



HarvestEyeTM

Powered by B-hive

HarvestEye HandHeld Operator Manual

2026-09-17

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Safety Guide

Please keep these instructions and use only as specified in this guide.

DO:

- In case of technical issues, contact HarvestEye support (see the rear cover of the manual)
- Only use the supplied cables. If a different cable is needed, consult HarvestEye first before using an alternative.
- Ensure the camera cable is securely fastened into the tablet

DO NOT:

- Operate in extreme wet weather
- Jet wash the system
- Touch the camera lens
- Tamper with the tablet or camera
- Use the system with incorrect voltage
- Damage the power cable

In the event that any part or module on your HarvestEye system becomes damaged or non-functional, HarvestEye Support should be contacted using the details provided at the end of this manual.

You must not replace any module of the HarvestEye system without consulting HarvestEye Support.



HarvestEye Conformity

- In relation to HarvestEye UKCA certification the manufacturer address is:

HarvestEye Ltd.
0.07 The Boole Technology Centre,
Beevor Street,
Lincoln
LN6 7DJ
United Kingdom



- In relation to HarvestEye CE certification the authorised Representative address is:

EU Authorised Representative:
Authorised Representative Service
77 Camden Street Lower
Dublin
D02XE80
Ireland



- A Copy of the Declarations of Conformity for the HarvestEye HandHeld system can be found at:

<https://www.harvesteye.com/media/uploads/2024/03/HandHeld-UKCA-DoC.pdf>

<https://www.harvesteye.com/media/uploads/2024/03/HandHeld-CE-DoC.pdf>



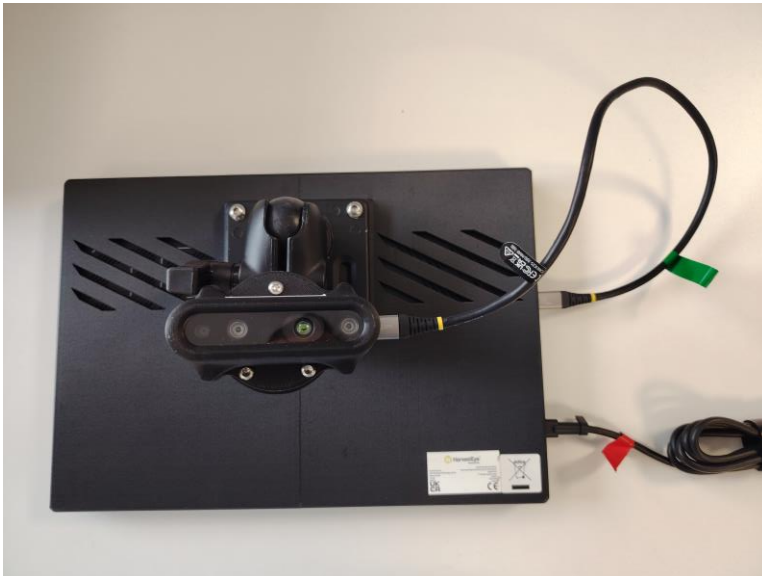
Get to Know Your System

1. **Tablet** – Connects to the camera. Runs the software that detects and sizes crop, and uploads data to generate reports.
2. **Camera shroud** – Houses the camera.
3. **Charger** - Used to charge the tablet.
4. **Camera cable** – USB-C cable that connects the camera to the tablet.
5. **RAM arm** – Attaches the camera shroud to the back of the tablet.



Connections to the Tablet

On the left-hand side of the tablet, there are two USB-C ports. The camera cable must be connected to the top port (green label), and the charger's cable to the bottom port (red label).



Attaching HandHeld Camera

1. Attach the RAM mount arm to the RAM plate on the rear of the tablet by turning the tightening knob clockwise. Don't tighten too much at this point, because the camera shroud still needs to be attached to the other end.
2. Attach the camera shroud to the other end of the RAM mount arm, and use the knob to tighten as necessary to securely attach the camera to the tablet.
3. The USB-C camera cable must be connected to the side of the camera (the shroud contains an opening with the camera's port exposed).
4. Ensure the camera is oriented in a parallel position to the rear of the tablet.

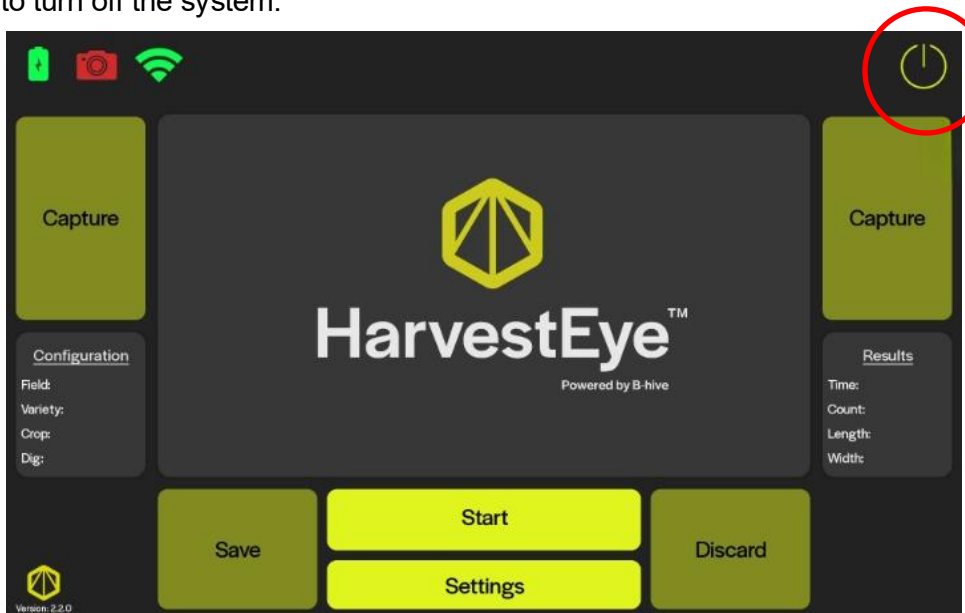


Power Button

Turning on the tablet: Click on the power button located on the right-hand side of the tablet.



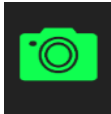
Turning off the tablet: Press the onscreen button on the top right corner (highlighted) which will prompt you to confirm whether you would like to turn off the system.



Main Menu



Battery level indicator. The lightning bolt icon indicates the tablet is charging. The icon changes to orange when the battery level is below 70%, and to red when the battery level is below 30%.



Camera connection indicator. Green indicates the camera is connected to the tablet; red indicates it is not connected.



Network connection indicator. Green indicates the tablet is connected to Wi-Fi/4G; red indicates it is not connected.





Capture

Configuration

Field:

Variety:

Crop:

Dig:

HarvestEye™

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Capture

Results

Time:

Count:

Length:

Width:



Version: 2.2.0

Save

Start

Settings

Discard

Shutdown button

Software version

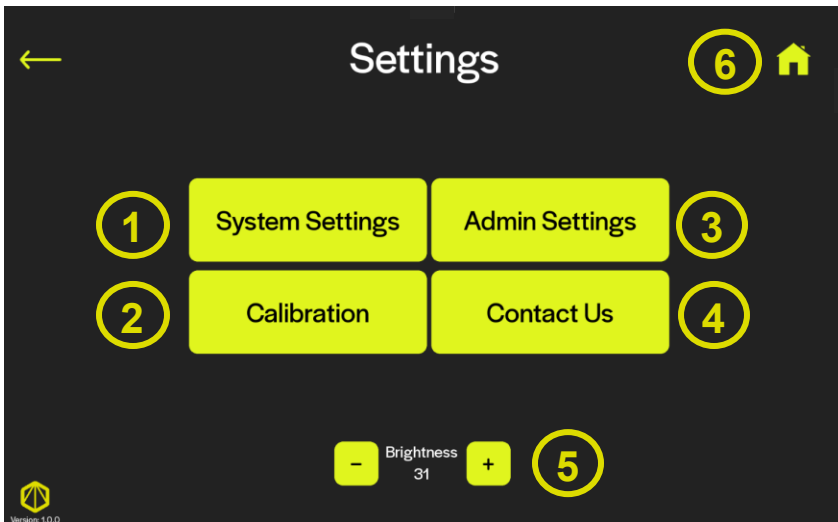
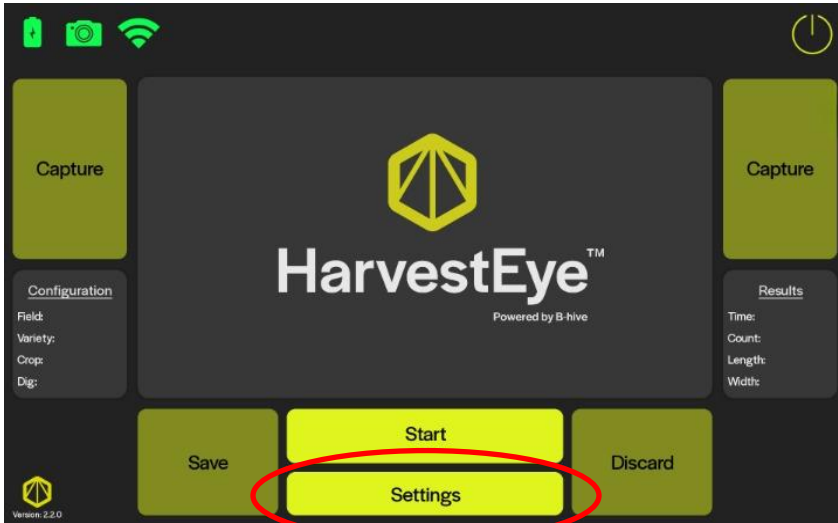
Start photo capture

Access Settings menu

Shutdown button



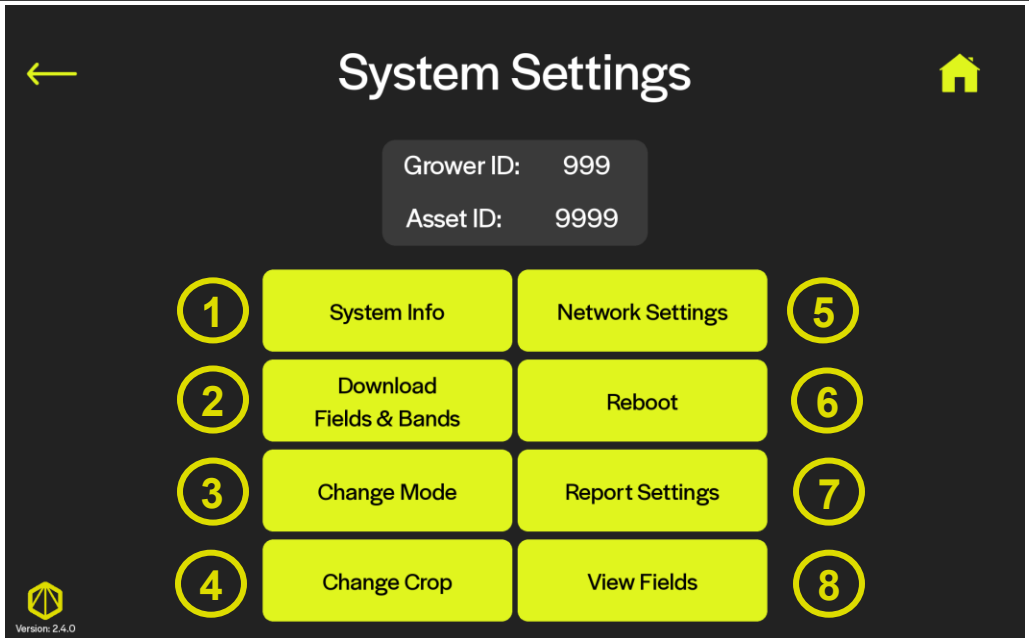
Settings Menu



1. **System Settings** - Access to additional options, including system information, and network and report configuration.
2. **Calibration** - Perform a calibration health check of the camera.
3. **Admin Settings** - Password protected page. Not accessible to customers.
4. **Contact Us** - Displays information about support contacts.
5. **Brightness** - Adjust screen brightness.
6. **Home Button** - Return to main menu.



System Settings



1. **System Info** - Information about the grower and asset (tablet) ID, as well as other relevant information about configured parameters.
2. **Download Fields & Bands** - Download fields and varieties, and the band configuration from the user's web portal account.
3. **Change Mode** - Change the tablet to belt mode. This option is only available for users that acquired On-Harvester/On-Conveyor systems.
4. **Change Crop** - Change the crop type. This option is available only for users with a subscription that supports multiple crop types.
5. **Network Settings** - Connect to 4G or WiFi networks.
6. **Reboot** - Reboot the tablet.
7. **Report Settings** - Contains options that allow customising the reports.
8. **View Fields** - View downloaded fields even without camera connection.



Report Settings

The screenshot shows the 'Report Settings' screen. At the top left is a back arrow, and at the top right is a home icon. The title 'Report Settings' is centered at the top. Below the title, there are six numbered callouts pointing to specific settings:

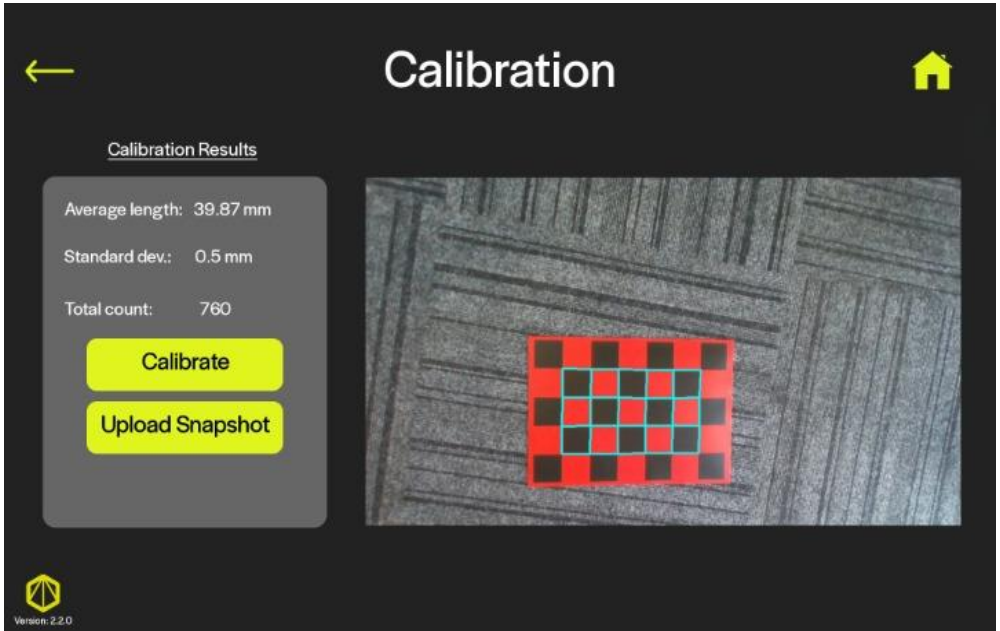
- 1** points to the 'Band Variables' section, which contains five checkboxes: Length, Width, Size, Weight, and L/W Ratio. All are checked.
- 2** points to the 'Count per Weight' section, which has a dropdown menu set to 'Weight' and radio buttons for 'kg' (selected) and 'lb'.
- 3** points to the 'Multi-snapshot Mode' section, which has a yellow button labeled 'Disabled'.
- 4** points to the 'Plot Area' section, which has a dropdown menu set to 'Area' and radio buttons for 'sq m' (selected) and 'sq ft'.
- 5** points to the 'Select Bands' section, which has a yellow button labeled 'Bands'.
- 6** points to a large yellow 'Save' button at the bottom center.

At the bottom left, there is a logo and the text 'Version: 2.2.0'.

- 1. Band Variables** - Select the type of band intervals (e.g. length, size, etc...) for which count and weight metrics per interval should be calculated on the report.
- 2. Count per Weight** - Whether the average count per weight amount should be calculated (e.g. count per 50 kg, count per 10 lb, etc...).
- 3. Multi-snapshot Mode** - Enable/disable multi-snapshot mode.
- 4. Plot Area** - Input the area of the plot (in m² or ft²). This is used to calculate yield per area unit.
- 5. Select Bands** - Select band configuration downloaded from the portal to be used in the reports.
- 6. Save** - Once the user is happy with the report settings, click **Save** to apply the changes.



Camera Calibration Check



Regular camera calibration checks help the HarvestEye team monitor camera condition, since underperforming sensors can affect crop sizing accuracy.

To complete a calibration check:

1. Ensure the tablet is connected to a WiFi network or 4G.
2. Place the red and black checkerboard card, provided with the system, beneath the camera (500–1000 mm away).
3. In the Settings menu, click on **Calibration -> Begin**.
4. The menu above will be displayed. Click on **Calibrate**.
5. Measurements will display on screen and upload automatically. The average length should be between 39 - 41 mm. If not within in range, please contact support@harvesteye.com.

IMPORTANT: We recommend performing a camera calibration health check upon receiving the system, and then at least once every 12 months.



Getting Started – System Configuration

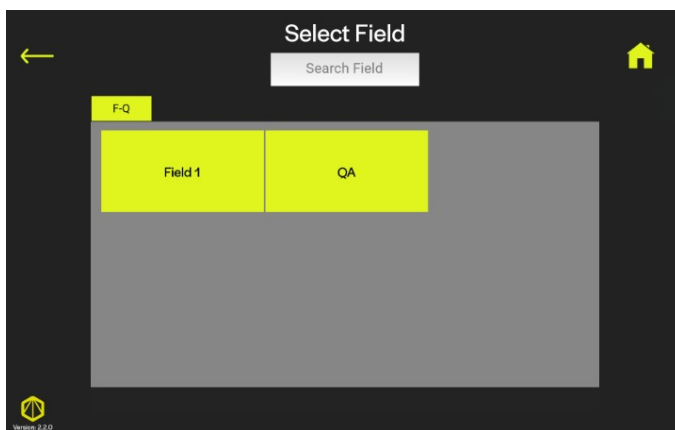
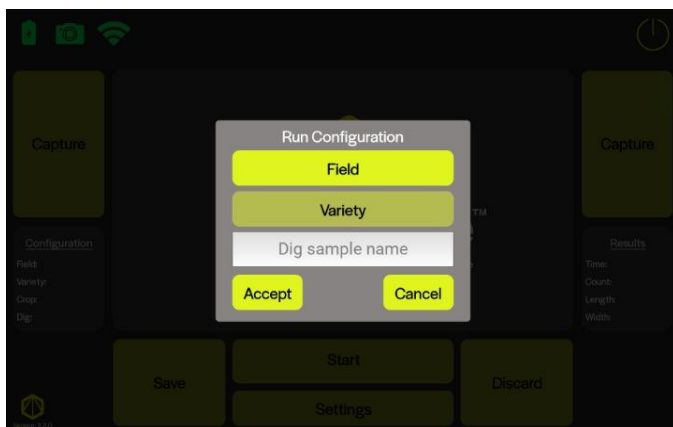
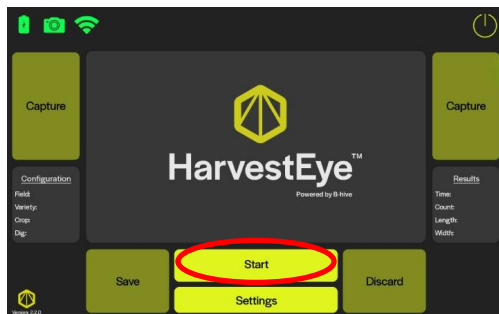
Users will have to follow the steps below to configure their system:

1. **Camera Calibration Check** – Perform a camera calibration health check, as demonstrated on the page "Camera Calibration Check".
2. **Portal Credentials** - Ensure that you've received the credentials to access your account. If not, please contact support@harvesteye.com. The link to the portal is <https://portal.harvesteye.com/auth>
3. **Field and Varieties** - The field and variety information must be added into your account and downloaded to the tablet (see "System Settings" page). Check this link for instructions: <https://www.harvesteye.com/en/customer-support/how-to-add-fields-and-varieties-on-my-portal-account>
4. **Band Configuration** - Configure the required band intervals in your account:
 - Log in into your account. On the left-hand side, click on **Configuration -> Handheld Bands**.
 - Click on **+Add** to create a new set of bands or click on **Edit** on a set of bands already created to edit it.
 - Select the type of band being added/edited via the option Band Type (e.g. Size, Weight) and the respective unit system to be used (Imperial or Metric).
 - For the end of the last band interval, the user must set a high value to represent the oversize class (e.g. 9999).
 - Click **Save**.
 - Download the band configuration to the tablet in **Settings -> System Settings -> Download Fields & Bands**. Band configurations can be selected in the Report Settings page.



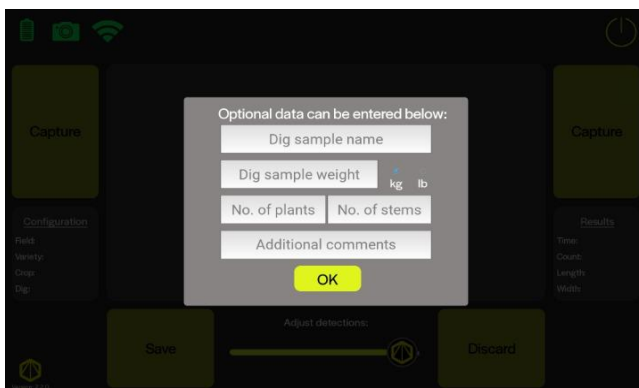
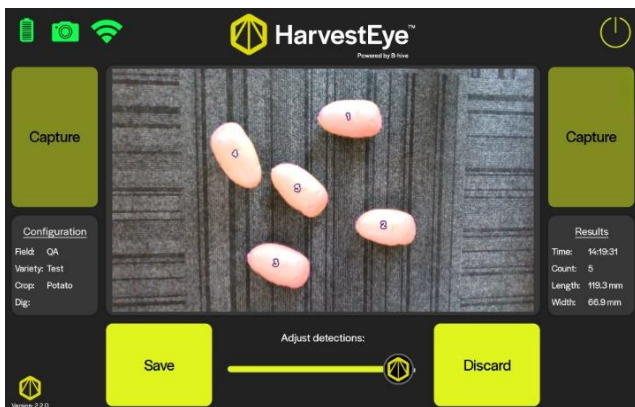
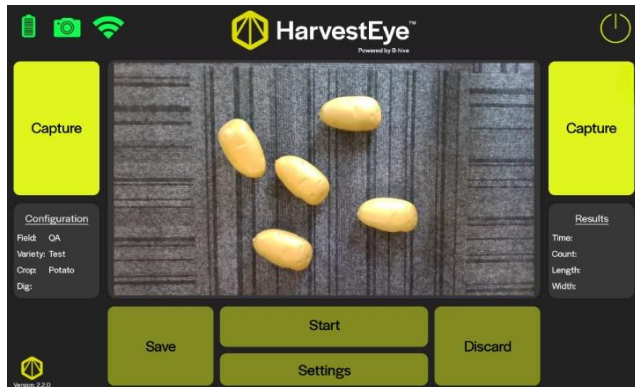
Getting Started – Select Field and Variety

1. Click **Start**.
2. Click on **Field** to display the list of fields. Use Search Field to type letters and filter matching options. Click on the field of interest
3. Click on **Variety** to display the list of varieties associated with the selected field. Click on the variety of interest.
4. Add a name for the sample (optional).
5. Press **Accept** to scan the crop or **Cancel** to abort.



Getting Started – Capture Data

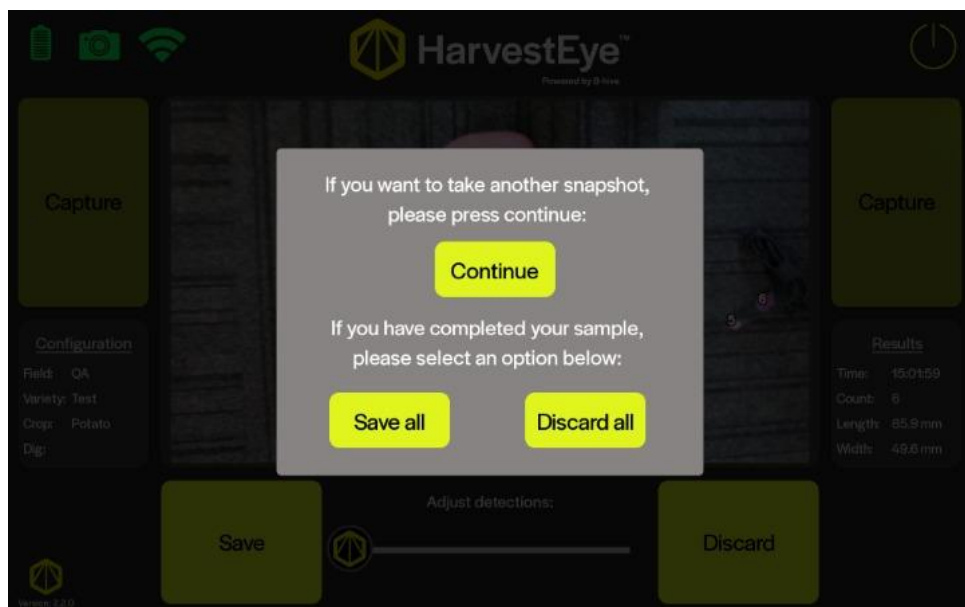
1. After selecting the field and variety, the menu on the right is displayed.
2. Press **Capture** to take a photo of the crop. See page "Best Practices" for guidance.
3. Detected crop will be displayed in pink. Use the **slider** to adjust the quality of the detections.
4. Press **Save** to go to the next menu or **Discard** to discard the photo.
5. On **Save**, a new menu is displayed where more information can be added, such as the total sample weight, number of plants and stems, and any relevant comments.
6. Press **OK**. If the tablet is connected to the internet, the data is uploaded and a report should be received within 1 minute. If the tablet is offline, the data will be uploaded when the tablet connects to the internet.



Getting Started – Capture Data (Multi-snapshot Mode)

When a sample requires multiple photos to capture all the crop, enable multi-snapshot mode in "Report Settings".

This lets users take several photos and compile them into a single report, following the same process as before. The only difference is that the device will ask whether to keep capturing or finish the sample.



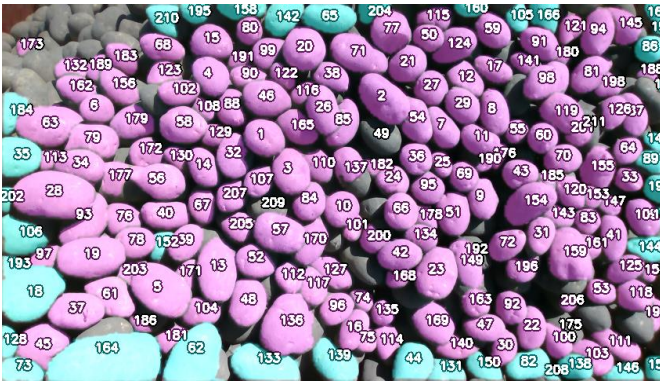
Best Practices

1. Do not use the Handheld too close to the crop

For optimal sizing accuracy, the recommended distance between the camera and the crop is between 500-800 mm (waist level).

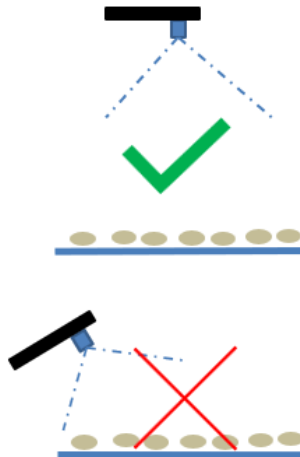
2. Do not use the Handheld on stacked crop

When crop is stacked in layers, the device may detect partially hidden crop underneath, skewing results toward overestimating undersized crop (see image below).



3. Take photos with the tablet parallel to the crop

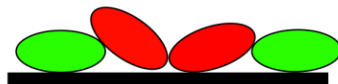
Capture images with the tablet positioned at a 90° angle to the crop.



Best Practices (Cont.)

4. Avoid clustering crop

Clustered crop reduces sizing accuracy: overlapping tubers hide part of each other and prevent some from lying flat, so the camera can't capture their full length. Use multi-snapshot mode to spread out samples and reduce clustering if required.



5. Ensure good lighting and background contrast

If the Handheld isn't detecting all crop, ensure sufficient lighting and strong contrast between the crop and background. Placing a bag or board underneath can help with detection accuracy in those cases (see an example below).

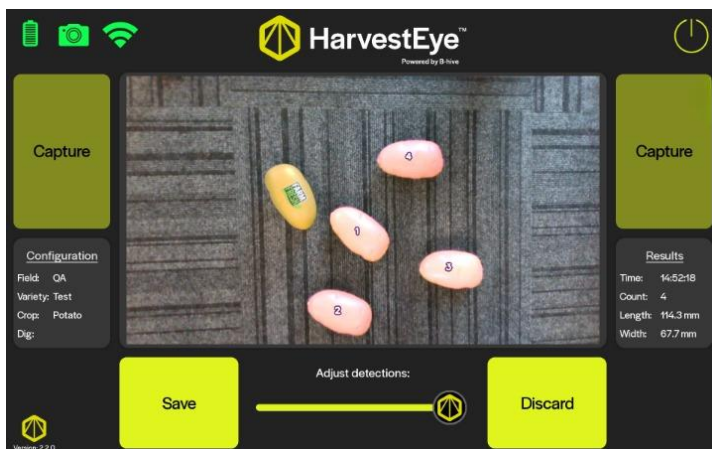


Best Practices (Cont.)

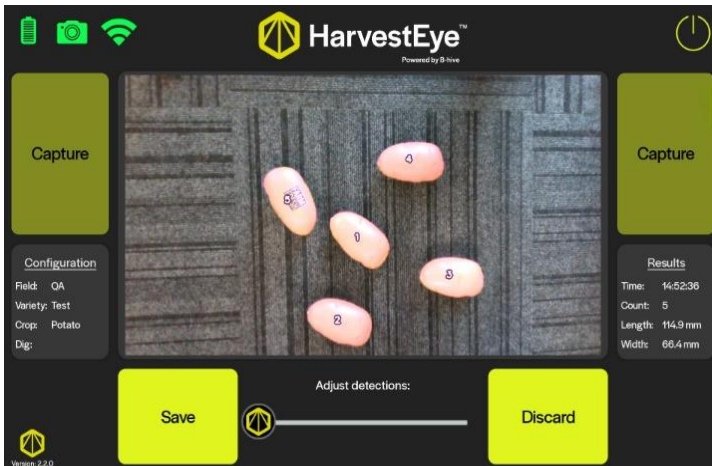
6. Use the confidence slider wisely

The confidence slider (under "Adjust detections") controls how confidently the system identifies crop. Lowering it increases detection rates but may include non-crop objects. Raising it gives cleaner detections but may miss some crop. Adjust based on the observed detection quality on the photo to optimise results.

Maximum confidence makes the device miss one crop



Lowering confidence enables identification of the missed crop



Reports

For each sample, users will receive an email with the following content:

- PDF report. Contains sample information, band interval statistics, and charts. Useful to visualise size profile distributions.
- Excel report. Contains sample information, per-detection measurements and band interval statistics. Useful to copy/paste data into other spreadsheets.
- Original images and images with detections.

HarvestEye Handheld Report

QA Innovator Test Sample 2026-04-08 043459

HarvestEye

Handheld

Sample Information

Farm: HarvestEyeTesting

Crop: Potato

Field: QA

Variety: Innovator

Sample: Test Sample

Comments: NA

No. Plants: NA

No. Stems: NA

Plot Area: NA

Variety Planted Area: 1 ha

Timestamp: 2026-04-08 04:34:59

No. Photos: 1

Bands Name: Baking

Reported Variables: Length, Width, Size, Weight, L/W Ratio

Original Photo

Inferenced Photo

Summary Statistics

Crop Count: 48

Detected Weight: 8.17 kg

Input Weight: 7.86 kg

Metric	mean	std	min	max
Length (mm)	78.25	23.97	33.00	139.00
Width (mm)	60.21	15.81	24.00	90.00
L/W Ratio	1.29	0.13	1.04	1.65
Size (mm)	59.15	14.85	25.00	87.00
Weight (g)	170.08	111.37	17.00	488.00

Size Statistics

Count (30-39 mm): 2 (4.2%)

Weight (30-39 mm): 0.05 Kg (0.6%)

Count ($\geq$ 30 mm): 5 (10.4%)

Weight ($\geq$ 30 mm): 0.21 Kg (2.6%)

Band Statistics - Size (mm)

Metric	1 - 29	30 - 39	>39
Count	3	2	3
% Count	6.25	4.17	6.25
Weight (g)	59	50	162
% Weight	0.72	0.61	1.99

Count per Size Band

% Count per Size Band

Weight (g) per Size Band

% Weight per Size Band

	A	B	C	D	E	F
	Detection ID	Length (mm)	Width (mm)	L/W Ratio	Size (mm)	Weight (g)
1	1	122	90	1.35	87	452
2	2	116	88	1.33	82	402
3	3	139	88	1.58	85	488
4	4	99	74	1.34	72	262
5	5	72	54	1.34	56	119
6	6	79	59	1.35	59	144
7	7	109	74	1.48	72	285
8	8	83	72	1.16	69	209
9	9	87	69	1.25	68	208
10	10	100	72	1.39	71	256
11	11	107	76	1.41	75	298
12	12	114	83	1.39	79	361
13	13	75	55	1.36	56	123
14	14	96	68	1.42	68	226



Support and FAQ

Support

The HarvestEye team is available 24/6 (except Sundays) to support you. Please use the contacts below:

- **Email:** support@harvesteye.com
- **WhatsApp:** +44(0)7971 598271

What should I do if my system is not working correctly?

Please refer to our troubleshooting section in our website for guidance:

<https://www.harvesteye.com/en/customer-support/troubleshooting>

If you cannot solve the issues using the above resources, please reach out to us using the above-mentioned support contacts.

Can I view my Handheld data on the web portal?

No, data is viewable only via emailed reports or our API. Please contact us for API access.

How does the Handheld calculate yield per ha/acre?

Users must input dig's plot area (m^2 or ft^2) under **Settings -> System Settings -> Report Settings**. The sample's total weight is then automatically extrapolated to 1 hectare or 1 acre, based on the selected unit. For example, a 2 kg sample from a 4 m^2 plot extrapolates to 5000 kg/ha (5 tons/ha). Other key points to consider:

- Yield is determined by the selected plot area unit ($\text{m}^2 \rightarrow \text{t/ha}$; $\text{ft}^2 \rightarrow \text{cwt/ac}$).
- The sample weight unit (kg or lb) doesn't affect this. The Handheld auto-converts to match the plot area's unit.
- If entered manually, the Handheld uses the user's total sample weight; otherwise, it uses the weight predicted by the device's weight model.





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