

The Agrosta 100 Field Version 6 has been designed by end 2020  
It comes with the best technology for measuring the firmness / softness of soft fruits and materials – It is a statistic instrument



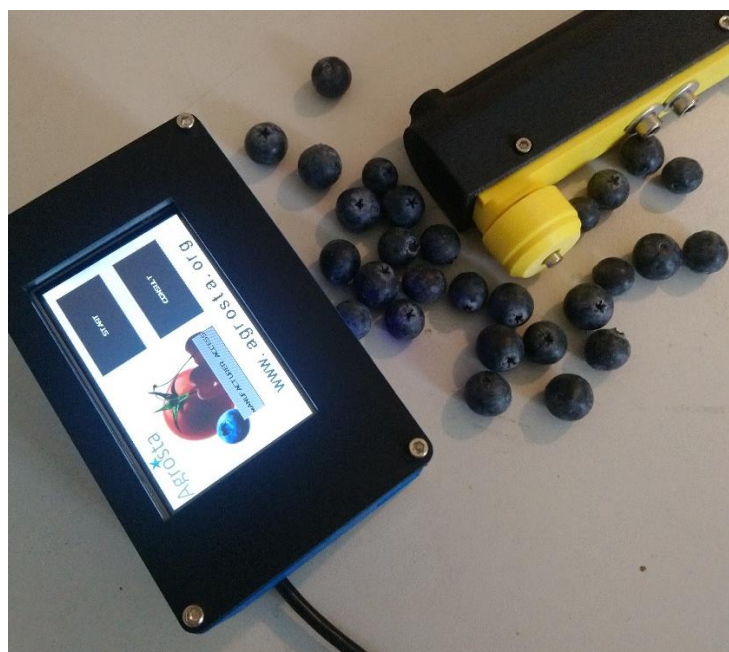
Many thanks for having acquired an Agrosta instrument

Your package contains :

- A Box with the instrument itself and the sensor
- A SD card already inserted in the instrument
- A charger
- A certificate of conformity
- A manual

The Agrosta 100 Field is provided with one sensor (10 , 25 or 50) according to your requirements  
You can buy adaptors separately :

- A100-10 sensor for **peaches** (35% to 95%), **apricots** (45% to 95%), **grapes and kiwis** (35% to 95%) , **cranberries**– With the 10 mm tip, a reading of 85% corresponds to 4.5 Kg per 0.5 cm<sup>2</sup> with a penetrometer.
- A100-25 sensor for **tomatoes** (values from 45 to 80), **cherries, plums, melon flesh, grapes** (values from 30 to 80), **blueberries** (values from 25 to 70 - destructive), **peppers**
- A100-50 sensor for **strawberries**



The AGROSTA®100Field is entirely designed and assembled in France. The motherboard comes from Taiwan, and the shield boards are made in the USA. The battery comes from DURACELL in the UK.

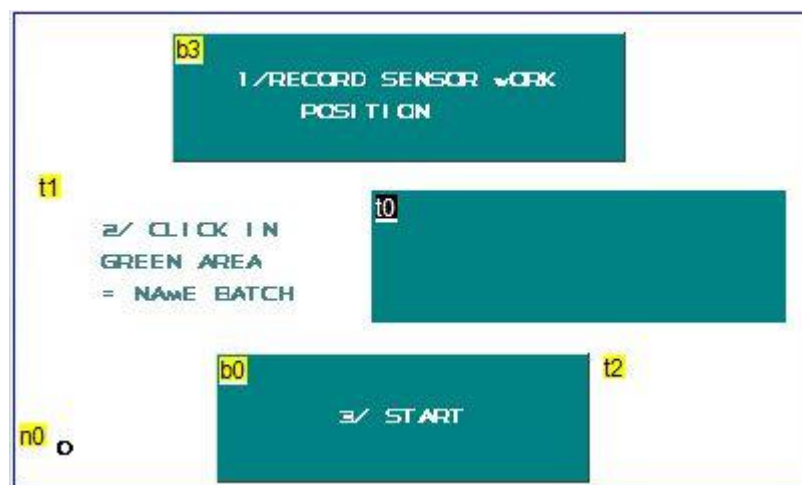
The AGROSTA®100Field is not waterproof! It is a precision instrument; please take care to avoid dropping or knocking it.

The AGROSTA®100Field has a two year guarantee from its date of shipment (Except on SD card, no guarantee on SD card).

- Minimum %: 10% (operation threshold)
- Maximum %: 100%, when fully depressed, corresponding to a pressure of 806 grams
- Resolution: +/- 1%
- Maximum memory capacity: Huge – Limited only by SD.



## 1) CLICK ON START



## 2) TAKE THE SENSOR IN HAND IN THE POSITION THAT WILL BE USED FOR MEASUREMENT



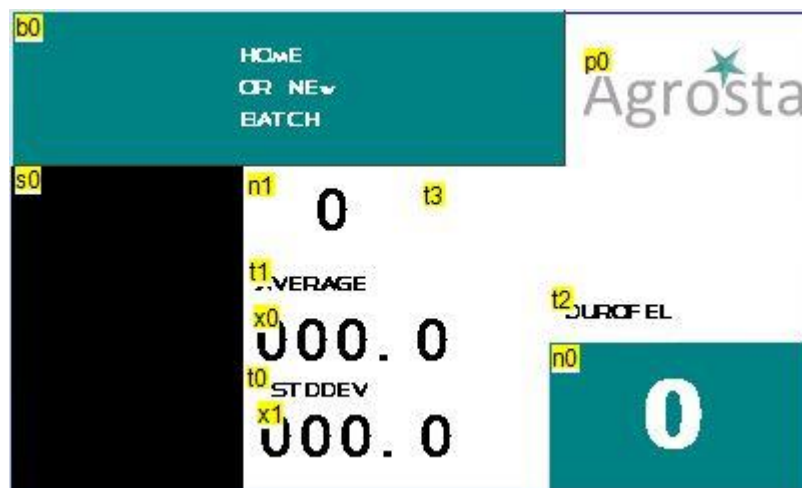
**3) CLICK ON “RECORD SENSOR WORK POSITION” : BUTTON ON TOP**

**4) CLICK ON THE GREEN SQUARE IN THE MIDDLE, A KEYBOARD IS DISPLAYED**

**5) TYPE THE NAME OF THE BATCH, AND CLICK ON “OK”**

PS : Points 4 and 5 can be skipped, in this case, the batch will have no name, which is not a problem for the instrument

**6) CLICK ON “START”**



The measurement page is displayed, measure your fruits or samples one after each other, statistics are updated

Once you have finished to measure the batch, click on “HOME OR NEW BATCH”

**7) CLICK ON “CONSULT”**

On the “CONSULT” page, you have access to the statistics of up to 15 batches. The batches displayed are the ones that you have created since the last switch on of the device

If you want to have an access to the full data (each measurement and statistics), you can use the microSD, storing data under csv format (Excel compatible) – each batch is stored in a file having the name of the batch

Take care to the side when placing the SD : Back side of the SD (no logo) looking at the top

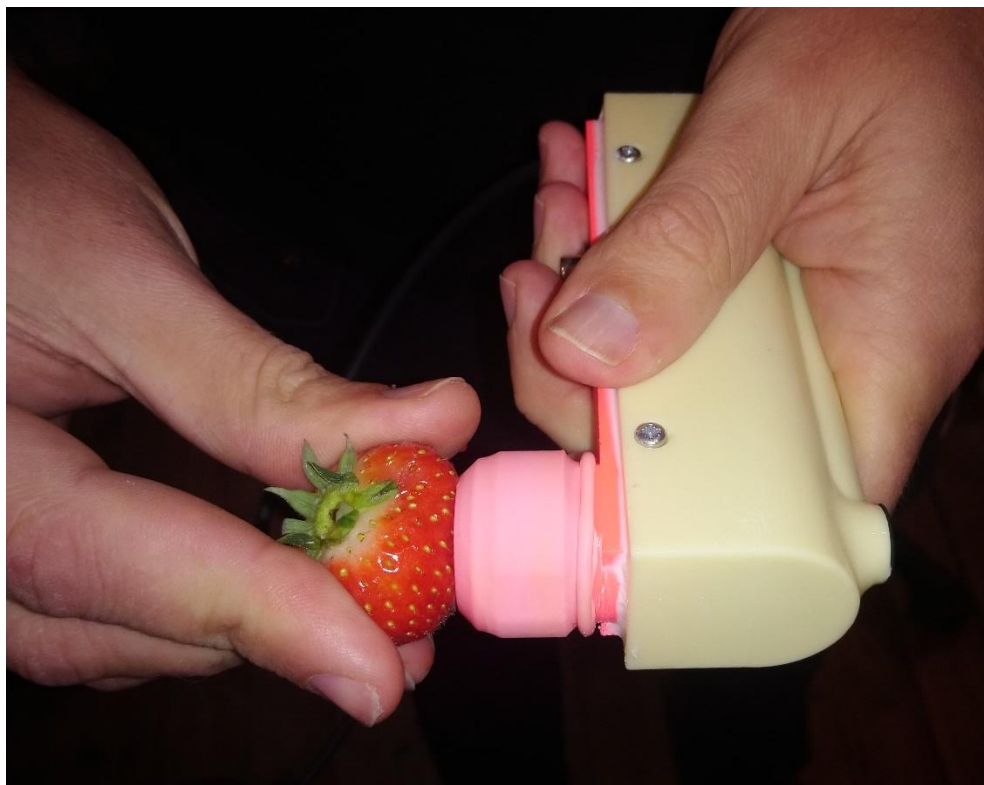
## 8) INSTRUCTIONS AND SPECIFIC INFORMATION

### Choosing a batch

- Depending on where it is measured, a batch of fruit may correspond to:
  - o A piece of land, exposure to sunlight, or a type of soil
  - o All the fruit picked during the same harvest
  - o All the fruit stored in a certain way or during a certain period
  - o A truckload or a palette from a single farm
- Your measurements will be all the more usable if the batch is precisely defined
- We recommend you test at least 35 pieces of fruit for each batch
- Be sure to test the side exposed to sunlight and the side exposed to shade, or several different points depending on the geometry of the fruit. Consistently respect the points of measurement. With cherries, for example, test either the smooth side or the side with the two bulges, or both sides of each piece of fruit

### Instructions for strawberries:

- Install the size 50 tip before turning on the device, and then install the tip protection
- The tip protection (pink item in the photo) is essential for strawberries because measurement releases juice and without this protection the sensor will be damaged with time
- Turn on the device, then hold the sensor in the measuring position before starting a series of measurements:
- Look for the flattest possible area of the strawberry to apply the sensor, and press until the end stop:



- Then remove the strawberry; when the device detects that there is no further pressure, it instantaneously displays the measurement
- Strawberries are destroyed during the measuring process

**Instructions for blueberries:**

Blueberries are measured with the size 25 tip

Blueberries are difficult to measure for several reasons:

- The fruit is small and difficult to hold on the tip under pressure
- They frequently burst during measurement
- Blueberries have a very wide range of firmness, from stone-like to extremely soft fruit that trigger no measurement

A fruit that bursts during measurement does not mean that the value will be false (as long as the bursting is not due to the fruit being held too tightly between the operator's fingers)

In fact, the device takes a pressure measurement every 25 milliseconds and only retains the maximum. When a blueberry bursts, the pressure suddenly decreases, but the maximum value has been recorded.

The way the operator holds the fruit has a relatively important influence on the measurement of blueberries, but the pressure exerted on the end stop also has a certain influence on the measurement values.

This does not prevent the Agrosta 100 Field from being the world's most widely used portable measuring device in the blueberry sector.

Nevertheless, it does require that the different users coordinate themselves by performing simultaneous measurement sessions on the same batches until they obtain similar data by adopting identical gestures and protocols.

The minimum sample size to reliably measure a batch of blueberries is 35 pieces, but it is recommended to measure more.

At the end of the batch you will obtain two statistical values: the average and the standard deviation.

The average is an important factor for the characterization of a batch, but in the case of blueberries standard deviation is essential.

It is an indicator of the heterogeneity of the batch, which is very important for such a highly variable fruit. The impression of quality derives as much from the average global firmness as from the homogeneity of the pack.

A batch may seem acceptable on average, but half of the customer's pack may consist of unripe fruit and the other half of over-ripe fruit. In this case, the standard deviation will be very high, and the customer will be dissatisfied.

This is quite often the case for blueberries, therefore the two factors of standard deviation and average have the same degree of importance.

Approximate average Durofel value (size 25 tip):

- A green blueberry may yield values over 100%
- At the time of harvest: 70 to 80%
- Ideally, at the time of sale to the end customer: 50 to 60%
- Not marketable if under 40%



## 9) USE THE ANDROID APP FOR SMARTPHONE AND TABLET

- First, switch on your device and associate it to your phone or tablet
- For this, go in PARAMETERS / BLUETOOTH and click on "Add device"
- Once it is associated, switch the agrosta 100 off and on again

[www.agrosta.org/agrosta.apk](http://www.agrosta.org/agrosta.apk)



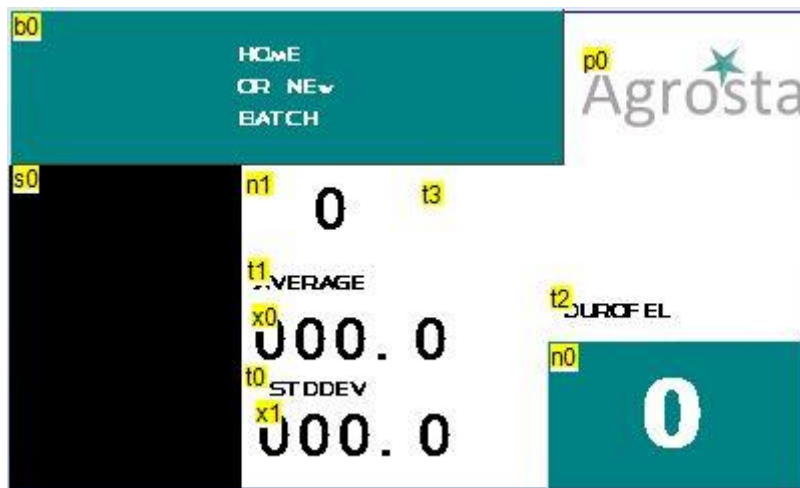
- Once the file is downloaded, you will find it in the DOWNLOADS folder of your smartphone or tablet
- Click on it in order to install it
- You will have several warnings as this file does not come from GOOGLE PLAYSTORE
- The first warning says "Setup of unknown applications is not authorized on this phone"
- Click on PARAMETERS
- Select "ALLOW THIS SOURCE"
- Click on INSTALL
- Then you have a warning : "BLOCKED BY PLAY PROTECT" : This app can be dangerous
- Then click on INSTALL ANYWAY

In order to use the **BARCODE SCANNER**, you should first install a QR code app to be downloaded on **GOOGLE STORE**

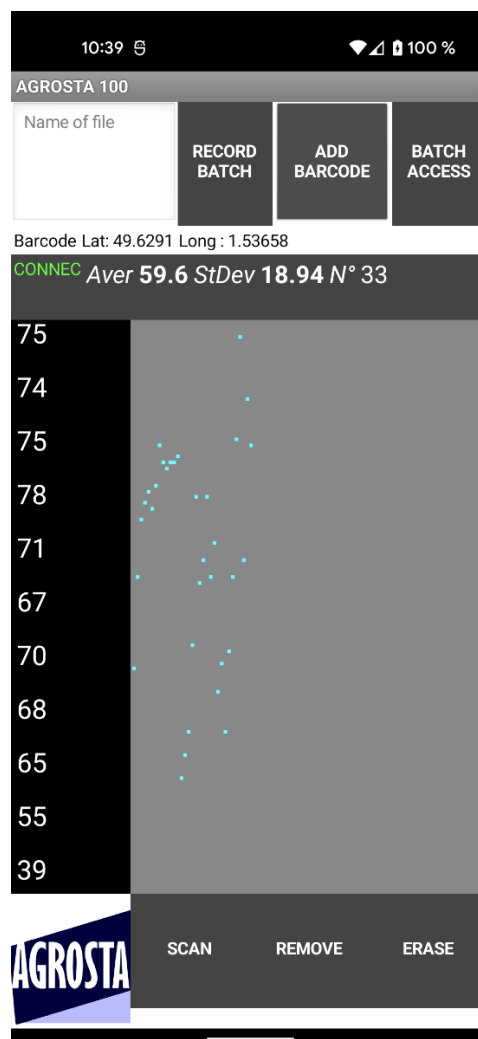
We use QR Scan (Works for QR and simple BARCODES as well) – But any other app can be used

For using the APP :

- Start the Agrosta 100 Field
- Follow instructions till point 6/ previously detailed in this manual, till measurement page :



- Once installed, start the app (only after having switched ON the device) :

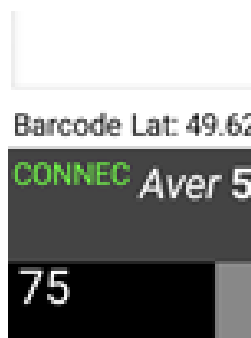




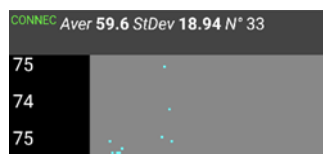
- Click on SCAN on bottom left, close to AGROSTA logo



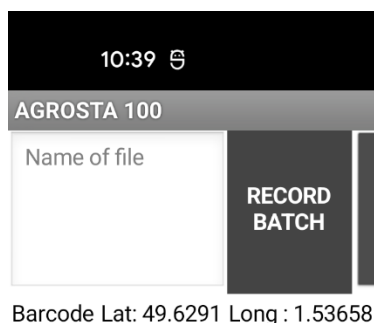
- Click on the line containing the name AGROSTA (here the first one)



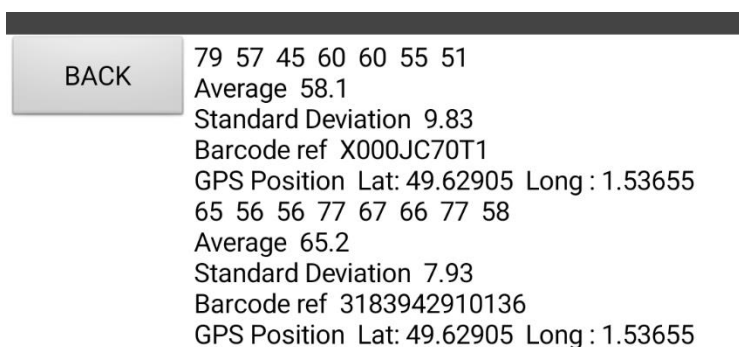
- You see now CONNEC appearing in green, which means the device is connected to your smartphone / tablet
- You can now start the measurements



- Once you have finished to measure your batch, enter a name of file and then click on RECORD BATCH



- If you use the name of an existing file, the data will be added at the end of the file (append)
- You can consult the previous batches by clicking on “BATCH ACCESS”



- Click on the button “BACK” in order to return to the measurement screen
- The files are available under “.csv” format (Excel compatible) with separator “;”
- There are located here on your phone or tablet :  
**Android/data/appinventor.ai\_apollinaire\_agro.agrosta/files**

- Here is how a file look like after having stored 2 batches under same file name :

	A	B	C	D	E	F	G	H
1	79	57	45	60	60	55	51	
2	Average	58.1						
3	Standard Dev	9.83						
4	Barcode ref	X000JC70T1						
5	GPS Position	Lat: 49.62905 Long : 1.53655						
6	65	56	56	77	67	66	77	58
7	Average	65.2						
8	Standard Dev	7.93						
9	Barcode ref	3,1839E+12						
10	GPS Position	Lat: 49.62905 Long : 1.53655						
11								
12								
13								
14								