U-Treat v4.1 Quick Reference Sheet

Calibration

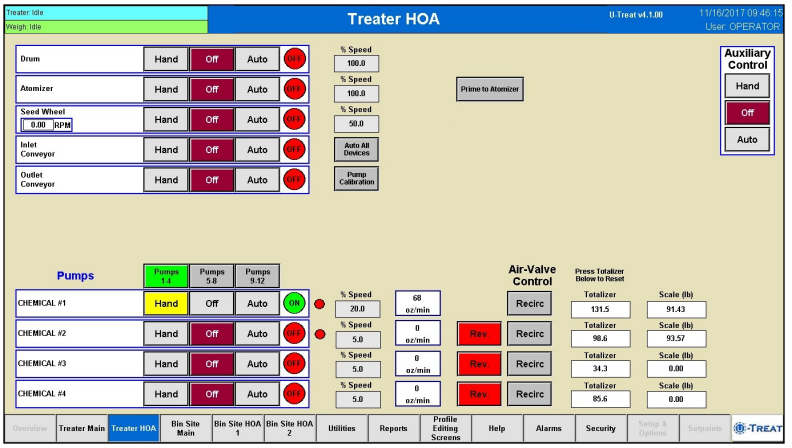
TD - 09 - 06 - 2009 **Revision: B**

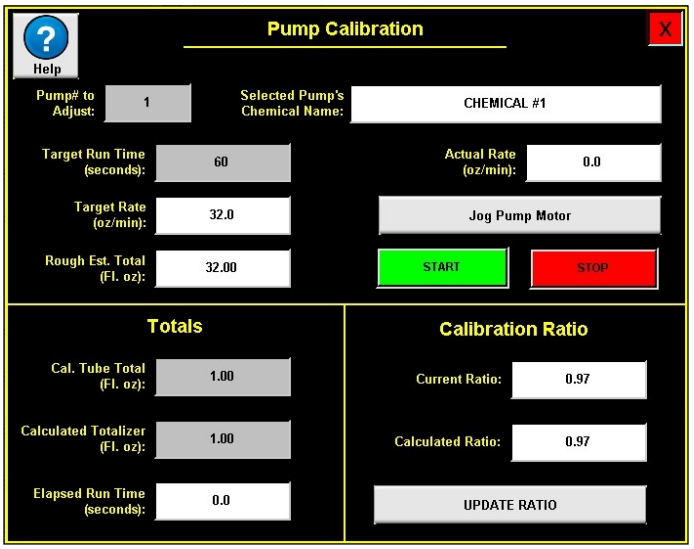
DETERMINING SEED CUP WEIGHT

1. Set the empty seed calibration cup on the scale and zero out the weight of the cup.
2. Place the funnel and stand in the seed to be treated or a separate container. This will help to avoid any unnecessary clean up while filling and leveling the top of the seed calibration cup.
3. Place your hand under the bottom of the funnel and fill the funnel up with seed.
4. Place the calibration cup under the funnel stand and remove your hand from the bottom of the funnel, and allow the cup to be filled. **Always use the funnel to fill the cup. Scooping the seed by hand will give you inconsistent weights.**
5. After the cup has been filled, strike off the top of the calibration cup with a straight edge.
6. Weigh the sample of seed. **Ensure the scale is on a smooth and level surface.**

FLOW METER CALIBRATION

1. To begin the calibration process, fill the appropriate mix tank with the slurry that is going to be used for this calibration.
2. Turn the corresponding pump to the hand position and adjust the flow rate until it reads about 20 percent on the pump control module. Let the system run in recirculation mode for 15 minutes. This will remove any air from the system. Place the pump in Auto mode.
3. Place the MIX TANK / CALIBRATION TUBE valve that is located on top of the pump stand in the calibration tube position.
4. From the Treater HOA screen, press the Pump Calibration button. Enter the number of the pump you wish to calibrate and a target run time for the calibration. The longer the run time the more accurate the calibration. USC recommends a minimum of 60 seconds. Press the jog pump motor, this will turn the pumps on and off to fill the process lines attached to the top of the calibration tube. When the chemical lines are full and the level in the tube is at zero, press the button again to stop the pump. Press the Start button to begin the calibration. When the target run time has elapsed, the pump will shutoff automatically. If for any reason you need to stop the process, press the Stop button. If the calibration is stopped before the target time has elapsed, the operator must start the process over again. Enter the calibration tube ounces into the Cal. Tube Total. Press the UPDATE RATIO button and it will automatically update. Closing this pop up screen will stop the calibration process if it has not been completed.
5. Repeat the process as necessary and for each different chemical slurry used.





USC Seed Treating Solutions®

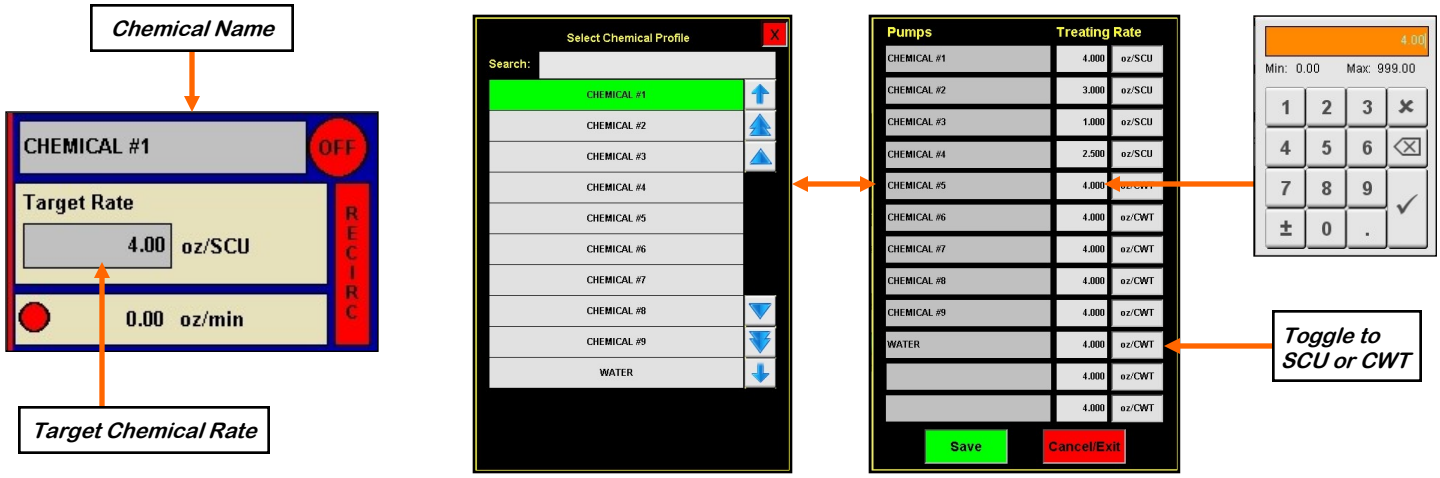
U-Treat v4.1 Quick Reference Sheet

Calibration

TD - 09 - 06 - 2009 **Revision: B**

PUMP CHEMICAL ASSIGNMENT

If recipe mode is not active, the chemicals must be assigned to the pump stands using the pump modules on the treater main screen. The chemical name and target rate fields will be grey and are active buttons. Selecting either one will bring up a popup screen listing all of the chemicals in the system. Select a chemical name and the chemical profile screen appears. Select the chemical you wish to change it to. Select the treating rate box next to it and a numeric keyboard allows entry of the treating rate. Use the box on the right to set the measurement type.



PROXIMITY SWITCH ADJUSTMENT GUIDE

The proximity switches are mounted in different locations on all three types of seed metering devices. Their purpose is to detect when seed it is present, and when it is not present.

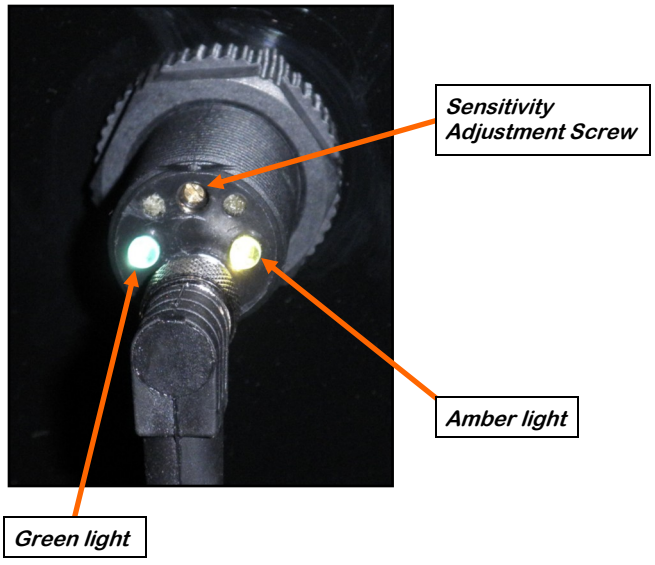
The program uses the signal from these device to determine when to turn on and off the inlet conveyor, chemical pumps, etc.

If the proximity switch is not working properly, this can be caused by wear, dust, or even moisture. The first step is to clean the lens of the proximity switch. If this does not solve the problem, the next step would be to adjust the sensitivity of the proximity switch.

The green light indicates the power status. If it is active the device is powered. The amber light indicates when seed is being detected. If it is active it detects seed, if inactive it does not detect seed.

Using the small screwdriver provided inside the control panel, you can adjust the proximity switch by turning the adjusting screw on the back of the proximity switch.

- Turn Clockwise to make the proximity switch more sensitive.
- Turn Counterclockwise to make the proximity switch less sensitive.



Proximity Switch Screwdriver

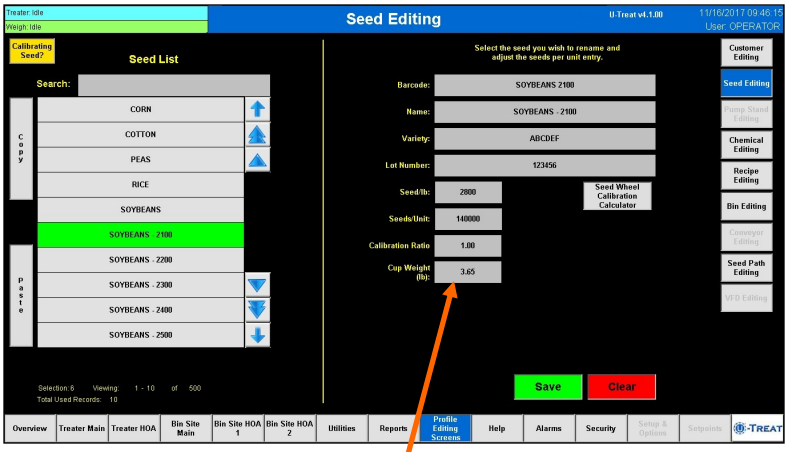
U-Treat v4.1 Quick Reference Sheet

Treaters with Seed Metering Wheel

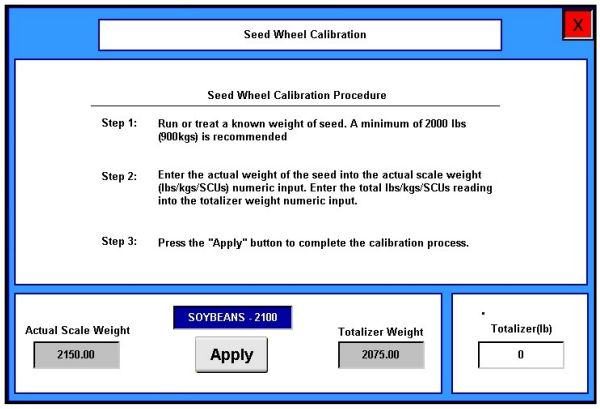
TD - 09 - 06 - 2009 **Revision: B**

SEED WHEEL SEED FLOW CALIBRATION

1. Press the Utilities button. Ensure that the Treat by SCU / min and Auto Rate Adjust to Bin Site boxes are **NOT** checked. Enter in the Target Treating Rate in pounds per minute.
2. Press the Profile Editing Screens button at the bottom of the screen and then push the Seed Editing button on the popup screen. Select the seed profile from the seed list you want to calibrate on the left side of the screen. The seed profile details will appear on the right where they may be edited and the seed wheel may be calibrated for that seed. Enter the weight of the seed sample in the Cup Weight box. The operator must press Save before leaving the profile if any changes were made. If they do not, the changes will not be added to that profile
3. Return to the main screen and run or treat a minimum of 2000 pounds of seed. When the system shuts down, record the actual scale weight and the totalizer weight. Return to the Seed Editing screen and press the Seed Wheel Calibration Calculator button.
4. From the Seed Wheel Calibration Calculator screen, enter the actual scale weight and the Totalizer weight from the run. Then press the Apply button. This will enter the two weights in the system and return the operator to the Seed Editing screen. You must press the Save button again as the system will update the calibration ratio based on this calculation.



Enter Seed Sample Weight Here



TREATING SEED WITH SEED WHEEL

1. From the Treater HOA screen, press the Auto All Devices button to place the Drum, Atomizer, Seed Wheel, Inlet Conveyor and Outlet Conveyor and all of the pumps in Auto.
2. Next, prime the chemical line to the atomizer. Ensure that the valve on each of the chemical attachment ports on the treater are in the correct position. Press and hold the Prime To Atomizer button. The atomizer will turn on and liquid will begin pumping up to the atomizer. When liquid reaches the atomizer release the Prime to Atomizer button (see page 4).
3. Return to the main screen and press the Start Setup button (see page 4). The Start screen appears Press the gray buttons to change any fields such as customer, seed path, actual weight and chemical recipe for this run. Press Start to begin the run. The drum, atomizer, inlet conveyor and outlet conveyor will activate. The pumps will turn on and re-circulate until they reach the desired flow rate needed to match the target treating rate that was entered.
4. When the pump's flow rate has been reached and seed is covering the proximity sensors inside of the seed wheel, the air actuated 3-way valve will open and allow liquid to pump up to the atomizer. A moment later (based on the settings in the utilities screen), the seed wheel will turn on and the seed treating process will begin.

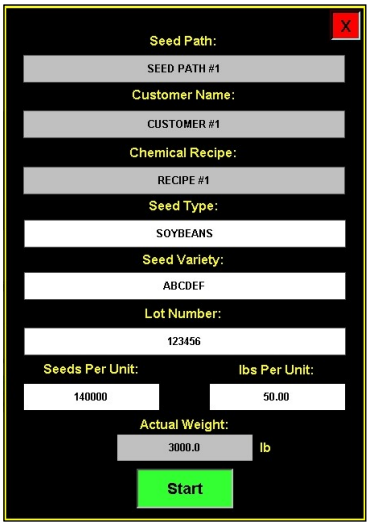
USC Seed Treating Solutions®

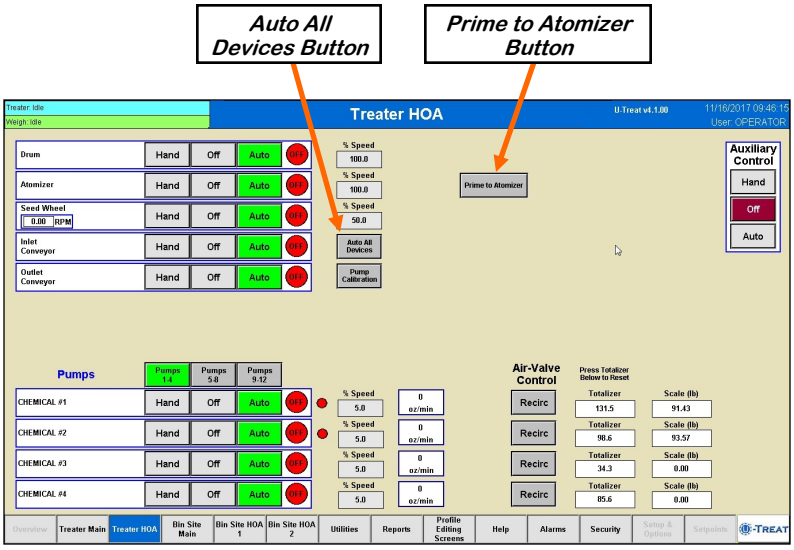
U-Treat v4.1 Quick Reference Sheet

Treaters with Seed Metering Wheel

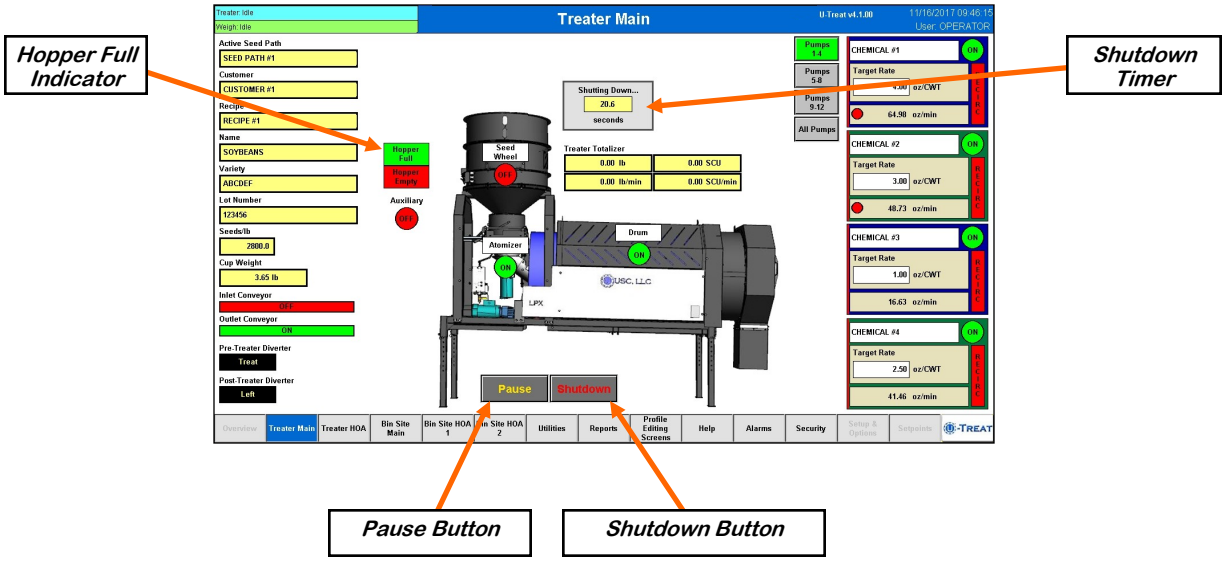
TD - 09 - 06 - 2009 **Revision: B**

TREATING SEED WITH SEED WHEEL





4. As the seed is being treated, the main screen will display the pounds per minute, the total pounds, and the liquid flow rate. If the system needs to be stopped for a moment because of a problem, the Pause button may be pressed to halt the process. When ready to begin again, press the Continue button on the Continue / Terminate popup screen.
6. When the seed wheel hopper is full the Hopper Full indicator light will appear and the inlet conveyor will shut off. The flow of seed into the hopper will begin again once seed is no longer present at the top proximity sensor in the hopper and the Inlet Conveyor Delay Restart Time defined on the utilities has expired. This is done to ensure that seed will not overfill the hopper.
7. When all seed passes through the seed wheel, the seed wheel will turn off and the pump will switch to re-circulate. When more seed is fed into the seed wheel, the treating process will continue.
8. After all seed has been treated the seed wheel will shutdown automatically. The 3-way valve on the pump stand will switch to re-circulate. However, the atomizer, drum and outlet conveyor will still be running. Press the Shutdown button at the bottom of the screen and the shutdown timer appears and begins to count down the seconds left before complete shutdown. The operator decides how much time is adequate for all product to clear the drum and outlet conveyor. The time is entered on the treater utilities screen and may be adjusted whenever necessary. When treating seed with a bin site, the shutdown process will occur automatically when the target weight has been met.



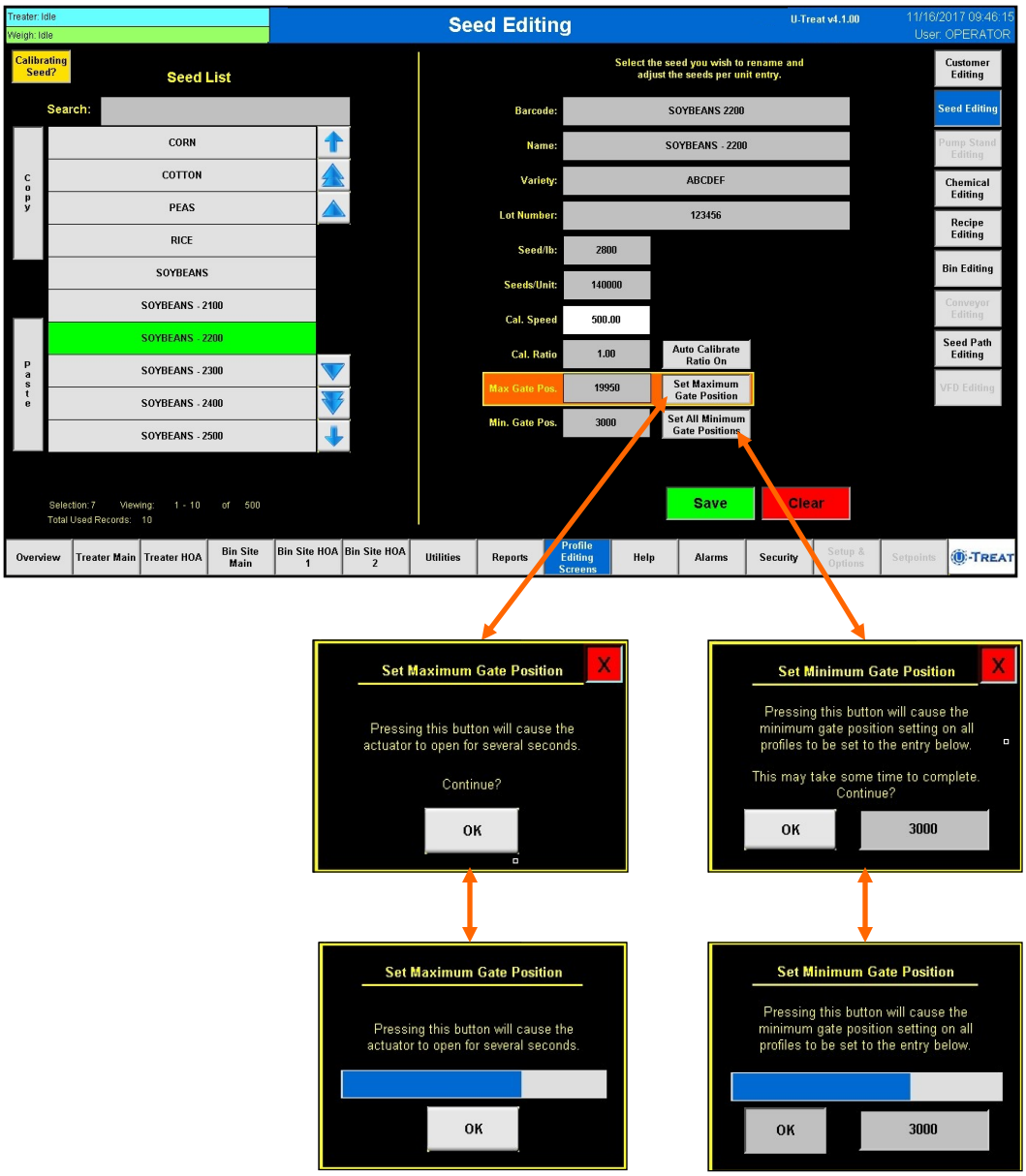
U-Treat v4.1 Quick Reference Sheet

Treater with Loss In Weight Seed Metering

TD - 09 - 06 - 2009 **Revision: B**

LOSS IN WEIGHT SEED FLOW CALIBRATION

1. Press the Utilities button. Ensure that the Treat by SCU / min and Auto Rate Adjust to Bin Site boxes are **NOT** checked. Enter in the Target Treating Rate in pounds per minute.
2. Press the Profile Editing Screens button and then push the Seed Editing button on the popup screen. Select the seed profile from the seed list you want to calibrate on the left side of the screen. The seed profile details will populate on the right where they may be edited and the seed actuator gate may be calibrated for that seed. The operator must press Save button before leaving the profile or the changes will be lost and go back to what that profile was previously set to.
3. The Max Gate Position is a global variable and will be consistent between all product profiles. The operator should set the Auto Calibrate ratio to the On position.



USC Seed Treating Solutions®

U-Treat v4.1 Quick Reference Sheet

Treater with Loss In Weight Seed Metering

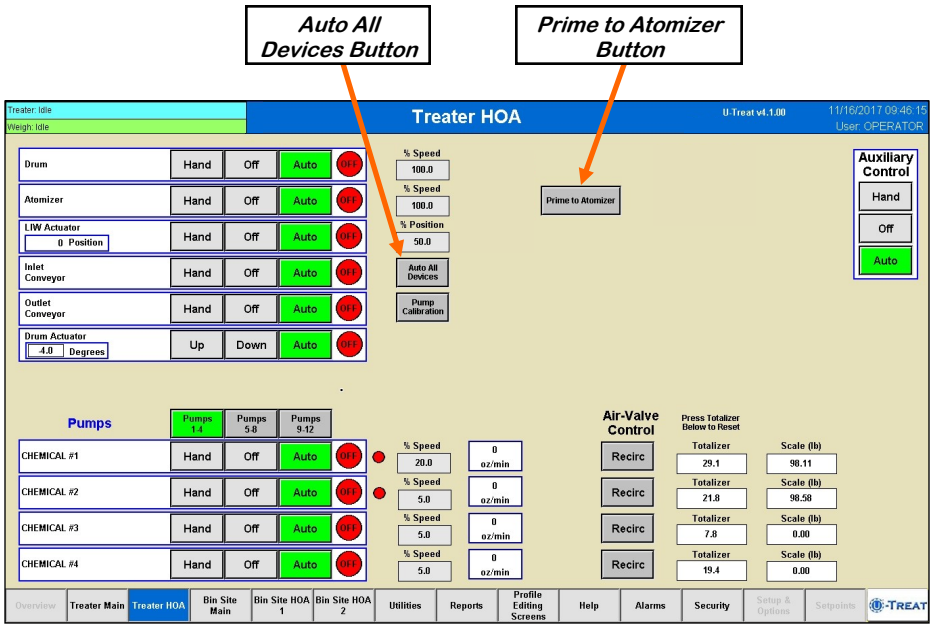
TD - 09 - 06 - 2009 **Revision: B**

LOSS IN WEIGHT SEED FLOW CALIBRATION

4. Setting Maximum Gate Position is important to set before running the treater so the system will not cause an alarm by asking the actuator to extend further than it is physically capable. When setting this parameter be sure that there is no seed open to flow through the gate as it will open for several seconds as the warning popup will indicate. Pressing the Setting Maximum Gate Position button will extend the actuator as far as it is capable. A popup will inform you as to what changing the setting will do to the system, you must then select OK to continue. The timer bar appears showing the progress of the actuator. When the actuator stops, press the red **X** at the top to return to the seed editing page. Once set this should not need reset unless the hardware is moved for any reason. Again this will be the same on all product profiles.
5. Setting Minimum Gate Position is adjustable for every profile or may be set the same for every profile. If you have varying seed sizes is it suggested to set them for each profile. This setting indicates the lowest setting that seed will flow at. To set it for a certain seed you will need to have seed available in the buffer zone above the actuator gate. With the gate completely closed, go to the H-O-A screen and set the LIW Actuator % Position setting to 5% and place the actuator in Hand mode. Then open the gate in small increments until a small but steady stream of seed is flowing out of the actuator. Note the Gate Position reading and place the actuator back in Auto mode of operation. Pressing the Setting Minimum Gate Position button brings up a popup, then press the gray box and use the keyboard to enter a value for all minimum gate positions. After entering the value press the OK button. The timer bar appears showing the progress of the actuator. When the actuator stops, press the red X at the top to return to the seed editing page. Then, enter the noted gate position reading minus 200 into the Min Gate Position setting. This will allow the program to accurately calculate the seed flow through the actuator gate.

TREATING SEED WITH LOSS-IN-WEIGHT

1. From the Treater HOA screen, press the Auto All Devices button to place the Drum, Atomizer, Seed Wheel, Inlet Conveyor and Outlet Conveyor and all of the pumps in Auto.
2. Next, prime the chemical line to the atomizer. Ensure that the valve on each of the chemical attachment ports on the treater are in the correct position. Press and hold the Prime To Atomizer button. The atomizer will turn on and liquid will begin pumping up to the atomizer. When liquid reaches the atomizer release the Prime to Atomizer button.

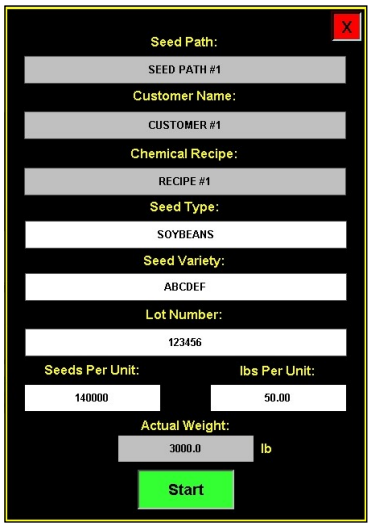


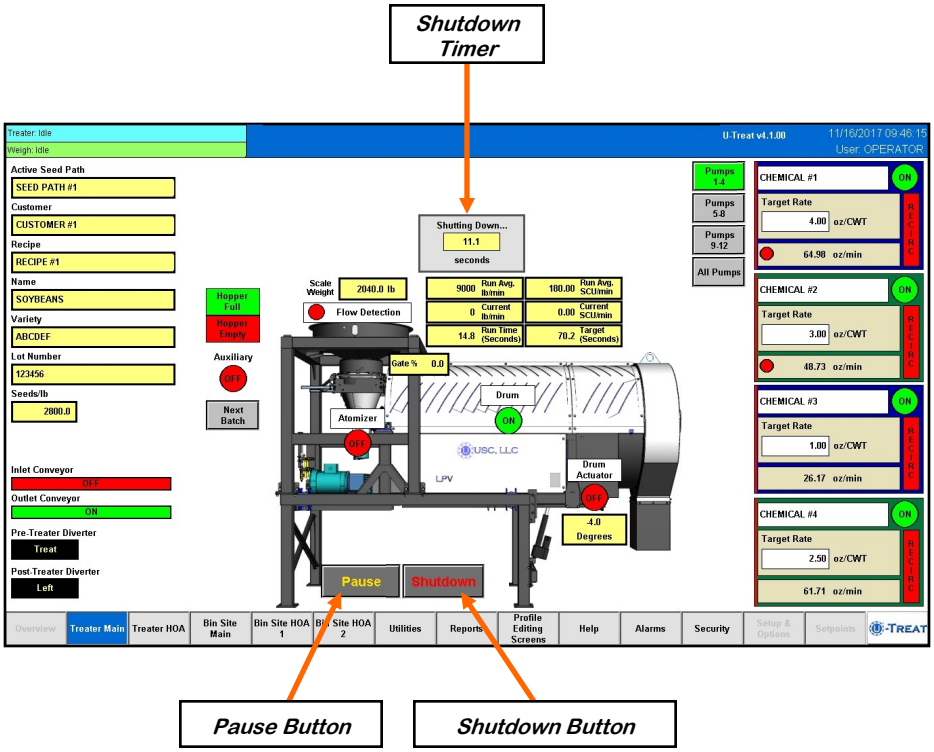
USC Seed Treating Solutions®

TREATING SEED WITH LOSS-IN-WEIGHT

3. Return to the main screen and press the Start Setup button. The Start screen appears. Press the gray buttons to change any fields such as customer, seed path, actual weight and chemical recipe for this run. Press Start to begin the run. The drum, atomizer, inlet conveyor and outlet conveyor will activate. The pump will turn on and re-circulate until it reaches the desired flow rate needed to match the target treating rate that was entered.
4. When the pump's flow rate has been reached and seed is covering the proximity sensors inside of the hopper cone, the air actuated 3-way valve will open and allow liquid to pump up to the atomizer. A moment later (based on the settings in the utilities screen), the Loss in Weight actuator will turn on and the seed treating process will begin.
5. As the seed is being treated, the main screen will display the pounds per minute, the total pounds, and the liquid flow rate. If the system needs to be stopped for a moment because of a problem, the Pause button may be pressed to stop the process. When ready to begin again, press the Continue button on the Continue / Terminate popup screen.
6. When all seed passes through the hopper, the pumps will switch to re-circulate. When more seed is fed into the treater, the treating process will continue.
7. After all seed has been treated the 3-way valve on the pump stand will switch to re-circulate. However, the atomizer, drum and outlet conveyor will still be running. Press the Shutdown button at the bottom of the screen and the shutdown timer appears and begins to count down the seconds left before complete shutdown. The operator decides how much time is adequate for all product to clear the drum and outlet conveyor. The time is entered on the treater utilities screen and may be adjusted whenever necessary.

   When treating seed with a bin site, the shutdown process will occur automatically when the target weight has been met.





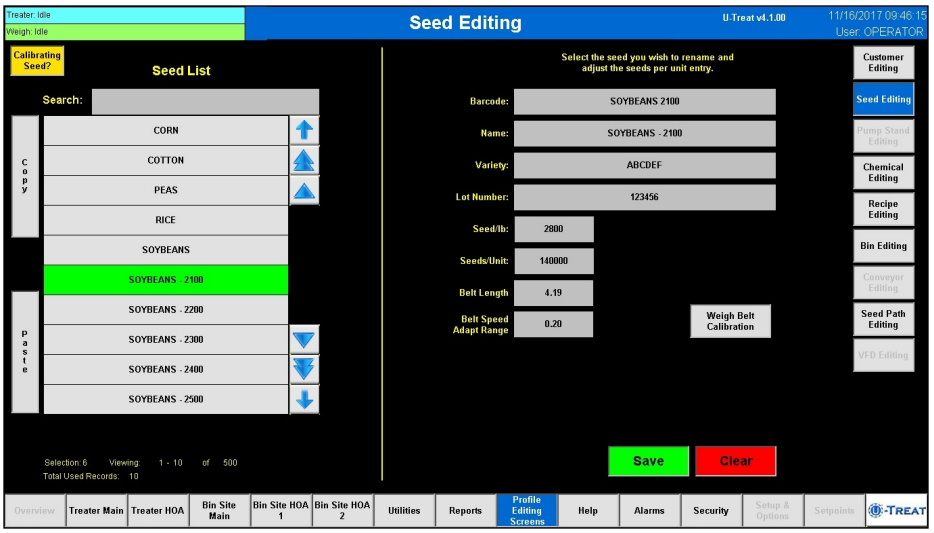
U-Treat v4.1 Quick Reference Sheet

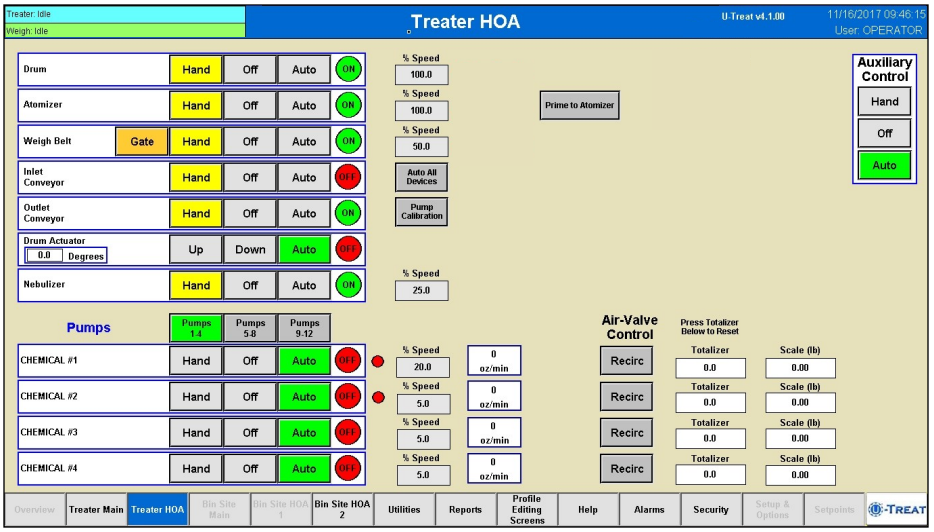
Treater with Weigh Belt Seed Metering

TD - 09 - 06 - 2009 **Revision: B**

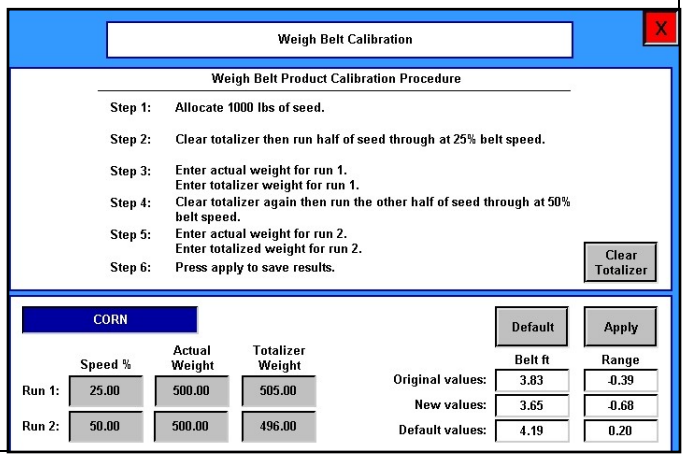
WEIGH BELT SEED FLOW CALIBRATION

1. Press the Utilities button. Ensure that the Treat by SCU / min and Auto Rate Adjust to Bin Site boxes are **NOT** checked. Enter in the Target Treating Rate in pounds per minute.
2. Press the Profile Editing Screens button at the bottom of the screen and then push the Seed Editing button on the popup screen. Select the seed profile from the seed list you want to calibrate. The belt length and belt speed adapt range need to be updated.
3. You will need to run a minimum of 1000 pounds of seed. The more seed you calibrate with, the more accurate the calibration will be. From the treater HOA screen, place all chemical pumps in the Off position. Press and hold the drum actuator Drum Down button until the drum is completely dead stop. Place the drum, atomizer, weigh belt and conveyors in the Hand position. If you have a high volume treater with a nebulizer, place it in Hand also





From the Weigh Belt Calibration screen, press the Clear totalizer button. From the HOA screen set the weigh belt motor percentage at 25%. Press the Gate button to open the seed gate and begin the seed flow. Return to the main screen and monitor the Totalizer weight. When the totalizer reaches about half of the total weight you are calibrating with, close the seed gate. Weigh the discharge box. Make note of the scale weight and the totalizer weight. Place an empty box under the discharge. Return to the calibration screen. Enter both weights for run 1 and clear the totalizer. From the HOA screen, increase the belt speed to 50% and open the gate again. When the rest of the seed has run through, weigh the box and make note of the scale weight and totalizer. Return to the calibration screen. Enter the scale weight and totalizer weight for Run 2. Press the apply button to complete the calibration.



Both New Values will automatically updated. Press the exit button to return to the product editing screen. Notice the new values on the product editing screen will also be updated. Press the blinking Save button to complete the process.

USC Seed Treating Solutions®

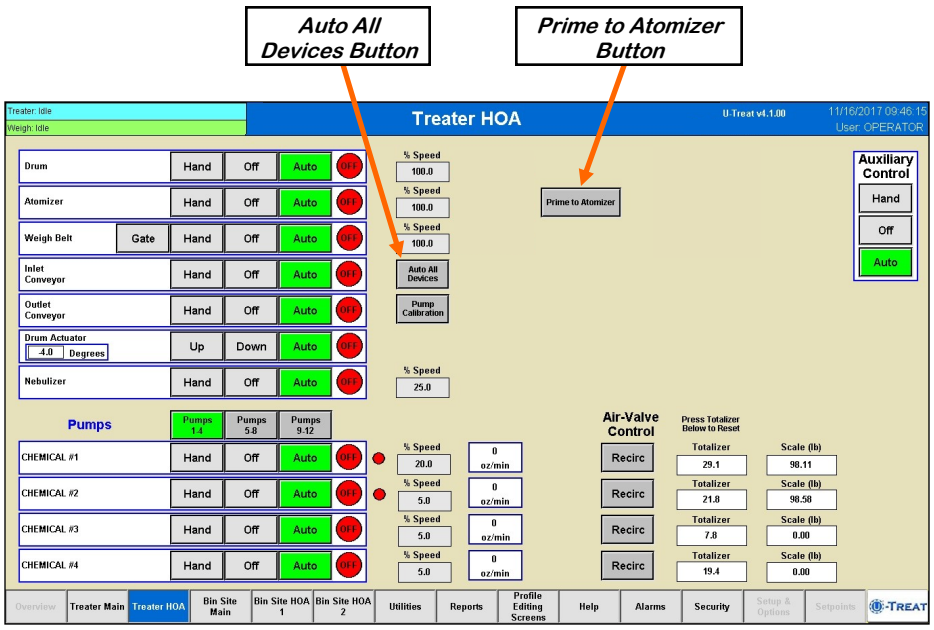
U-Treat v4.1 Quick Reference Sheet

Treater with Weigh Belt Seed Metering

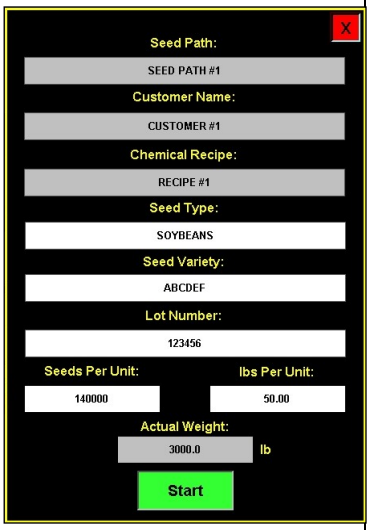
TD - 09 - 06 - 2009 **Revision: B**

TREATING SEED WITH WEIGHT BELT

1. From the Treater HOA screen, press the Auto All Devices button to place the Drum, Atomizer, Seed Wheel, Inlet Conveyor and Outlet Conveyor and all of the pumps in Auto.
2. Next, prime the chemical line to the atomizer. Ensure that the valve on each of the chemical attachment ports on the treater are in the correct position. Press and hold the Prime To Atomizer button. The atomizer will turn on and liquid will begin pumping up to the atomizer. When liquid reaches the atomizer release the Prime to Atomizer button.



3. Return to the main screen and press the Start Setup button. The Start screen appears. Press the gray buttons to change any fields such as customer, seed path, actual weight and chemical recipe for this run. Press Start to begin the run. The drum, atomizer, inlet conveyor and outlet conveyor will activate. The pump will turn on and re-circulate until it reaches the desired flow rate needed to match the target treating rate that was entered. The inlet conveyor will then begin dumping seed into the holding hopper for a few seconds before opening the slide gate. It is important to keep the seed gate and weigh belt completely full of seed to provide a full and continuous flow of seed to the inlet hopper when the slide gate is open.



4. When the pump's flow rate has been reached and seed is covering the proximity switch in the bottom of the seed holding hopper, the weigh belt will turn on and ramp up to full speed. Then the seed gate will open. As the belt detects weight and seed travels toward the end of the belt, the flow rate is detected and the target belt speed is adjusted to achieve the desired flow rate. When seed begins to flow off the belt the flow indicator becomes active. Then the air actuated 3-way valve will switch to process allowing treatment to begin pumping to the atomizer.
5. As the seed is being treated, the main screen will display the pounds per minute, the total pounds, and the liquid flow rate. If the system needs to be stopped for a moment because of a problem. The Pause button may be pressed to halt the process. When ready to begin again, press the Continue button.

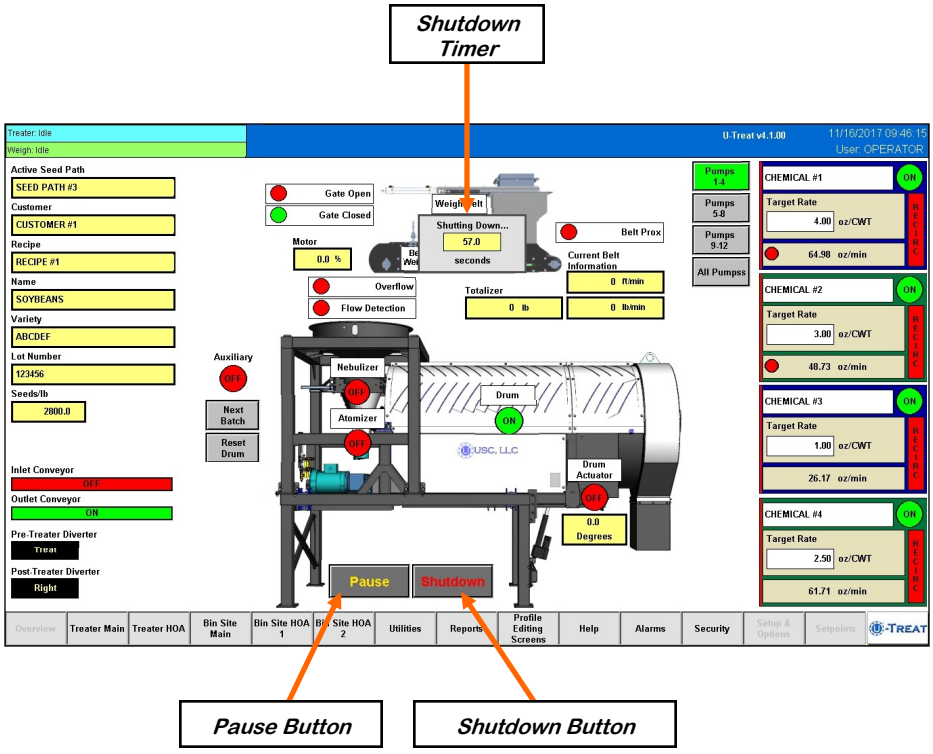
TREATING SEED WITH WEIGHT BELT

6. When the surge hopper is full the Hopper Full indicator light will come on and the inlet conveyor will shut off. The flow of seed into the surge hopper will begin again once seed is no longer present at the top proximity sensor in the hopper and the Inlet Conveyor Delay Restart time defined on the utilities has expired. This is done to ensure that seed will not overfill the hopper.

7. When all seed passes over the weigh belt, it will turn off and the pump will switch to re-circulate. When more seed is fed into the treater, the treating process will continue.

8. After all seed has been treated the weigh belt will shutdown automatically. The 3-way valve on the pump stand will switch to re-circulate. However, the atomizer, drum and outlet conveyor will still be running. Press the Shutdown button at the bottom of the screen and the shutdown timer appears and begins to count down the seconds left before complete shutdown. The operator decides how much time is adequate for all product to clear the drum and outlet conveyor. The time is entered on the utilities screen and may be adjusted whenever necessary.

When treating seed with a bin site, the shutdown process will occur automatically when the target weight has been met.



U-Treat v4.1 Quick Reference Sheet

Batch Weigh Hopper Bin Site

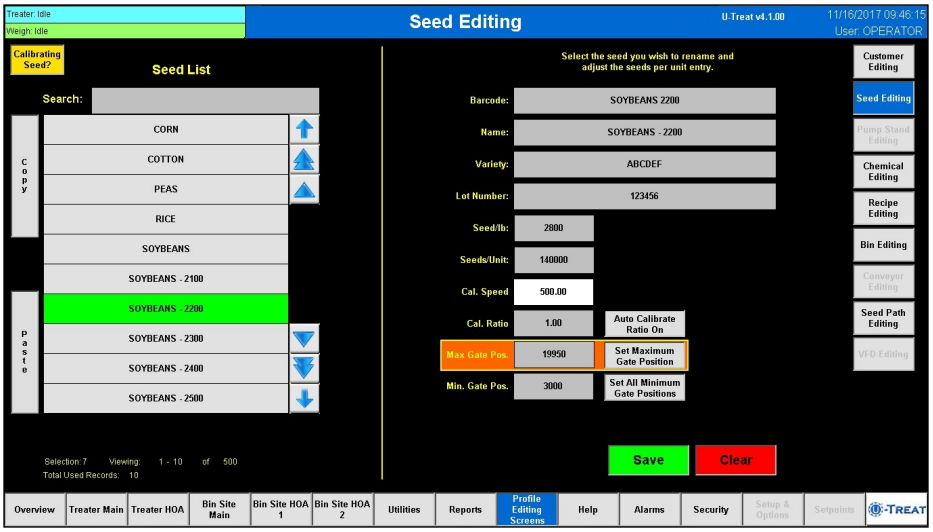
TD - 09 - 06 - 2009 **Revision: B**

LOADING SEED INTO BINS

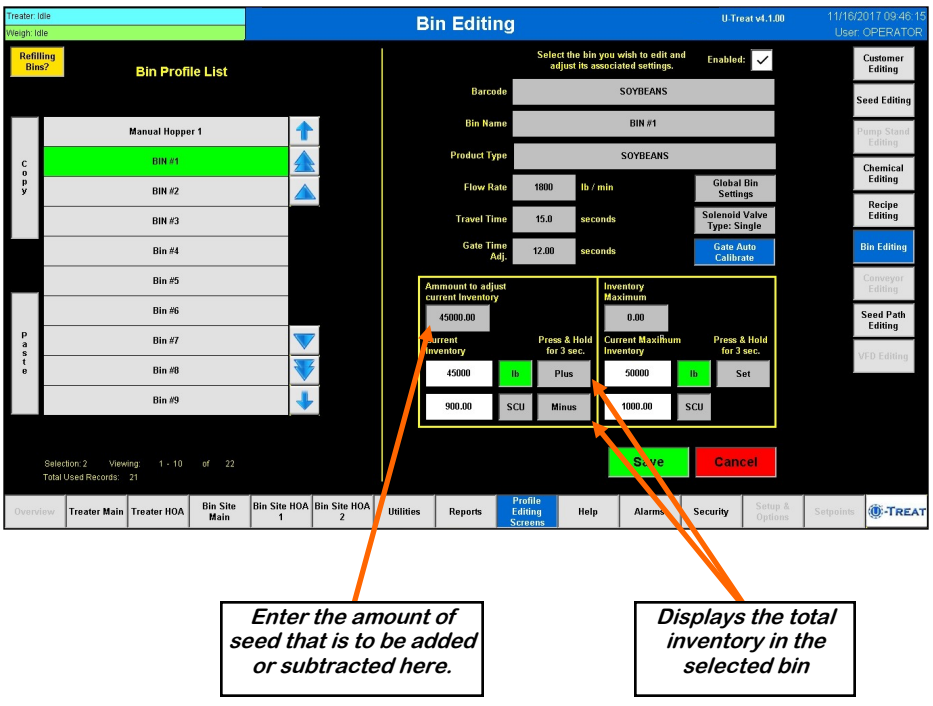
Before seed is pulled out of the bins and run through the batch hopper system, all the applicable information about the seed that was loaded into each individual bin must first be entered into the batch hopper system. If the same seed was loaded into multiple bins the same information still needs to be loaded into each bin separately.

The following is a list of steps to perform to enter the bin information for each bin once seed has been loaded into that bin:

1. Load the seed into the bin. If your treater has a Seed Wheel, take a seed sample for the cup weight of each bin at this time. Also, note the seed type, seed variety, lot number, seed per pound weight and total inventory weight of the seed that is loaded into the bin. The seed weight may be defined in either pounds, seed count units or seed weight units.



2. Press the Profile Editing Screens tab at the bottom of the screen.
3. Press the Seed Editing button and select the seed you are loading from the seed list. Scan in or manually enter the bar code, variety, lot number and seeds per pound. If it does not already exist, select a blank entry and enter a new name and the information. Once the information here is saved, it will automatically populate the barcode information on the bin editing page when the seed type is selected



4. Select the Bin Editing button on the right side of the screen and select the bin that seed was loaded into from the Bin Profile List.
5. Press the product type box a select the seed that was loaded from the popup screen.
6. Enter in the total weight of seed that was added to the bin into the Amount to Adjust Current Inventory box. Press and hold the Plus button for 3 seconds and the Current Inventory amount will be updated. The system will automatically subtract inventory after each run. Press the Save button when all the information has been entered. If it will not save the amount you have entered, check the inventory maximum amount defined in the box to the right. The system will not allow you to add an amount of seed that will bring the total current inventory to a number larger than the maximum inventory.

Enter the amount of seed that is to be added or subtracted here.

Displays the total inventory in the selected bin

USC Seed Treating Solutions®

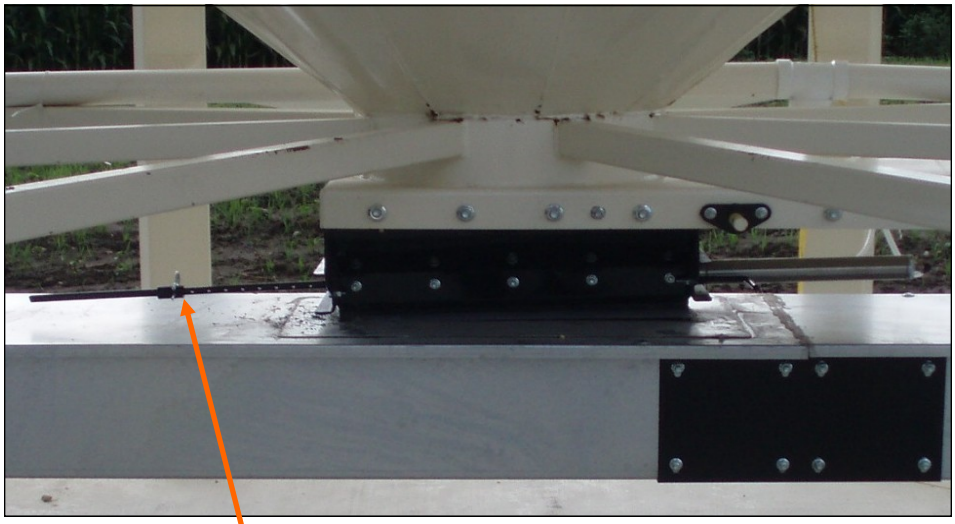
Batch Weigh Hopper Bin Site

TD - 09 - 06 - 2009 **Revision: B**

SETTING THE SEED FLOW RATE

The following is a list of steps for setting the seed flow rate. This must be completed before running the batch hopper system. Repeat steps 1 & 2 for each bin.

1. Set the manual gate on the bin to the fully open position. Once opened, this gate should be set in place and not moved throughout the entire season. If this gate is adjusted during a run or between runs then it will affect the calibration of the system and the system will need to be re-calibrated.
2. Set the stop for the air actuated slide gate on the bin. This stop controls how far the slide gate will open and the flow rate at which seed can exit the bin. To set the stop, adjust the position of the collar on the rod that exits the slide gate opposite of the air valve. Placing the collar closer to the slide gate will restrict flow and farther away from the slide gate will increase seed flow for the system. Once a collar location has been selected, use the hitch pin to lock the collar in place. If the stop is adjusted between runs then it will affect the calibration of the system and the system will need to be re-calibrated.
   It is recommended to initially place the collar closer to the slide gate and then move it farther away from the slide gate one hole at a time to increase the flow rate of the system. This will protect against overloading the underbin conveyor with seed.



Move the position of the collar along this rod to adjust the flow of seed through the bin slide gate.

3. Finally, set the position of the manual slide gate that is located under the weigh hopper. This gate will control the flow of seed out of the weigh hopper by restricting the size of the opening from the weigh hopper. The more open the gate is, the faster seed will exit the weigh hopper. To set this gate, simply loosen the three nuts on the gate. Then adjust the gate to the desired position, and retighten the nuts.

U-Treat v4.1 Quick Reference Sheet

Batch Weigh Hopper Bin Site

TD - 09 - 06 - 2009 **Revision: B**

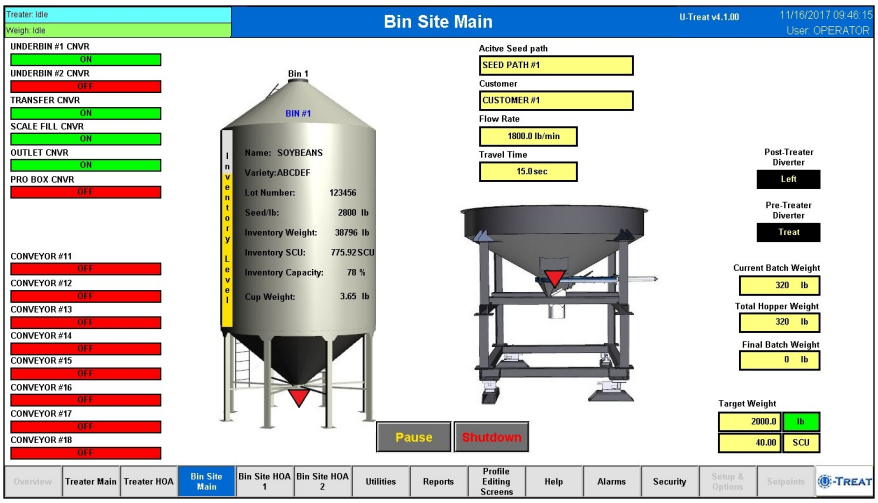
BATCH HOPPER CALIBRATION

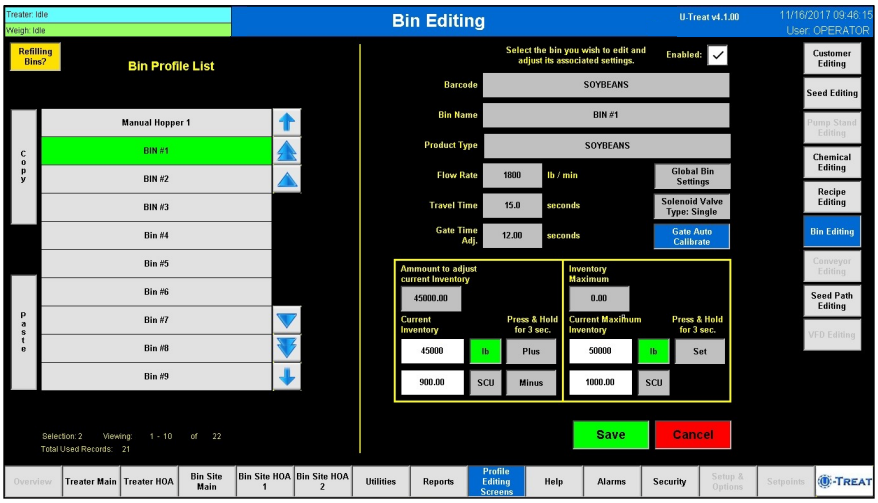
Once the initial calibration is established, the system continuously updates the seed flow rate. The calibration is based upon time and weight. The system first calculates the amount of time it takes for the seed to travel from the bin slide gate to the weigh hopper. This is called the travel time. Then the system calculates how long it takes to fill the weigh hopper. This allows the system to calculate the seed flow rate of pounds per minute. Finally, the system uses the travel time and seed flow rate to calculate the amount of seed in the conveyors at any given time. Once this weight is known, it will automatically close the bin gate at the appropriate time to reach the target weight of seed that the operator has entered.

Initial calibration procedure:

1. Set the bin collar in the fourth hole from the end of the rod in. This sets the Flow Rate at approximately 1200 pounds. Adjust as needed (each hole adjusts up or down by approximately 200 pounds). These figures are based on Soybeans.
2. From the main screen check the Flow Rate to verify it is at the default setting of 1800 lbs/min and the Travel Time is at it's default of 15.0 sec. Set your Target Weight at 2000 pounds. This Target Weight is recommended but not necessary depending on the setup. After the run, check to see if the Flow Rate and Travel Time have changed from the default settings. If they have the system has been successfully calibrated. Each bin must be individually calibrated. As long as there have been no pauses or alarms the system will re-calculate and update the flow rate display after the run is complete. For the Travel Time to update, there must be seed in the hopper before the bin slide gate closes

If you change the location of the bin collar or the bin runs out of seed before the Target Weight is reached, the system will need to be re-calibrated.





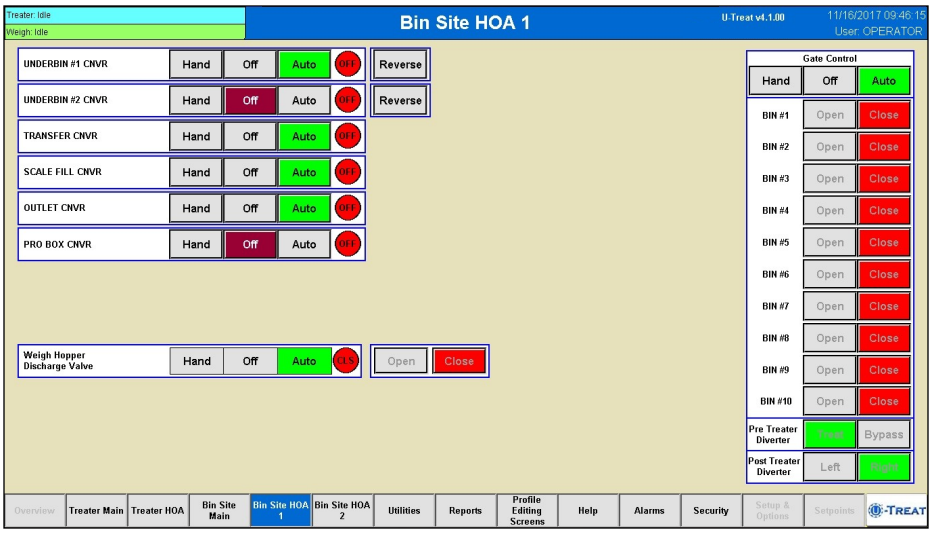
U-Treat v4.1 Quick Reference Sheet

Batch Weigh Hopper Bin Site

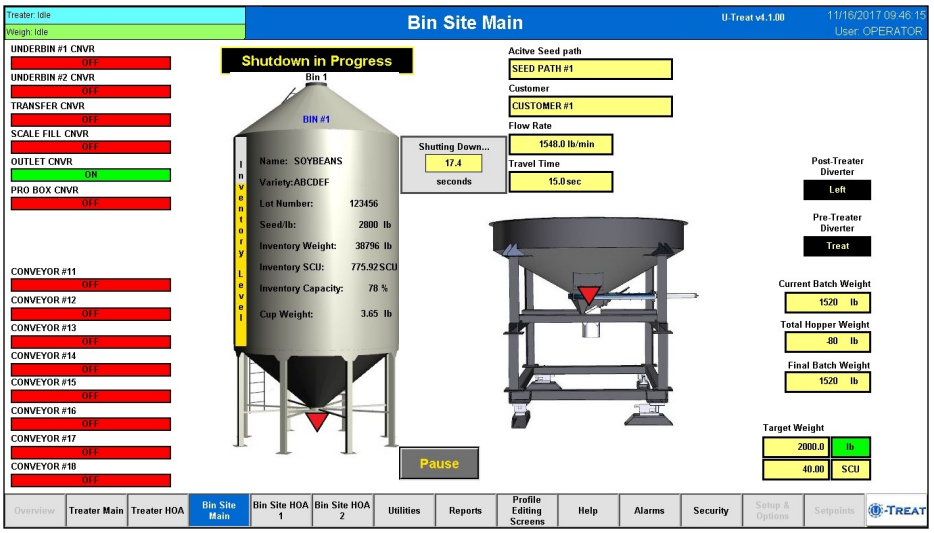
TD - 09 - 06 - 2009 **Revision: B**

CALLING IN SEED FROM BIN SITES

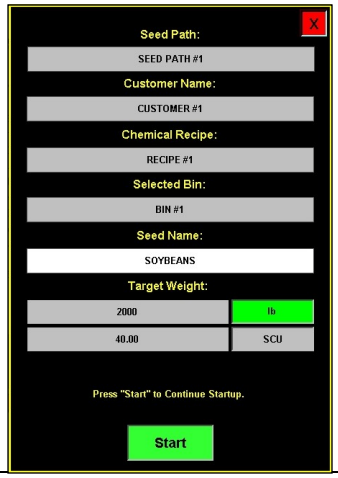
The following is a list of steps to use when using the batch hopper system to treat seed from a bin site.



1. Press the Bin Site HOA 1 button and place the Gate Control module and all necessary conveyors into the Auto mode of operation. Ensure that the diverter is in the appropriate position as well.
2. Press the Bin Site Main button and then press the Start Setup button.
3. Press the Seed Path button and select the seed path you wish to use for this run.
4. Press the Customer button at the top of the setup screen and select the current customer name by scrolling through the list to find it, or keying it in the Name Search box at the top.



5. If the enable recipe controls are active on the recipe screen, the Chemical Recipe button will be active and you may select one from this screen.
6. Press the Selected Bin button and select the bin you wish to pull seed from. The name for that bin will be displayed in the box below it.
7. Press the Target Weight button and enter the amount of weight that you wish to bring into the batch hopper on this run.
8. Press the Start button at the bottom of the startup screen. This toggles the button to Shutdown and activates the Pause button. The system will first turn on the outlet conveyor then scale fill, transfer conveyor (if applicable) and then the underbin conveyor. Once all required conveyors are running, the slide gate for the selected bin will open and seed will flow through the conveyors to the batch hopper.



9. As the batch hopper system is running, the main screen will display the total pounds of seed in the weight hopper, and the status of the conveyor motors.
10. The slide gate on the bin will automatically close once the target weight in seed passes through the gate. Once the gate closes, bin site message window will read exiting run. A popup will appear next to the hopper notifying the operator that the system is shutting down. Inside that window a display will count down the number of seconds left in the run. A banner will appear above the bin indicating that the shutdown is in progress. The system will then shutdown the conveyors in reverse order of startup. This will ensure the conveyors have an opportunity to clean out any product from them.

U-Treat v4.1 Quick Reference Sheet

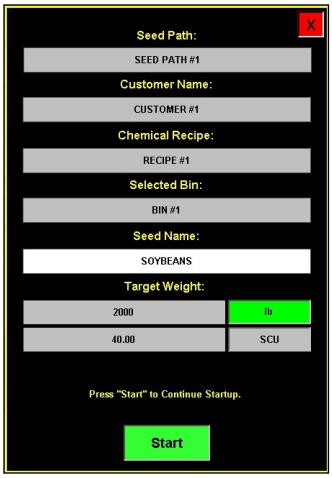
Batch Weigh Hopper Bin Site

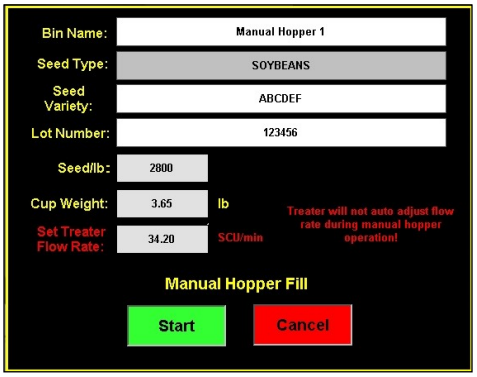
TD - 09 - 06 - 2009 **Revision: B**

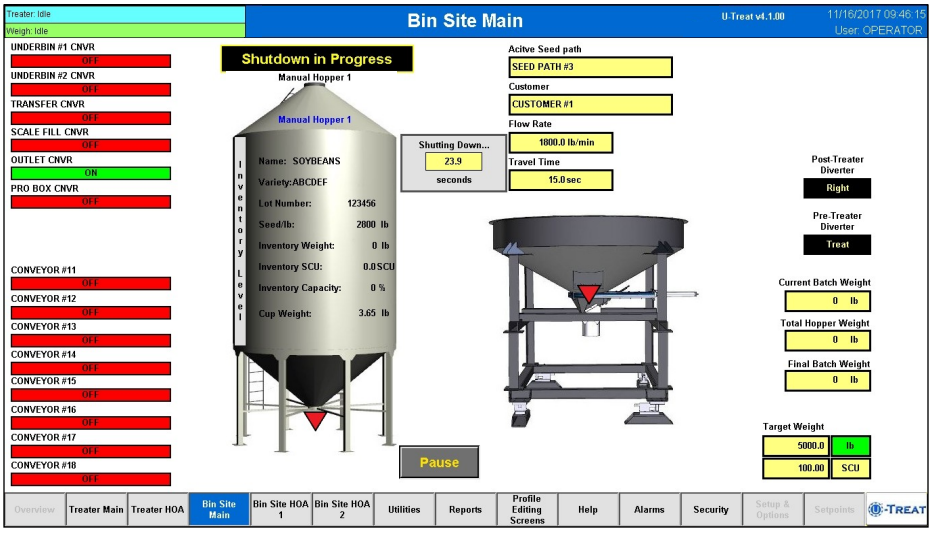
CALLING IN SEED FROM PRO BOXES

The following is a list of steps to use when using the batch hopper system to treat seed from a Pro Box.

1. Press the Bin Site HOA 1 button and place all necessary conveyors into the Auto mode of operation. Depending upon the setup of the equipment, some bin sites will require only the transfer conveyor or the scale fill conveyor to be in Auto mode and some sites will require the transfer, underbin and scale fill conveyors to all be in the Auto mode. Ensure that the diverter is in the appropriate position as well.
2. Press the Bin Site Main button and then press the Start Setup button.
3. Press the Seed Path button and select the seed path you wish to use for this run.
4. Press the Customer button and select the current customer name by scrolling through the list to find it, or keying it in the Name Search box at the top.
5. If the enable recipe controls are active on the recipe screen. The Chemical Recipe button will be active and you may select one from this screen.
6. Press the Selected Bin button and select the Manual Hopper from the listing.
7. There is no need to specify a target rate as the system will continue to treat until all of the seed in the box has gone through.
8. Press the Start button and the manual hopper popup window appears.
9. Press the Seed Type button and select one from the listing. The operator may also define the flow rate by pressing the Set Treater Flow Rate button and entering a number. His number will either be displayed in pounds or SCU's per minute depending on the information in the seed profile.
10. Press the Start button at the bottom of the startup screen. This toggles the button to Shutdown and activates the Pause button. The system will first turn on the outlet conveyor then scale fill, transfer conveyor (if applicable) and then the underbin conveyor (if applicable). Once all needed conveyors are running, open the slide gate on the bottom of the pro box and seed will flow through the conveyors to the treater.
11. As the batch hopper system is running, the main screen will display the total pounds of seed in the weigh hopper. If the system needs to be stopped for a moment because of a problem, the Pause button may be pressed to halt the process. When ready to begin again, press the Continue button.
12. Once all of the seed has passed from the manual hopper, through the conveyors and through the weigh hoppers, press the Shutdown button. At this point, the conveyors will shutdown in reverse order of startup.
13. The system will automatically print the report for the run from the scale head printer.







USC Seed Treating Solutions®

U-Treat v4.1 Quick Reference Sheet

Tri-Flo® Bin Site

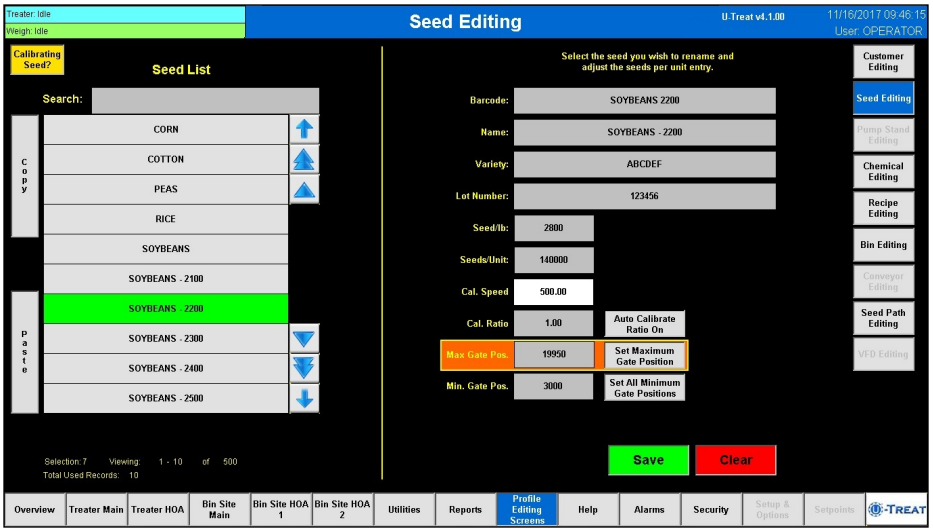
TD - 09 - 06 - 2009 **Revision: B**

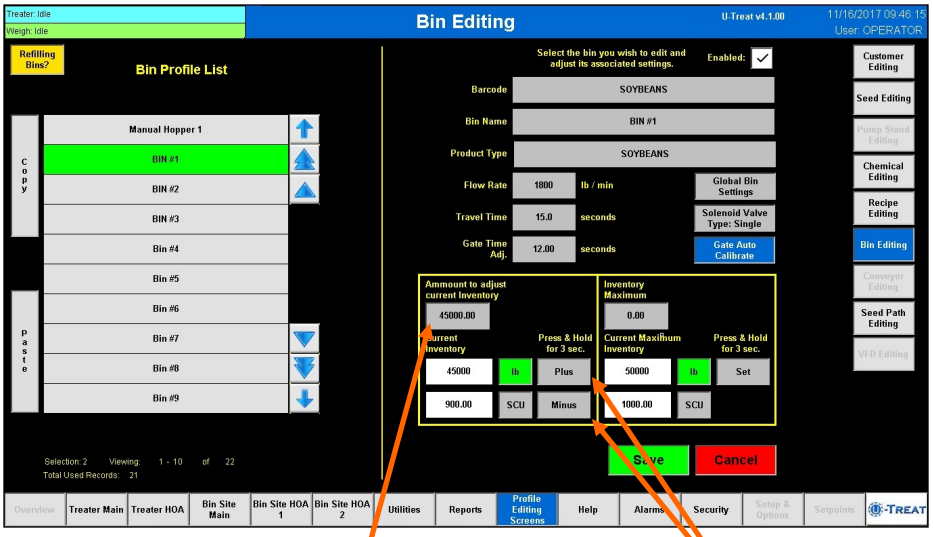
LOADING SEED INTO BINS

Before seed is pulled out of the bins and run through the Tri-Flo® system, all of the applicable information about the seed that was loaded into each individual bin must first be entered into the Tri-Flo® system. If the same seed was loaded into multiple bins the same information still needs to be loaded into each bin separately.

The following is a list of steps to perform to enter the bin information for each bin once seed has been loaded into that bin:

1. Load the seed into the bin. Take a seed sample for the cup weight of each bin at this time. Also, note the seed type, seed variety, lot number, seed per pound weight and total inventory weight of the seed that is loaded into the bin. The seed weight may be defined in either pounds, seed count units or seed weight units.
2. Press the Profile Editing Screens button at the bottom of the screen.
3. Press the Seed Editing button and select the seed you are loading from the seed list. Scan in or manually enter the bar code, variety, lot number and seeds per pound. If it does not already exist, select a blank entry and enter a new name and the information. Once the information here is saved, it will automatically populate the barcode information on the bin editing page when the seed type is selected.
4. Select the Bin Editing button on the right side of the screen and select the bin that seed was loaded into from the Bin Profile List.
5. Press the Product Type box and select the seed that was loaded from the popup screen.
6. Enter in the total weight of seed that was added to the bin into the Amount to Adjust Current Inventory box. Press and hold the Plus button for 3 seconds and the Current Inventory amount will be updated. The system will automatically subtract inventory after each run. Press the Save button when all the information has been entered. If it will not save the amount you have entered, check the inventory maximum amount defined in the box to the right. The system will not allow you to add an amount of seed that will bring the total current inventory to a number larger than the maximum inventory.





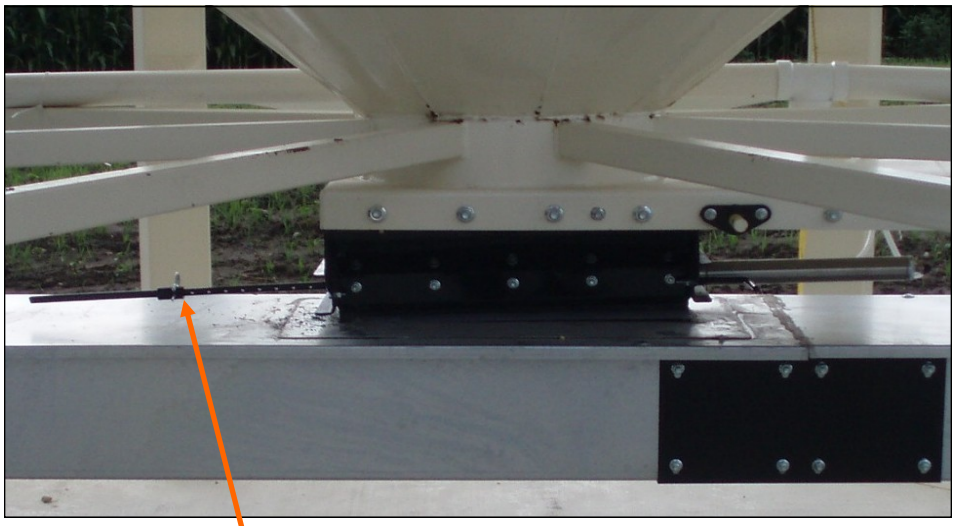
Enter the amount of seed that is to be added or subtracted here.

Displays the total inventory in the selected bin

SETTING THE SEED FLOW RATE

The following is a list of steps for setting the seed flow rate. This must be completed before running the Tri - Flo ® system. Repeat steps 1 & 2 for each bin.

1. Set the manual gate on the bin to the fully open position. Once opened, this gate should be set in place and not moved throughout the entire season. If this gate is adjusted during a run or between runs then it will affect the calibration of the system and the system will need to be re-calibrated.
2. Set the stop for the air actuated slide gate on the bin. This stop controls how far the slide gate will open and the flow rate at which seed can exit the bin. To set the stop, adjust the position of the collar on the rod that exits the slide gate opposite of the air valve. Placing the collar closer to the slide gate will restrict flow and farther away from the slide gate will increase seed flow for the system. Once a collar location has been selected, use the hitch pin to lock the collar in place. If the stop is adjusted between runs then it will affect the calibration of the system and the system will need to be re-calibrated.
   It is recommended to initially place the collar closer to the slide gate and then move it farther away from the slide gate one hole at a time to increase the flow rate of the system. This will protect against overloading the underbin conveyor with seed.



Move the position of the collar along this rod to adjust the flow of seed through the bin slide gate.

A minimum of 2000 pounds is recommended but not necessarily needed to calibrate flow rate for the first time. The system needs roughly that amount to enter it's real time calibration (depending on the distance of the bin, it may be far less) but at the end of any alarm/pause free run of seed the system will do a calibration. If the run is long enough, then no initial calibration is needed as the system will set it's calibration during the run. If running a small batch there may not be enough seed run to have the flow rate updating in real time during the run. As long as there have been no pauses or alarms the system will re-calculate and update the flow rate display after the run is complete.

U-Treat v4.1 Quick Reference Sheet

Tri-Flo® Bin Site

TD - 09 - 06 - 2009 **Revision: B**

Tri-Flo® CALIBRATION

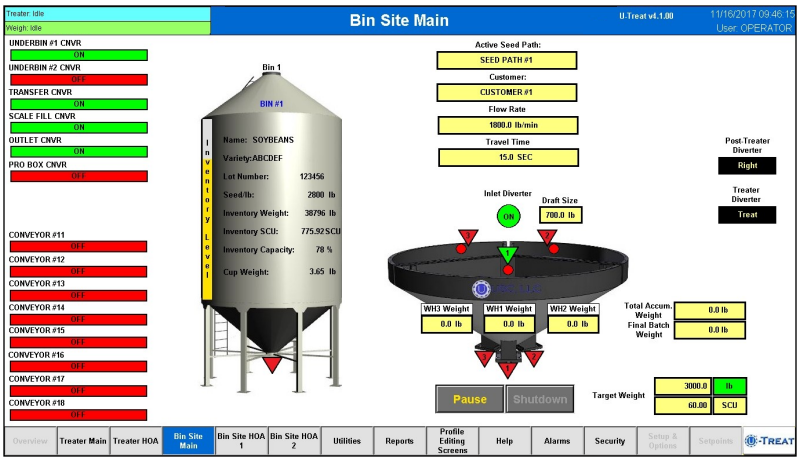
Once the initial calibration is established, the system continuously updates the seed flow rate. The calibration is based upon time and weight. The system first calculates the amount of time it takes for the seed to travel from the bin slide gate to the first Tri - Flo® weigh hopper. This is called the travel time. Then the system calculates how long it takes to fill the first weigh hopper. This allows the system to calculate the seed flow rate of pounds per minute. Finally, the system uses the travel time and seed flow rate to calculate the amount of seed in the conveyors at any given time. Once this weight is known, it will automatically close the bin gate at the appropriate time to reach the target weight of seed that the operator has entered.

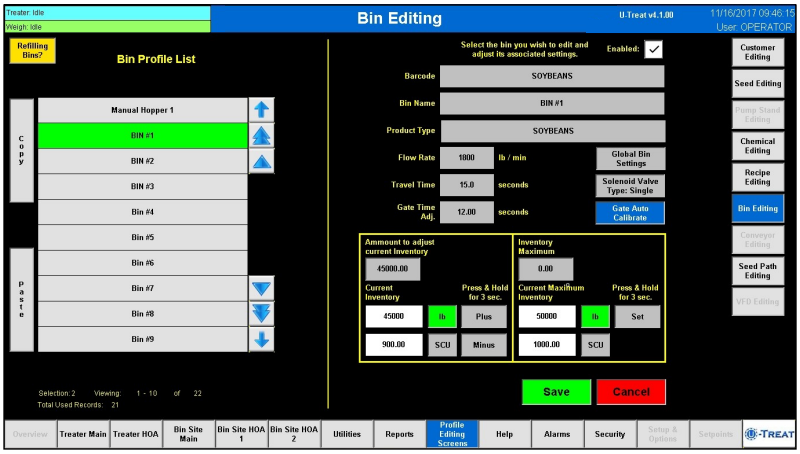
Initial calibration procedure:

1. Set the bin collar in the fourth hole from the end of the rod in. This sets the Flow Rate at approximately 1200 pounds. Adjust as needed (each hole adjusts up or down by approximately 200 pounds). These figures are based on Soybeans.

2. From the main screen check the Flow Rate to verify it is at the default setting of 1800 lbs/min and the Travel Time is at it's default of 15.0 sec. Then set your Target Weight at 2000 pounds. At the end of the run the Final Batch Weight must be 1500 pounds. These values are recommended but not necessary depending on the setup. For the system to be able to record the calibration the first two Tri - Flo® hoppers must be weighed full and the third is in the process of filling with no alarm faults. After the run, check to see if the Flow Rate and Travel Time have changed from the default settings. If they have the system has been successfully calibrated. Each bin must be individually calibrated. If running a small batch there may not be enough seed run to have the flow rate updating in real time during the run. As long as there have been no pauses or alarms the system will re-calculate and update the flow rate display after the run is complete.

If you change the location of the bin collar or the bin runs out of seed before the Target Weight is reached the system will need to be re-calibrated.





USC® Seed Treating Solutions®

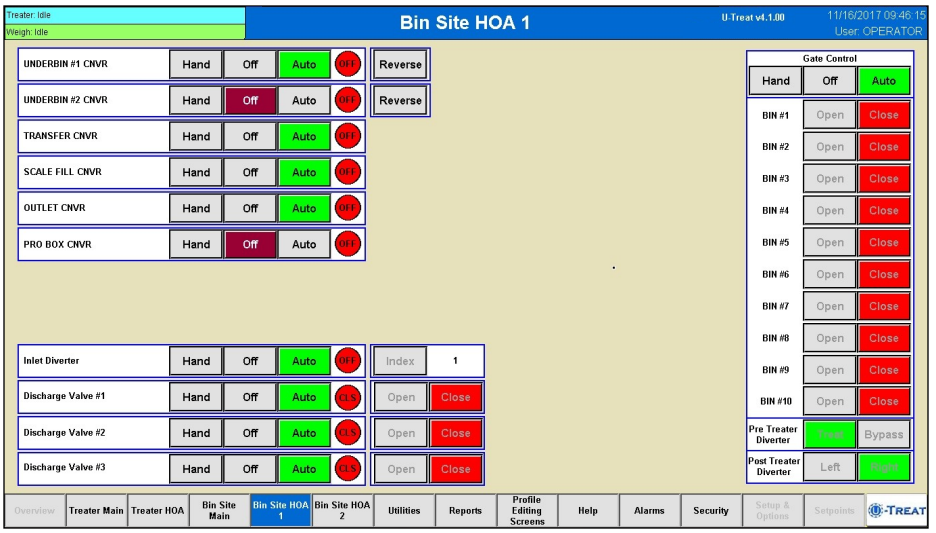
U-Treat v4.1 Quick Reference Sheet

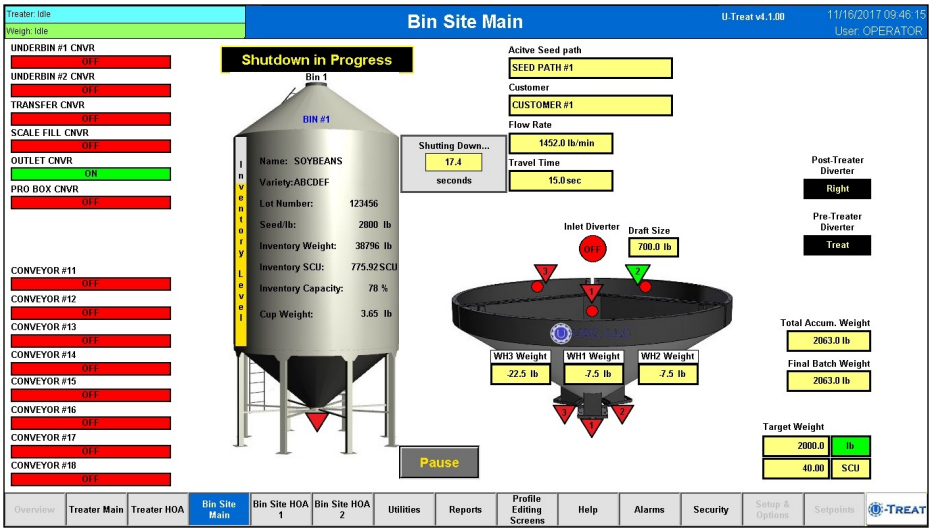
Tri-Flo® Bin Site

TD - 09 - 06 - 2009 **Revision: B**

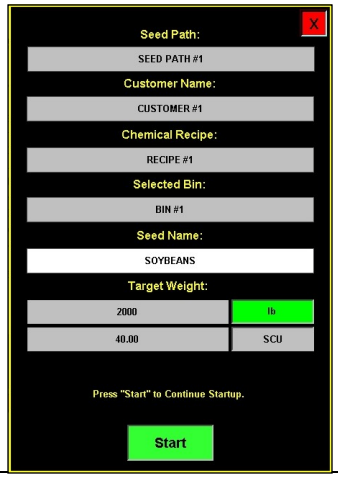
CALLING IN SEED FROM BIN SITES

The following is a list of steps to use when using the batch hopper system to treat seed from a bin site.





1. Press the Bin Site HOA 1 button and place the Gate Control module and all necessary conveyors into the Auto mode of operation. Ensure that the diverter is in the appropriate position as well.
2. Press the Bin Site Main button and then press the Start Setup button.
3. Press the Seed Path button and select the seed path you wish to use for this run.
4. Press the Customer button at the top of the setup screen and select the current customer name by scrolling through the list to find it, or keying it in the Name Search box at the top.
5. If the enable recipe controls are active on the recipe screen, the Chemical Recipe button will be active and you may select one from this screen.
6. Press the Selected Bin button and select the bin you wish to pull seed from. The name for that bin will be displayed in the box below it.
7. Press the Target Weight button and enter the amount of weight that you wish to bring into the batch hopper on this run.
8. Press the Start button at the bottom of the startup screen. This toggles the button to Shutdown and activates the Pause button. The system will first turn on the outlet conveyor then scale fill, transfer conveyor (if applicable) and then the underbin conveyor. Once all required conveyors are running, the slide gate for the selected bin will open and seed will flow through the conveyors to the batch hopper.



9. As the Tri - Flo ® system is running, the main screen will display the total pounds of seed in each of the three weight hoppers and the status of the conveyor motors.
10. The slide gate on the bin will automatically close once the target weight in seed passes through the gate. Once the gate closes, bin site message window will read exiting run. A popup will appear next to the hopper notifying the operator that the system is shutting down. Inside that window a display will count down the number of seconds left in the run. A banner will appear above the bin indicating that the shutdown is in progress. The system will then shutdown the conveyors in reverse order of startup. This will ensure the conveyors have an opportunity to clean out any product from them.

U-Treat v4.1 Quick Reference Sheet

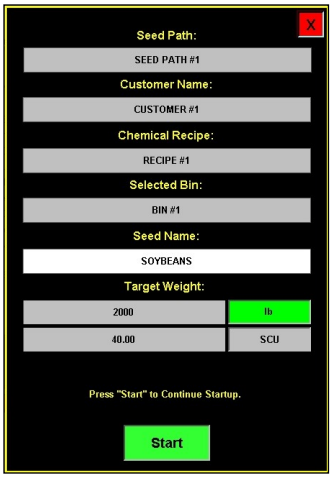
Tri-Flo® Bin Site

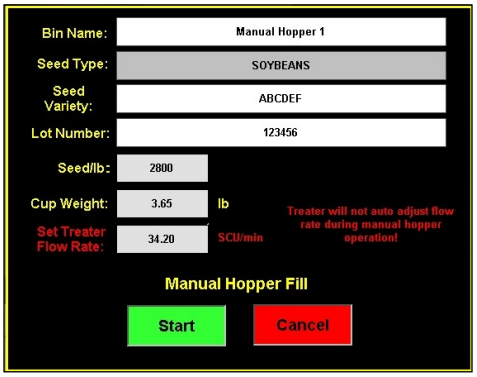
TD - 09 - 06 - 2009 **Revision: B**

CALLING IN SEED FROM PRO BOXES

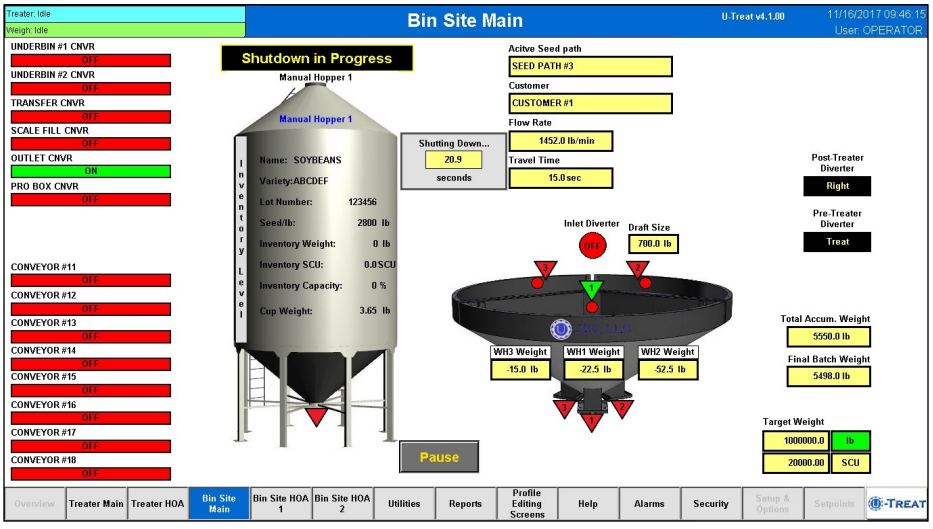
The following is a list of steps to use when using the batch hopper system to treat seed from a Pro Box.

1. Press the Bin Site HOA 1 button and place all necessary conveyors into the Auto mode of operation. Depending upon the setup of the equipment, some bin sites will require only the transfer conveyor or the scale fill conveyor to be in Auto mode and some sites will require the transfer, underbin and scale fill conveyors to all be in the Auto mode. Ensure that the diverter is in the appropriate position as well.
2. Press the Bin Site Main button and then press the Start Setup button.
3. Press the Seed Path button and select the seed path you wish to use for this run.
4. Press the Customer button and select the current customer name by scrolling through the list to find it, or keying it in the Name Search box at the top.
5. If the enable recipe controls are active on the recipe screen. The Chemical Recipe button will be active and you may select one from this screen.
6. Press the Selected Bin button and select the Manual Hopper from the listing.
7. There is no need to specify a target rate as the system will continue to treat until all of the seed in the box has gone through.
8. Press the Start button and the manual hopper popup window appears.
9. Press the Seed Type button and select one from the listing. The operator may also define the flow rate by pressing the Set Treater Flow Rate button and entering a number. His number will either be displayed in pounds or SCU's per minute depending on the information in the seed profile.
10. Press the Start button at the bottom of the startup screen. This toggles the button to Shutdown and activates the Pause button. The system will first turn on the outlet conveyor then scale fill, transfer conveyor (if applicable) and then the underbin conveyor (if applicable). Once all needed conveyors are running, open the slide gate on the bottom of the pro box and seed will flow through the conveyors to the treater.





8. As the Tri - Flo ® system is running, the main screen will display the total pounds of seed in each of the three weight hoppers, and the status of the conveyor motors.
10. If the system needs to be stopped for a moment because of a problem, the Pause button may be pressed to halt the process. When ready to begin again, press the Continue button.
11. Once all of the seed has passed from the manual hopper, through the conveyors and through the weigh hoppers, press the Shutdown button. At this point, the conveyors will shutdown in reverse order of startup.
12. The system will automatically print the report for the run from the scale head printer.



USC Seed Treating Solutions®