



TallyTrak
App for Nursery and Greenhouse Inventory Management



InstaCaliper™ Semi-Automated Caliper System for Commercial Nurseries

User Manual

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For the latest information, please access

https://portal.2ndsightbio.com/help
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GENERAL INFORMATION

Introduction

Thank you for purchasing the TallyTrak application. The TallyTrak app simplifies nursery and greenhouse inventory management by totalling plant counts. With TallyTrak, you can count and sort data with the RHC or with many Android-based devices.

You may also have purchased InstaCaliper™. InstaCaliper is a sensor-driven caliper head that, in conjunction with the TallyTrak application, eases the burden of measuring tree and other plant stock. InstaCaliper measures plant diameters or circumferences.

This manual provides the information you need to safely and optimally operate the InstaCaliper. It also provides information about using the TallyTrak application.

For your safety, it is critical that you carefully read and follow all warnings and cautions in this manual. InstaCaliper and the TallyTrak application must only be used in the manner intended. Any other use of the InstaCaliper and TallyTrak may cause damage to the device and harm to the user.

The following signs call attention to special warnings and cautions.



CAUTION: Failure to follow these instructions constitutes a hazard to the operator.



WARNING: Failure to follow these instructions constitutes a hazard to the device.



NOTE: Important note.

System Requirements

Ruggedized Handheld Computer (TallyTrak/InstaCaliper)

• CipherLab RS36 ruggedized handheld computer.

• Display: 5.5" HD+ 720 (W) x 1440 (H), Transmissive IPS LCD, outdoor visibility

optically bonded Touch Panel

Dimensions: 165 x 76.8 x 17.9 mmWeight: 288 g (with battery)

• Power: Replaceable and rechargeable 3.85V, Li-ion 4000mAh

Operating Temperature: AC Mode: -4°F to 140°F (-20°C to 60°C), Battery Mode: 14°F to 122°F (-10°C to 50°C (Battery mode)

• Humidity: 10% ~ 95% RH non-condensing

Web Portal (TallyTrak/InstaCaliper)

- PC Computer
- Internet Access

Caliper Heads (InstaCaliper)

50mm(2") head

• Dimensions: 8.3" x 6.0" x 1.3" in (210 x 152 x 32 mm)

Weight: 0.6 lbs. (0.27 kg)Power: 5V DC, 125 mA

100mm (4") head

• Dimensions: 8.3" x 6.0" x 1.3" in (210 x 152 x 32 mm)

Weight: 0.6 lbs. (0.27 kg)Power: 5V DC, 125 mA

150mm (6") head

• Dimensions: 11.1" x 8.0" x 1.3" in (210 x 152 x 32 mm)

Weight: 0.7 lbs. (0.27 kg)Power: 5V DC, 125 mA

TERMS AND DEFINITIONS

Term	Definition
Android- based Device	Device using that runs on the Android operating system (OS) developed by Google
Arm Support	Attachment that connects the Ruggedized Handheld Computer (RHC) to the Caliper Head
Caliper Head	U-Shaped component that uses sensors to calculate an object's diameter
List	User-created data category subservient to a Task. "Variety" and "Location" are examples of List names. See Figure 1.
List Item	User-created data class subservient to a List. A List can contain any number of List Items. "Juniper" and "Pine" are examples of List Items that might appear under the List "Variety." See Figure 1.
Ruggedized Handheld Computer or "RHC"	A handheld, waterproof, impact-resistant computer that can be loaded with 2 nd Sight applications.
Task	User-created data category. Tasks can be divided into up to five Lists that are recorded along with each measurement. "Evergreens" is an example of a Task name. See Figure 1.
Web Portal	Secure website where the customer manages InstaCaliper and TallyTrak settings and data. Access the Web Portal by clicking: http://portal.2ndsightbio.com

TALLYTRAK & THE WEB PORTAL

Getting Started

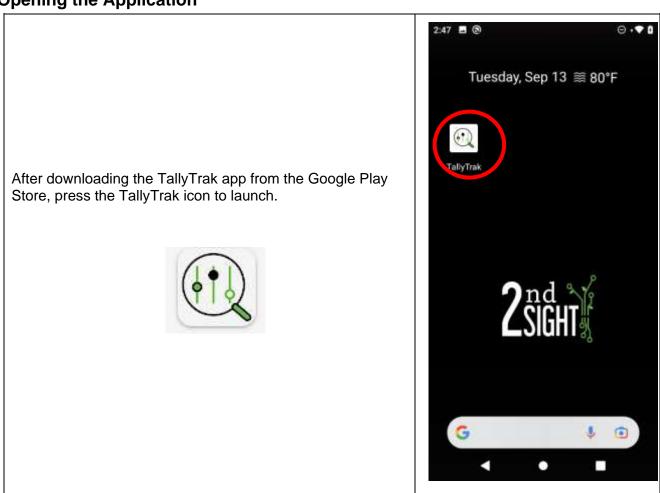
Downloading the TallyTrak App for InstaCaliper

To record measurements, count or sort information with TallyTrak, you will need to install the TallyTrak app, which you can find in Google Play.

Refer to the "Downloading 2nd Sight Apps" section of the *RHC User Manual* (found in **Resources** → **Help Forum**) to create a Google Play account and download the TallyTrak/InstaCaliper apps from the Google Play Store.

If you need further assistance, please contact 2nd Sight at <u>info@2ndsightbio.com</u> or 509-381-2112.

Opening the Application



Overview of Application Functions

When you are in the TallyTrak app, you can use the different functions by touching the icons at the bottom of the screen. Here is an explanation of the icons:

Icon	Name	Function
††↓ Tally	Tally	This function allows you to count plants using a measurement range (e.g., 0-0.5", 0.5-1", etc.) and to attach information to the count (e.g., plant variety, row, block, grade, etc.)
Sort	Sort	This function gives you the ability to sort items of a certain measurement by pertinent information (e.g., variety, grade, etc.)
Measure	InstaCaliper	This function allows you to enter plant measurements and to attach information (e.g., variety, grade, row, etc.) to the measurement data.
Sync	Synchronize or "sync"	This function sends information between the field device and the web portal, where the you can run reports regarding plant inventory
Config	Configure or "Config"	This function allows you to configure the device to your operation.

The Web Portal

The Web Portal is the control center for both the InstaCaliper and TallyTrak apps. To learn how to use the Web Portal with these apps consult the **Web Portal User Manual** (found in **Resources** → **Help Forum**).

When you collect measurement and inventory data using the RHC or another Android-based device, you will be able to see the data on your Web Portal account. Access the Web Portal by clicking on the link: http://portal.2ndsightbio.com, or by visiting: www.2ndsightbio.com and logging into your account.

Syncing Information

Communication between TallyTrak and the Web Portal occurs when the Portal is synchronized (or synced) with the data collection device (RHC or Android-based device). Syncing pushes information and data back and forth between the two. To sync data, both the Web Portal and the data collection device **must** have <u>internet access</u>.

You will start by creating Tasks (e.g., "Evergreens"), Lists (e.g., Variety, Block, Row, Employee, Grade), and List Items (entries under each List) in your Web Portal account (see *Web Portal User Manual* (found in **Resources** → **Help Forum**)) so that you can organize information in a way that fits your business needs.

Once you create Tasks, Lists, and List Items, you must sync the Web Portal to the data collection device. Syncing loads information categories onto the app and allows you to begin using it.

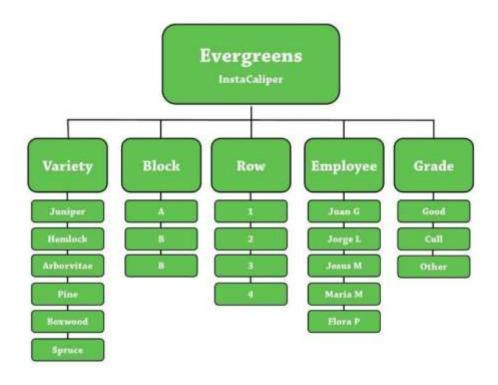
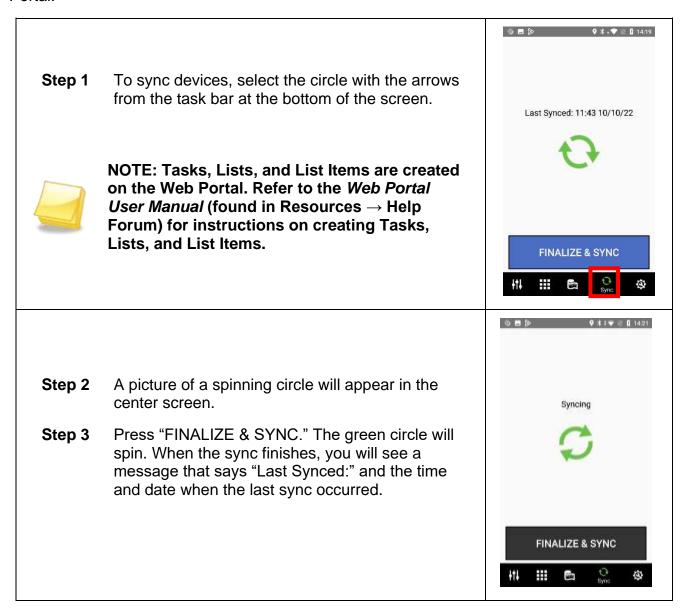


Figure 1

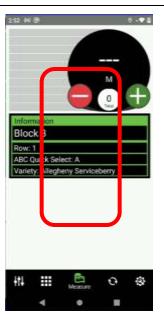
After you have measured or counted inventory, you will again need to sync the data collection device with the Web Portal again to push data to the Web Portal. Once the data has been uploaded to the Portal, you will be able to see your field measurements and counts on the Web Portal.



Changing the Task

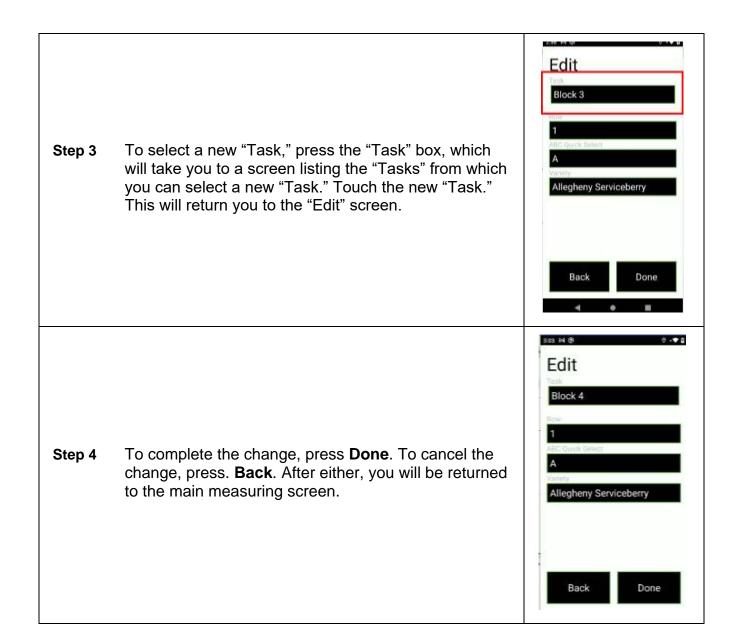
If you've created multiple measuring "Tasks" on the Web Portal and have synced the Web Portal with your handheld device (see The Web Portal), you can easily switch between Tasks.

Step 1 On any screen, press anywhere in the "Information" box.



Step 2 An "Edit" screen will appear. Here, you can change the "Task," and any "List Item" that appears here by touching the box containing the information.





Changing List Information

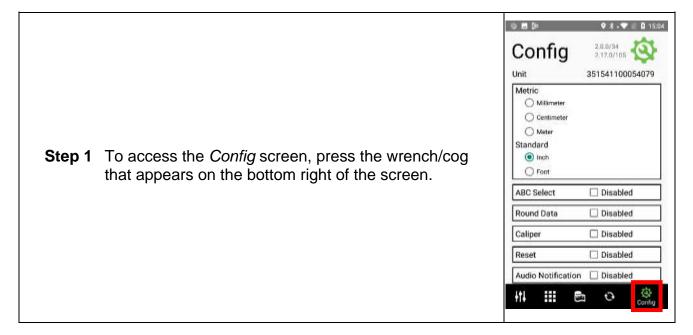
You may need to change the information associated with a List (i.e., a List Item). Remember, each measuring Task can have up to five Lists of information with any number of List Items. To change information related to Lists, follow the instructions for Changing the Task.

SETTING UP TALLYTRAK

Once you have synced the Web Portal and your device is loaded with your Tasks, Lists, and List Items, you will want to configure the device for your use.

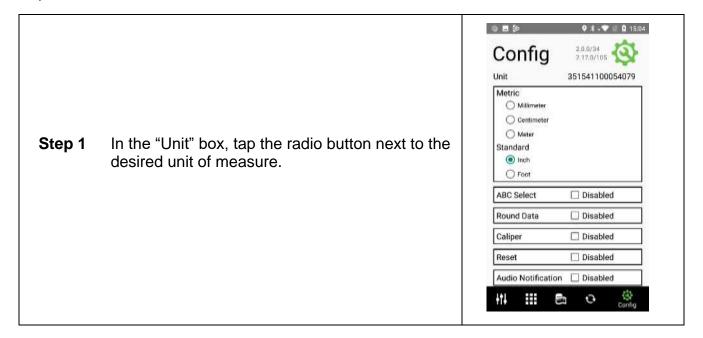
The "Config" Screen

The Config screen is where you set parameters for the data collection device.



Unit of Measure

In *Config*, you can select or change the unit of measure that the app displays. You can choose metric measurements (millimeter, centimeter, or meter) or standard measurements (inch or foot).



ABC Select

"ABC Select" allows you to quickly grade your nursery stock. <u>Please note that "ABC Select"</u> must be a List associated with the Task you will use on your device, see **Web Portal User Manual** (found in **Resources** → **Help Forum**).

Choose the box next to "ABC Select." The box will show a check mark and turn blue. The word "Disabled" will change to "Enabled."



Once you enable "ABC Select," you will see "Return State" with three letters, A, B, and C, below.

Return State

Enabling "Return State" controls the grade to which the app will return after an entry.

For example, if "Return State" is enabled, and the letter "A" is selected, you can make an entry with a "B" or "C" grade and enter. Once the "C" grade is logged, the app will default to the "A" grade and be ready for the next entry.

This is useful if you know that the majority of your inventory will be a single grade.

Round Data

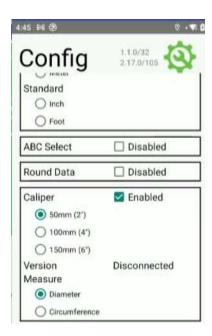
Available only when <u>Inch</u> has been selected as the unit of measure in the *Config* screen. When "Round Data" is enabled, the app displays decimal measurements as a fractional value.



Caliper (InstaCaliper)

Setting Caliper Size

To use InstaCaliper, you will need to plug the RHC (or Android-based device) into a caliper head and enable "Caliper" by selecting the box next to "Caliper." When enabled, the box will turn blue, will have a check mark inside, and the word "Enabled" will appear.



Once "Caliper" is enabled, you will need to select the caliper size that you will be using with the TallyTrak app.

2nd Sight's InstaCaliper comes with three sizes of caliper heads: 50mm (2"), 100mm (4"), and 150mm (6"). Choose the correct caliper head size by pressing the radio button next to the size caliper head you will be using with the app.

NOTE: 2nd Sight engineers determined the default offsets. 2nd Sight recommends testing the 50mm and 150mm caliper head for accuracy using calibrated dowels. If the 50mm or 150mm heads do not appear to be measuring the calibrated dowels accurately, please contact 2nd Sight at **509-381-2112**.

Measure

The caliper can measure either the plant's diameter or circumference. By default, InstaCaliper measures diameter. Enabling InstaCaliper **Measure**—**Circumference** displays and saves tree circumference measurements rather than diameter measurements.

To measure circumference:

- 1. Connect the RHC or Android-based device to the caliper head.
- 2. In the Config screen, enable the caliper.
- 3. Choose the size caliper head you will be using: 50mm (2"), 100mm (4"), or 150mm (6") by clicking on the radio button next to the head size. The chosen circle will turn blue.
- 4. Choose "Circumference" under <u>Measure</u> by pressing the radio button next to the word "Circumference."

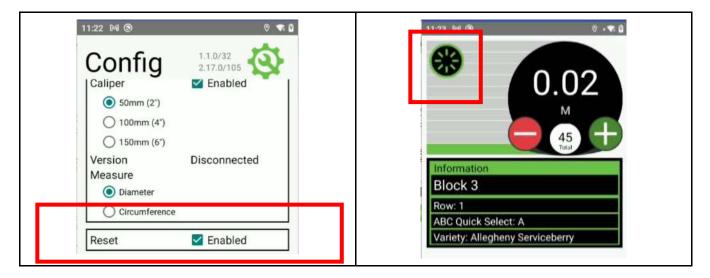


Reset

If, while using the TallyTrak app, you foresee a need to reset values to zero (e.g., at the end of rows), you will need to enable the "Reset" function in the *Config* screen.

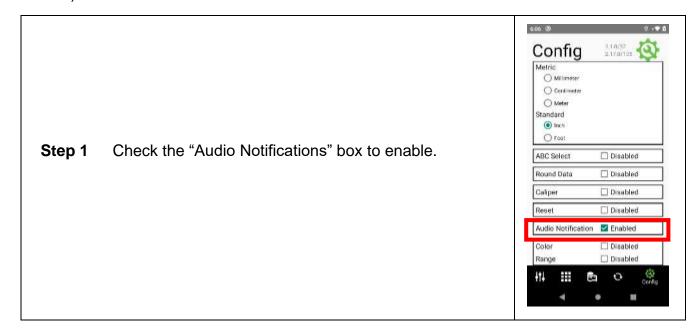
If the "Reset" function has been enabled, a spoked circle will appear in the upper left or right corner of the InstaCaliper and TallyTrak screens.

To reset, push the spoked circle. A screen will appear that says "Commit & Reset." Choose "Yes" to reset and return to the measuring screen or "No" to simply return to the measuring screen.



Audio Notifications

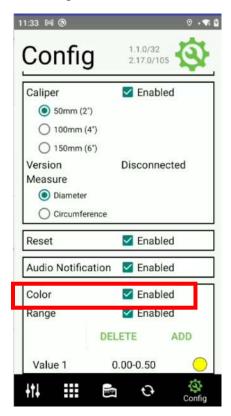
TallyTrak allows you to hear audio notifications regarding data entry. When "Audio Notifications" is enabled, you will hear the unit of measurement (or color if "Color Mode" is enabled).



Color

Enabling color allows you to use color as a visual/audio counting cue in the TallyTrak app, reducing the possibility of error.

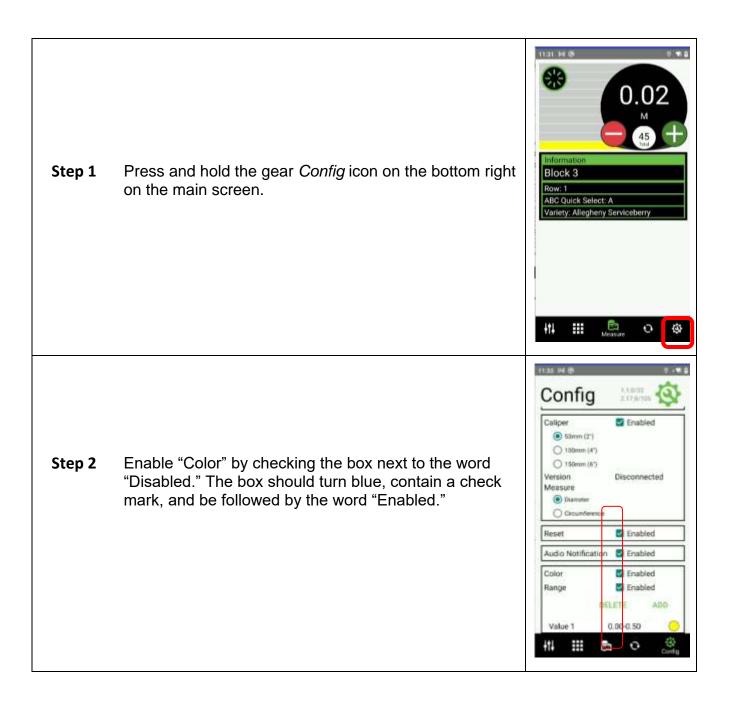
To add colors, click on the box next to the word "Disabled." The box will turn blue, a check mark will appear, and the word will change to "Enabled."



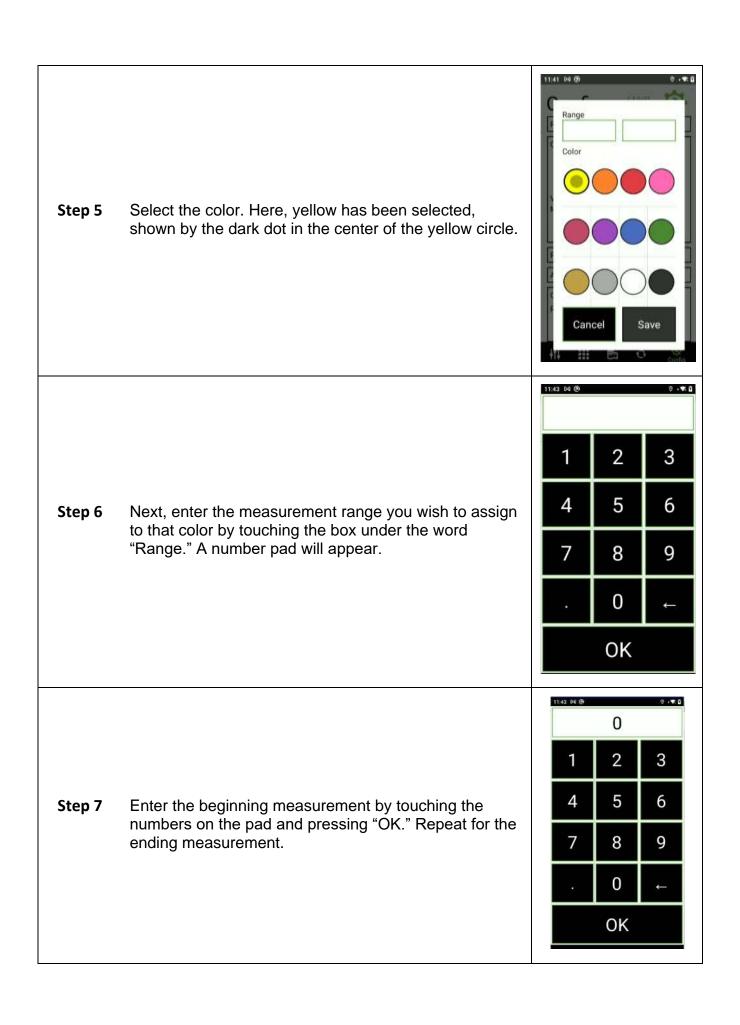
If you enable "Audio Notification" and "Color," the device will call out a color corresponding to a piece of information when added.

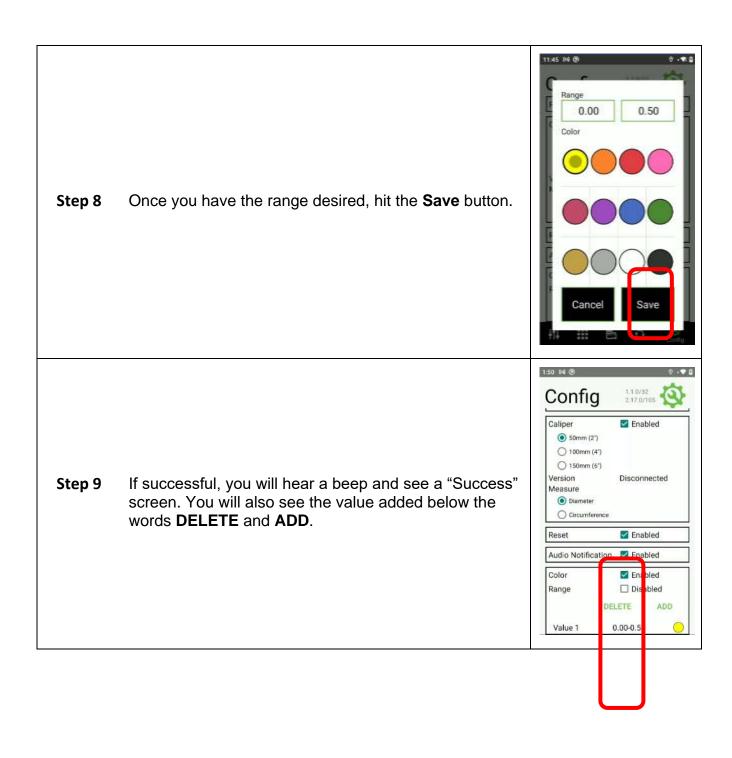
Add Color Range

Once you have enabled "Color," you will choose a color and set up the measurement range to which that color applies.



Config Round Data ☐ Disabled Enabled Caliper (Y) mm(2) (4°) (5°) Version Disconnected To add a color and range, press "ADD" under "Color" Measure Step 3 Diameter and "Range" O Circumference Reset Enabled Audio Notification 2 Enabled Color Enabled ☐ Disabled Range DELETE * 0 A screen will appear with "Range" and "Color" Step 4 available.

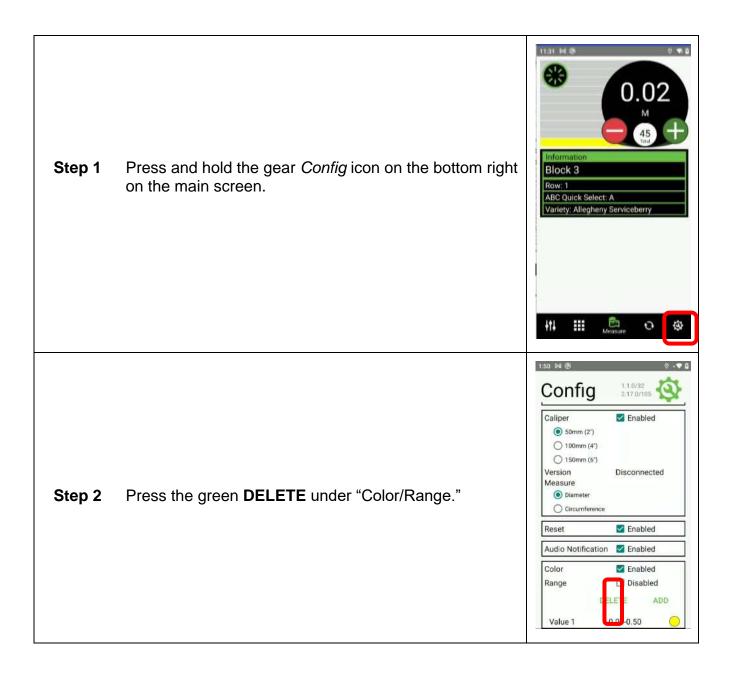


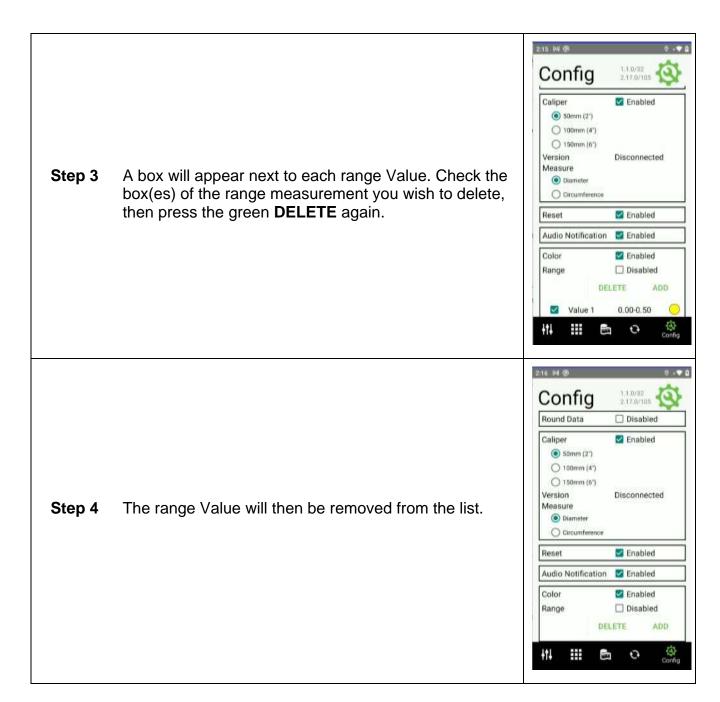




NOTE: When the unit of measure is Millimeter, a decimal point will not be available to you. Also, when you have a Range established, the app will automatically convert measurements when you change the unit of measure (e.g., 5mm becomes .5cm).

Delete Color Range

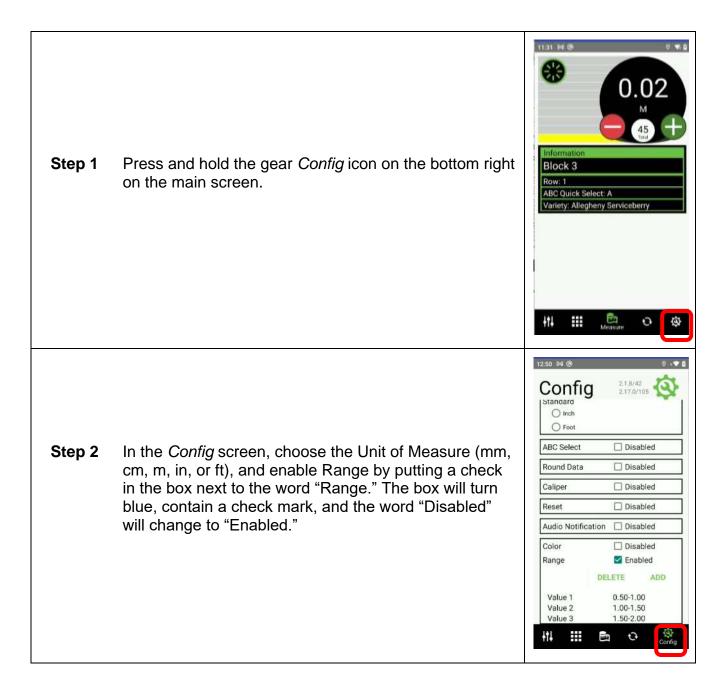




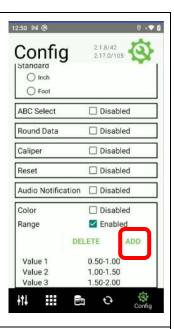
Range

Range allows you to enter a range of measurements so that you can easily count similar plants of different sizes.

Add Range Values

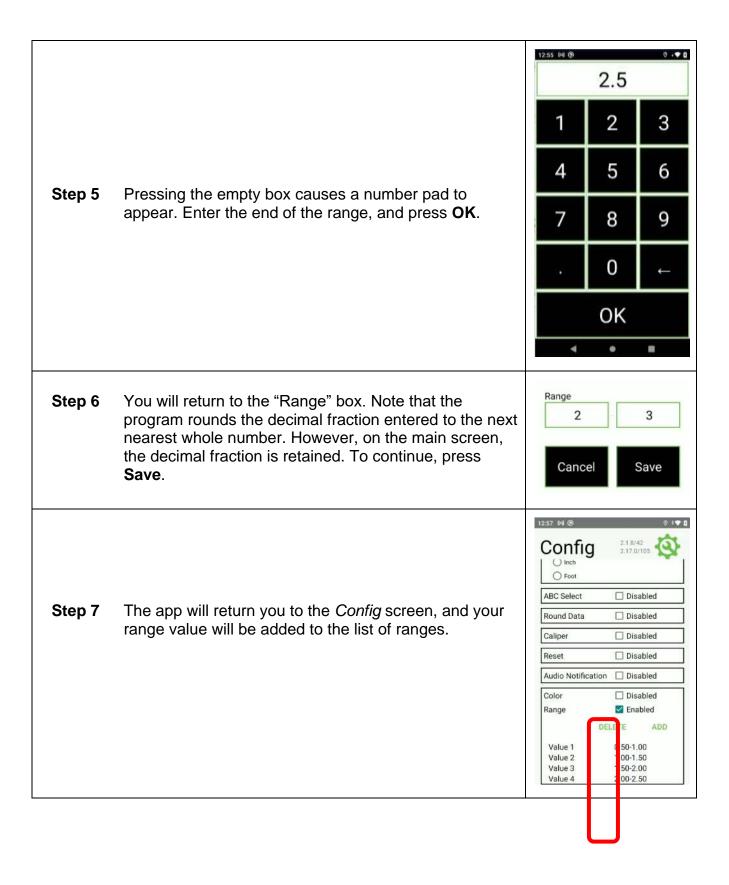


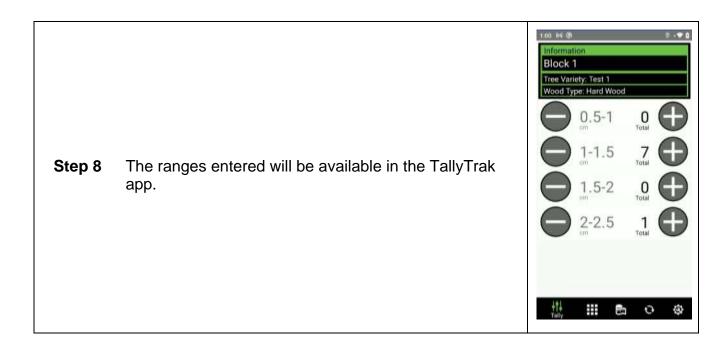
Step 3 To add a range value, press the green ADD button under the word "Range."



Step 4 A box labeled "Range" will appear. The last value in the list of range values will appear in the first box. (If no values have been added, the box will be blank).







Delete Range Values

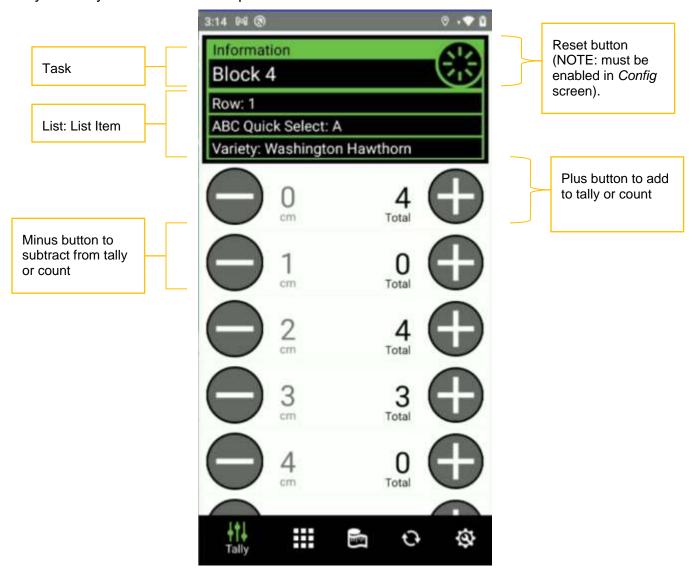
Delete range values in the same manner that you delete color range values. See <u>Delete Color</u> <u>Range</u>.

USING THE TALLYTRAK APP

The TallyTrak application allows you to count plants associated with the same "Task," "List," and "List Items" that have different measurements.

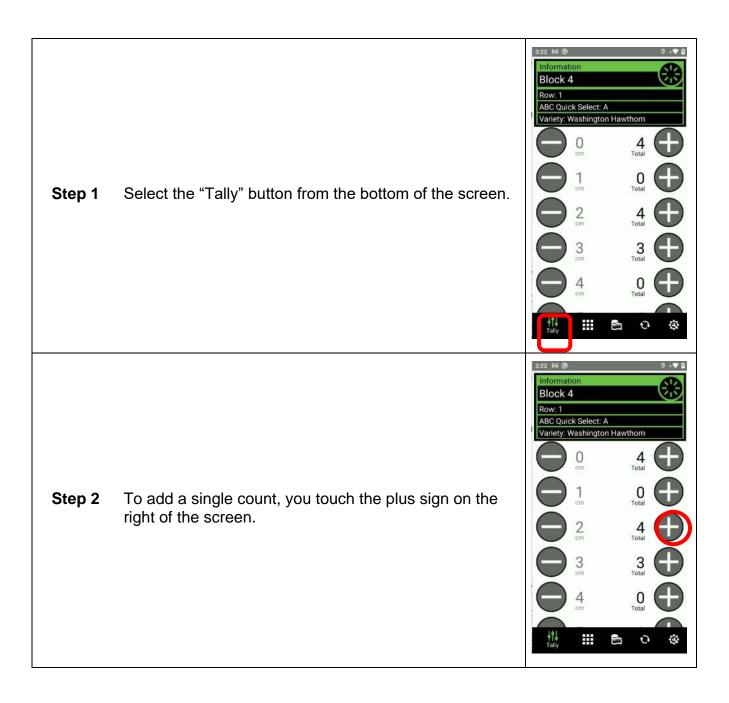
Overview of the Tally Screen

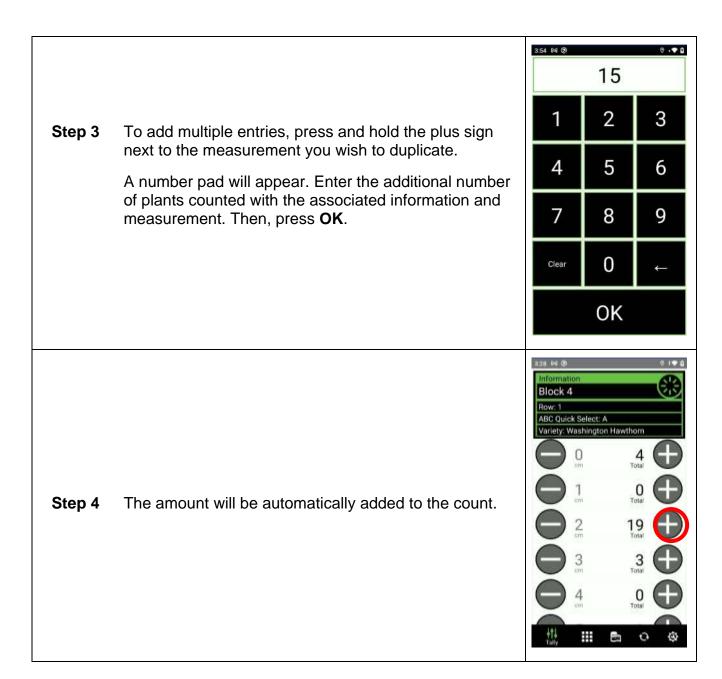
Tally allows you to count similar plants of different sizes.



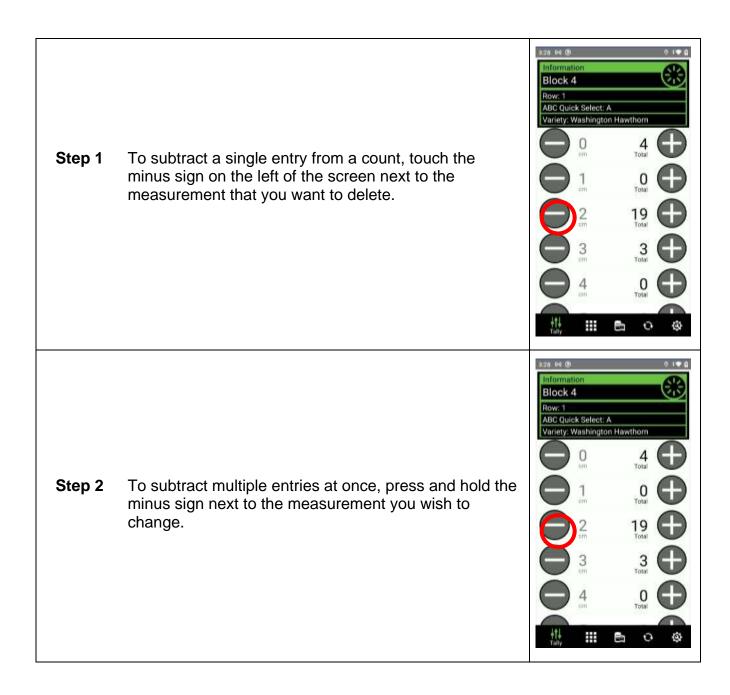
Counting

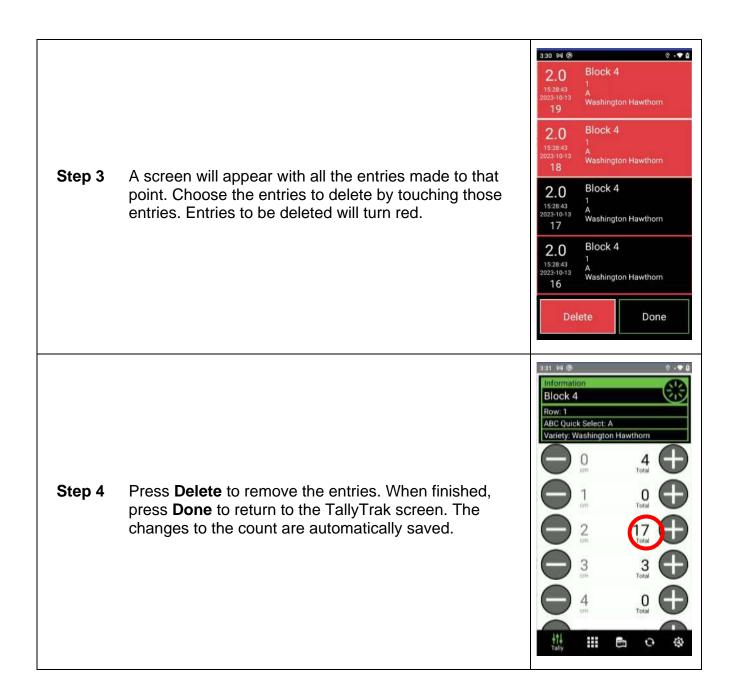
Adding





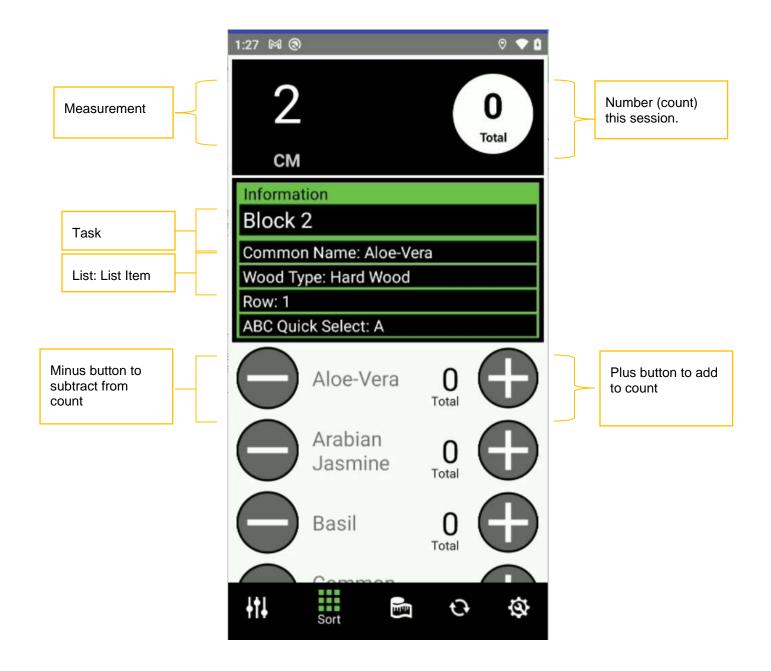
Subtracting



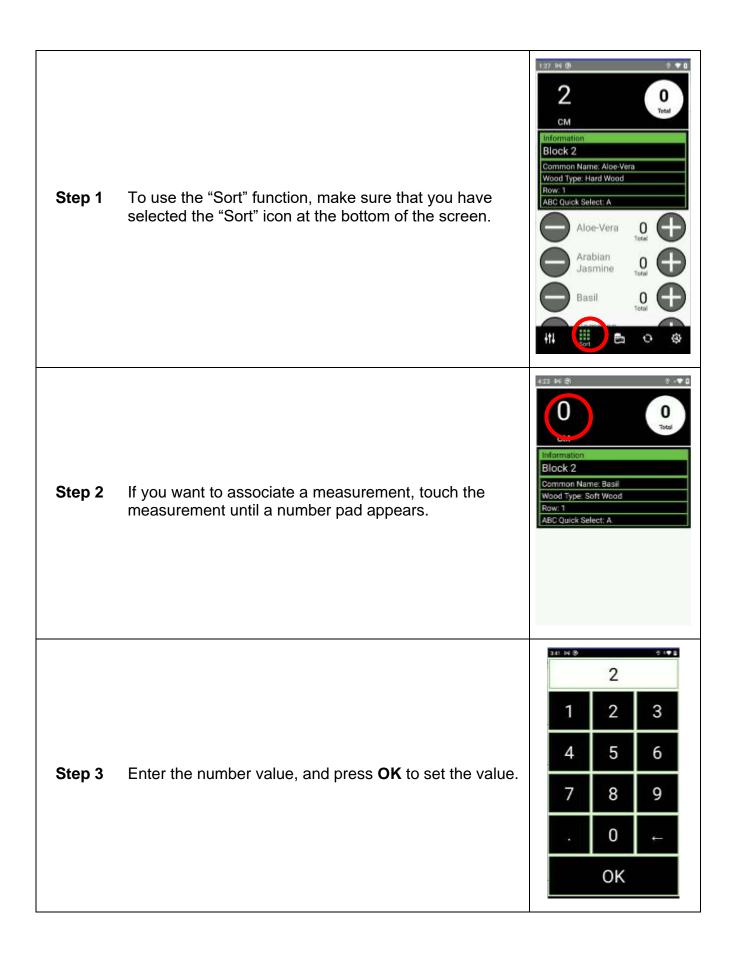


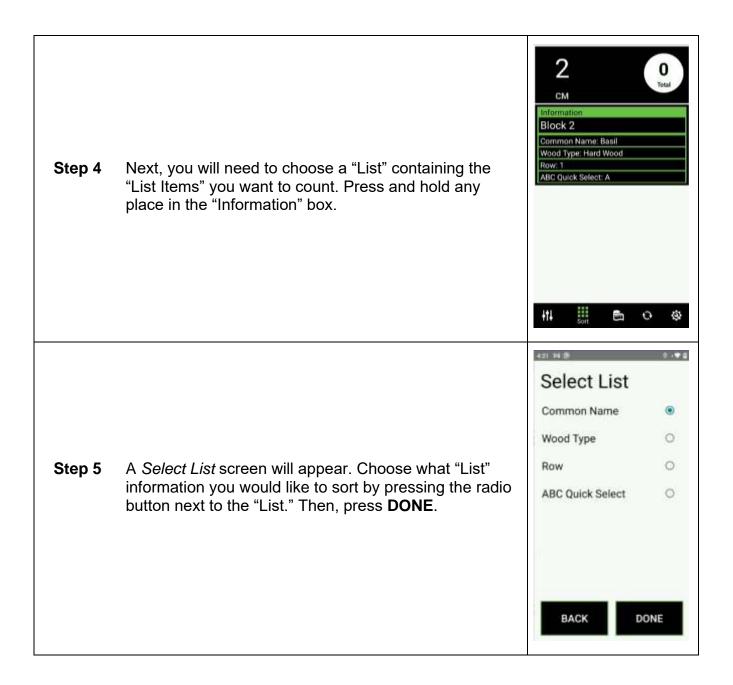
Overview of the Sort Screen

TallyTrak's "Sort" feature allows you to sort plants by "List: List Item." This assumes that input information for everything else remains the same.



Sorting





Step 6 When you return to the "Sort" screen, you will see that the "List Items" associated with the "List" you chose in the "Select List" screen appear on the screen.

You can now sort plants by the "List Items" found in the "List" entitled "Common Name."

Single entries are made by pressing plus or minus.

To add multiple entries, see <u>Adding</u>. To delete multiple entries, see <u>Subtracting</u>.



INSTACALIPER INSTALLATION

The InstaCaliper is the hardware that is attached to the TallyTrak app. Use the InstaCaliper to measure plant diameters and circumferences.

Unpacking and Inspection



NOTE: Save the InstaCaliper's original box and packaging material. Shipping the InstaCaliper in a different box or with different packaging material may damage the machine and void the warranty. To repackage, follow the inverse order of unpacking.

Unpack the boxes and examine their contents. If anything is missing or damaged, contact 2nd Sight immediately at <u>info@2ndsightbio.com</u> or 509-381-2112.

The InstaCaliper box contains:

- InstaCaliper Arm Support
- Caliper Head with Micro USB Cord
- Velcro Straps
- Ruggedized Handheld Computer (RHC)
- RHC Mounting Bracket
- Micro USB Charging Cord & 120v Plug
- Mounting Bolt (Caliper Head)
- Port Protector

Unpacking the InstaCaliper Box

- Step 1 Open the box.
- **Step 2** Carefully remove the InstaCaliper components from the box.

Assembling the InstaCaliper device

Assembling the Shaft Pole

Step 1 Pull the shaft pole to the desired length.



Step 2 Push in the locking latches on the bottom of shaft to set the pole length.



Attaching the RHC

Step 1 Attach the RHC to the RHC mount by aligning the ribs and sliding the RHC onto the RHC mount.



Step 2 Slide the RHC mount until it clicks and locks into place.



CAUTION: Keep your fingers clear of the caliper head when attaching to the caliper shaft pole.



Pinch point. Keep fingers clear when sliding the Battery Mount into place.





Step 3 Attach the micro USB cord to the caliper head.

Step 4 Starting from the bottom of the shaft pole, wrap the micro USB cord around the pole. Secure the cord on the shaft pole with the Velcro strap.



Step 5 Remove the plug cover and connect the micro USB to the RHC. **NOTE:** The port is covered.







WARNING: Ensure that you are plugging the micro USB into the correct port. If the micro USB does not fit, do NOT force it. Forcing the micro USB into the incorrect port will damage the machine and void the warranty.

USING THE INSTACALIPER TO MEASURE

Step 1 Attach the Arm Support to your forearm. Hold the device so that the Caliper Head is parallel to the ground.



Parallel



Step 2 Slide the Caliper Head around the trunk at a constant speed until it touches the back of the Caliper Head.



Step 3 Then slide the Caliper Head in the opposite direction away from the trunk using the same motion.



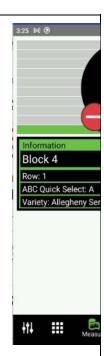
NOTE: Stakes, twigs, weeds, and other debris can cause incorrect readings. Measure between objects or use the larger diameter object to shade out the smaller object.



Step 4 The handheld device displays the diameter (or circumference, if you selected "Circumference" in *Config*) in the large circle.

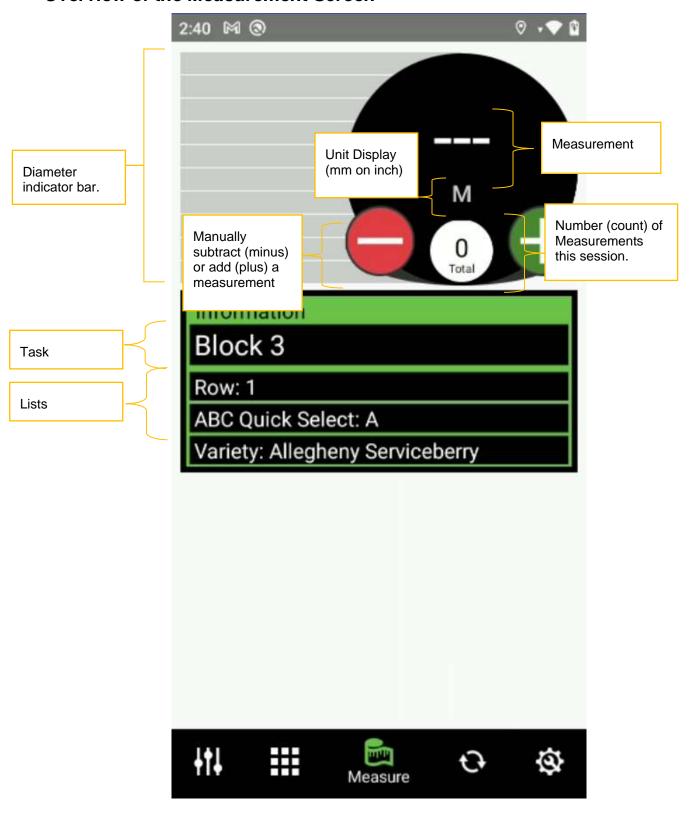
The total count of plants measured and associated with the information displayed appears in the small white circle.

Step 5 To reject or delete the entry, press the red circle with the minus sign in it.

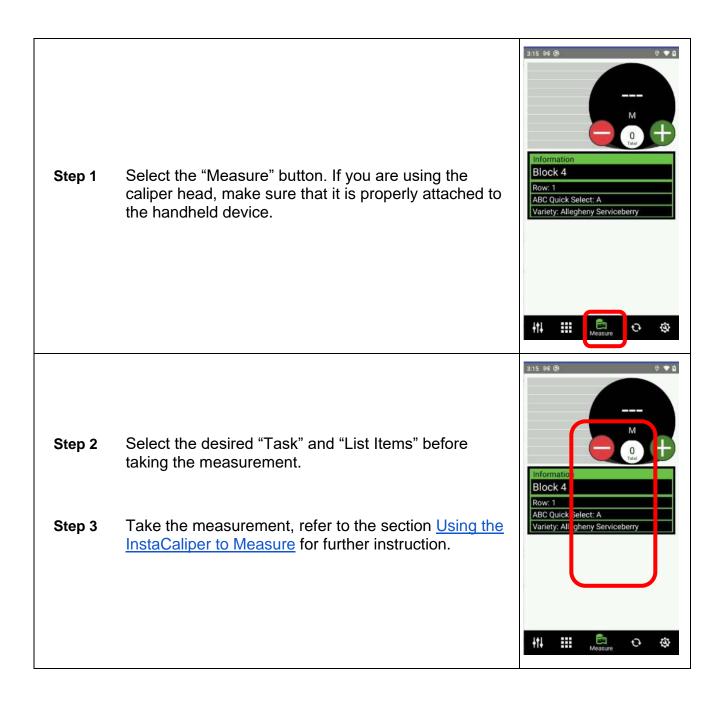


USING THE TALLYTRAK APP WITH INSTACALIPER

Overview of the Measurement Screen



Preparing Measurement Screen

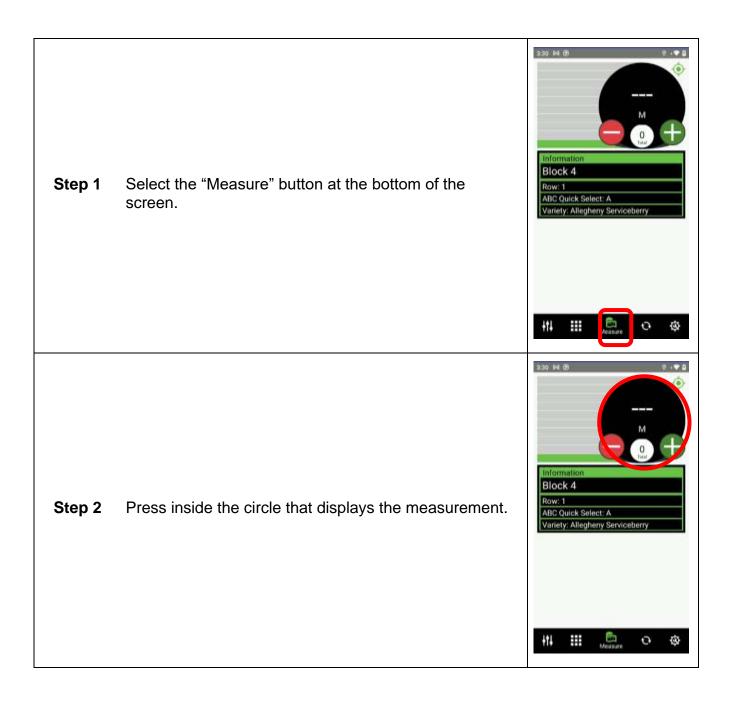


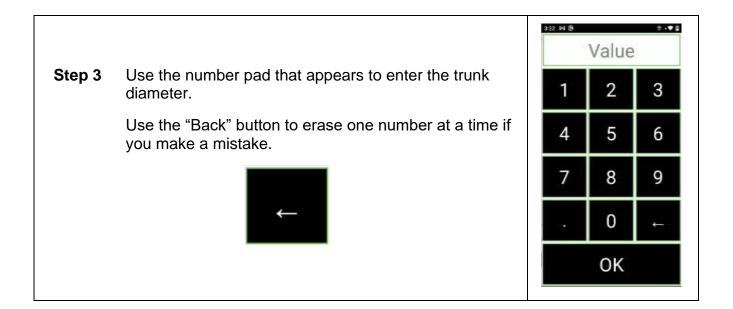
Step 4 The measurement is saved, unless explicitly rejected.

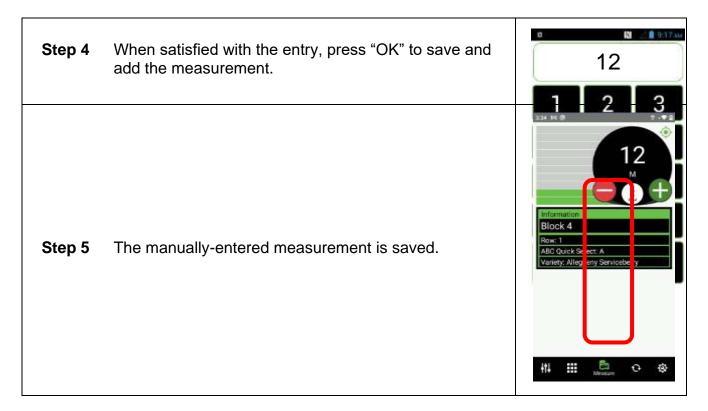
Step 4 The measurement is saved, unless explicitly rejected.

Entering Measurements Manually

In some cases, you may need to enter measurements manually. For example, you may have a trunk too large for the caliper. The TallyTrak app allows you to manually enter measurement data even with the InstaCaliper hardware attached.

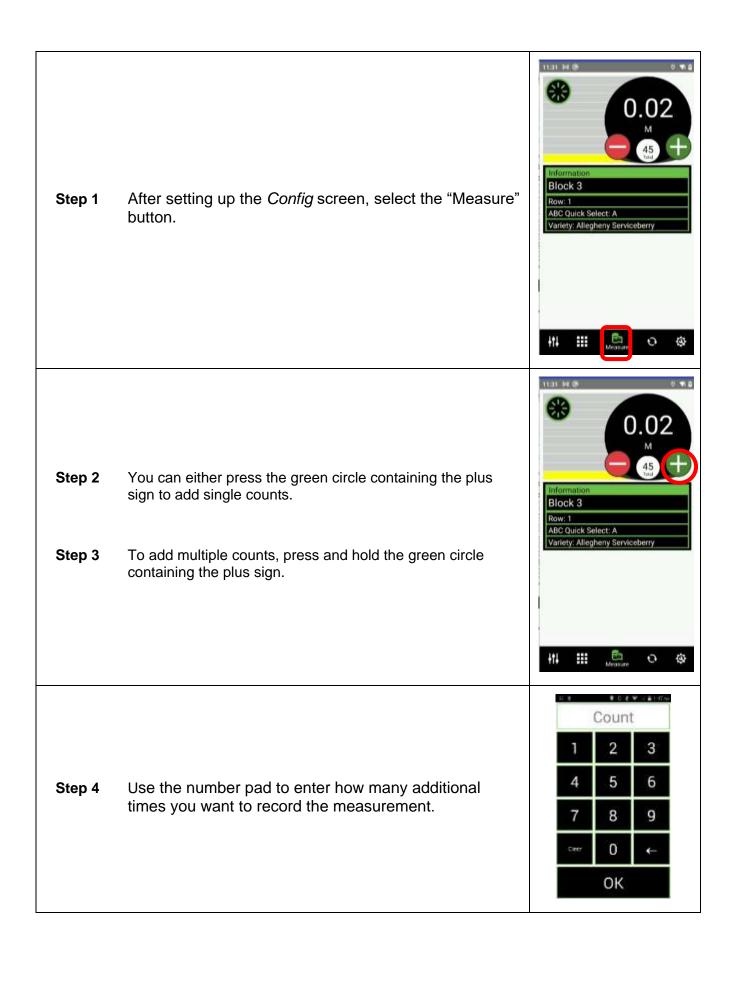






Repeating Measurements

In some cases, you may want to repeat the current measurement. You can duplicate up to 100 times any measurement that you have taken.

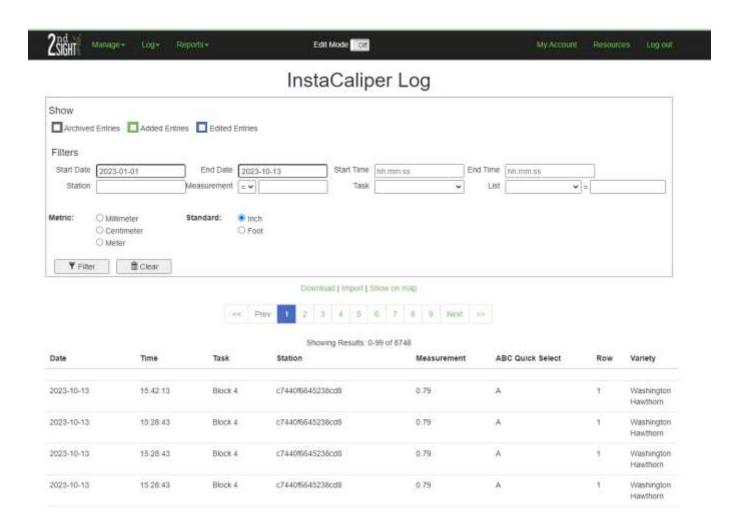


Step 5 Press "OK" to save and add the count. You will be returned to the main measuring screen. The entry has been duplicated 9 times and saved.

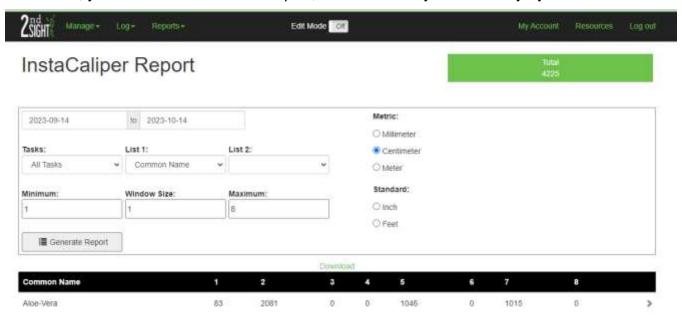
RETRIEVING DATA & WEB PORTAL REPORT

After you have collected your count in the field, you can upload the information by syncing your handheld device. To sync, you must have an internet connection. For instructions on syncing your handheld device to the Web Portal, see the **Web Portal Users Manual** (found at **Resources** → **Help Forum** after you log into your Portal account).

After you sync your handheld device to the Web Portal, you will be able to see your entries.



In addition, you can run our standard report, which will sort your inventory by size:



 2^{nd} Sight can create custom reports based on customer needs for a fee. If you are interested in a custom report, contact 2^{nd} Sight at 509-381-2112 or info@2ndsightbio.com.