch OFF. Repeat for all Pumps used (1-4).





Step 13: OPEN the calibration drain valve (turn to right to stop recirculation back into tank).



Step 14: Turn PUMP #1 Switch to PRIME.



**Step 15:** The Pump will run, filling the Calibration Cylinder with chemical just up to the **ZERO** mark.

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Continued  $\bigcirc$ 





Step 16: Turn OFF PUMP #1 Switch.







**Step 17:** Turn PUMP #1 Switch to **AUTO** for one minute.

- The Pump will fill the Cylinder with chemical.
- Turn **OFF** PUMP #1 Switch.

Step 18: Make note of the amount e.g., 2750ml of chemical dispensed in one minute.

• Compare that number to the chemical product label requirement.







Note: Variables, such as humidity, temperature, change in seed size or variety and viscosity of chemical products can all affect the accuracy of the chemical application and seed coverage. To ensure the desired application rate and optimum seed coverage is achieved, check the Pump calibration periodically throughout the day. Make adjustments as needed.





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**Step 19:** Adjust the LS Pump Control Speed Indicator Dial to increase or decrease Pump dispersion rate / output speed.

- Once the desired rate is achieved, move the lever on the bottom of the indicator **LEFT** to lock the Pump speed.
- Move the lever on the bottom of the indicator **RIGHT** to unlock and reset the Pump speed.
- Repeat calibration process for each Supply Tank used (1-4) until desired calibration results are achieved.



Step 20: CLOSE the Calibration Drain Valve.





## Step 21: Turn PUMP #1 Switch to PRIME.



Step 22: The Pump will run, purging the treatment lines of air and send chemical to the Treater Chemical Inlet Assembly.





Step 23: Turn OFF PUMP #1 Switch.

• Repeat for all Pumps used (1-4).

This completes the Pump Calibration.

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# **DRUM OPERATION**

Note: the drum is programmed from the factory to run in forward rotation for treating. While looking at the discharge end of the drum, treating mode runs in counterclockwise rotation!

Clean out mode runs in clockwise rotation.

Warning! Pinch point - keep guards in place at all times while the drum is running!





Discharge end of Drum



### **Drum Clean out**

**Step 1:** Ensure the Main Power Switch handle is in the **ON** (**DOWN**) position.

• The Power light will also indicate that the power is **ON** when lit.

• The Drum will begin to rotate forward!



## **DRUM SPEED**





#### Symbol for REVERSE



### Symbol for FORWARD

Step 2: On the Drum VFD Touch Pad, press the red STOP key.

Step 3: Press the R-F key.

• The symbol for Reverse, as shown left, will appear and blink on the display screen...

Step 4: WITHIN FOUR SECONDS press the M key to confirm the rotation change.

Step 5: Press the green RUN key. The drum will run in reverse for clean out.

Step 6: When drum is finished with clean out, Press the red STOP key.

### Step 7: Press the R-F key.

• The symbol for Forward will appear and blink on the display screen, as shown left...

Step 8: WITHIN FOUR SECONDS press the M key to confirm the Drum rotation change.

Step 9: Press the green RUN key. The drum will run in forward rotation again for treating.

This completes the Drum Operation.





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