

The Agrosta 100 Field Version 10 has been designed in 2023  
It comes with the best technology for measuring the firmness / softness of soft fruits and materials – It is a statistic instrument



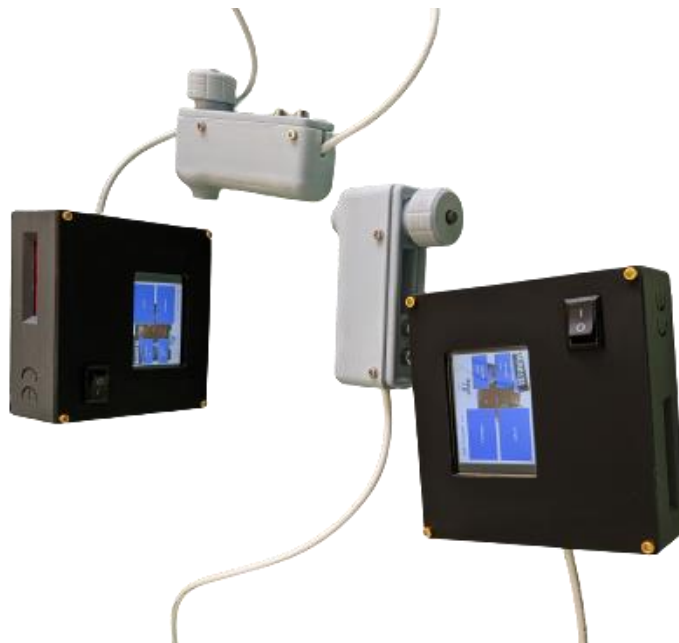
Many thanks for having acquired an Agrosta instrument

Your package contains :

- A Box with the instrument itself and the sensor
- A SD card already inserted in the instrument
- A charger
- A set of tip protections
- 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.

**Color Touchscreen :**

2.4" touchscreen, you can use the touch buttons to pilot the machine, name and consult the batches and switch ON or OFF the sound

**Speech Function :**

The Agrosta 100 Field tells you all results after measurement - It is extremely comfortable for the user that does not need to watch the screen. The average is told once the batch is finished

**MicroSD slot :**

All measurements are stored on the MicroSD once you finish a batch. You can use the keypad proposed on the color touchscreen in order to give a name to the current file  
The file is a csv (Excel compatible) - Here is how it looks like on Excel :

**Bluetooth:**

The Agrosta 100 Field communicates with any Android device, or any PC under Windows via Bluetooth. The APP is free, a QR code is provided on the manual, and you can download it and install it on a phone or tablet  
The APP uses optionally the GPS positioning and Barcode scanner of your phone or tablet - so you will have this data inside the file generated  
The APP stores your data on a csv file as well  
The app for Windows is free to download too, it comes with a light version of Excel : You can open, create and manage Excel files inside Agrosta software

**Statistics calculation :**

The statistics are extremely important when evaluating the quality of a batch of fruits  
Especially the standard deviation, which gives an excellent picture of the firmness homogeneity  
When using a device like the Agrosta 100 Field, you will not deliver on the market a blueberry bucket with in the same bucket very soft and very hard berries (For example)  
It is one of the most important quality factor

**Sensor :**

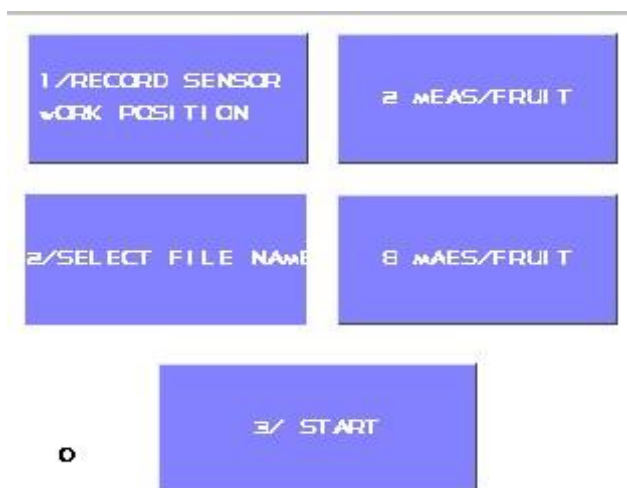
The sensor structure is made with ceramic micro-particles, which ensures an extreme rigidity and temperature stability for unparalleled precision



## 1) INSERT MicroSD (LOOK AT THE SIDE)



## 2) CLICK ON START



**3) TAKE THE SENSOR IN HAND IN THE POSITION THAT WILL BE USED FOR MEASUREMENT**



**CLICK ON “RECORD SENSOR WORK POSITION” : BUTTON ON TOP LEFT: 1/**

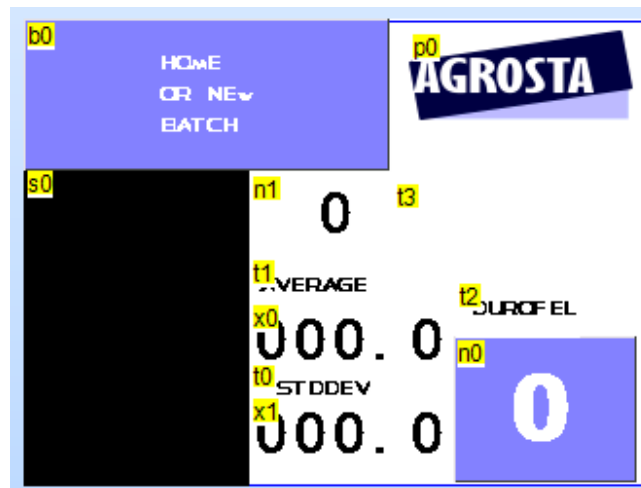
**4) CLICK ON THE “SELECT FILE NAME”: 2/, A KEYBOARD WILL APPEAR, AND YOU CAN ENTER THE NAME OF THE FILE ON MicroSD**

**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) THERE ARE 2 BUTTONS ON TOP RIGHT : IF YOU DON'T CLICK ON ANY BUTTON, YOU WILL MAKE ONE MEASUREMENT PER FRUIT. IF YOU CLICK ON 2 OR 8, YOU WILL HAVE TO MAKE THE CORRESPONDING NUMBER OF MEASUREMENTS PER FRUIT, ONLY THE AVERAGE FOR EACH FRUIT WILL BE RECORDED**

**7) CLICK ON “START” / 3/**



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”

## 8) 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 : Bask side of the SD (no logo) looking at the top

## 8) INSTRUCTIONS AND SPECIFIC INFORMATION

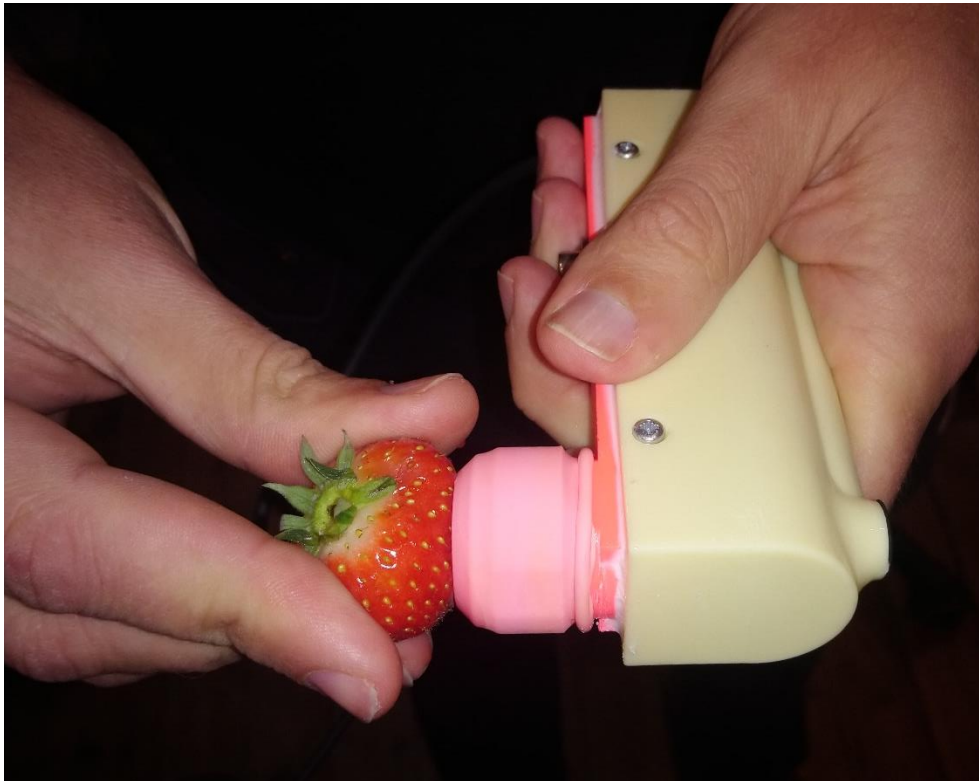
Choosing a batch

- 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:

13 Rue du Bastringue – 76440 SERQUEUX - FRANCE  
lak@agrosta.org - [www.agrosta.org](http://www.agrosta.org) – Tel +33 689494340

- 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

App for Android

- **First, switch on your device and associate it to your phone or tablet**
- **For this, go in PARAMETERS / BLUETOOTH and click on “Add device”**

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

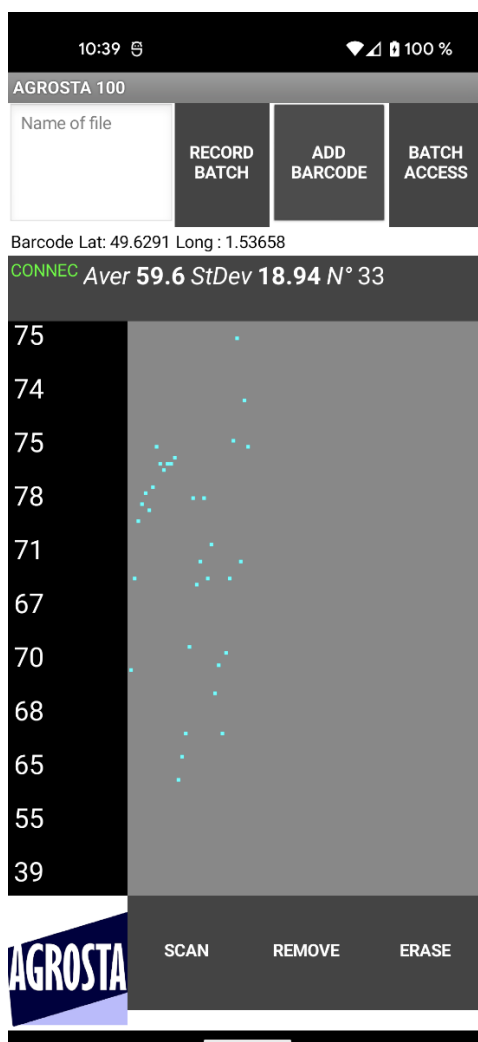


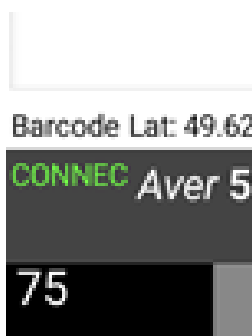
- Once the file is downloaded, you will find it in the DOWNLOADS folder of your smartphone or tablet
- Click on it in order to install it
- You will have several warnings as this file does not come from GOOGLE PLAYSTORE
- The first warning says “Setup of unknown applications is not authorized on this 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

The 2023 App comes with a barcode scanner, So you don't need to install any Barcode scanner on your phone or tablet

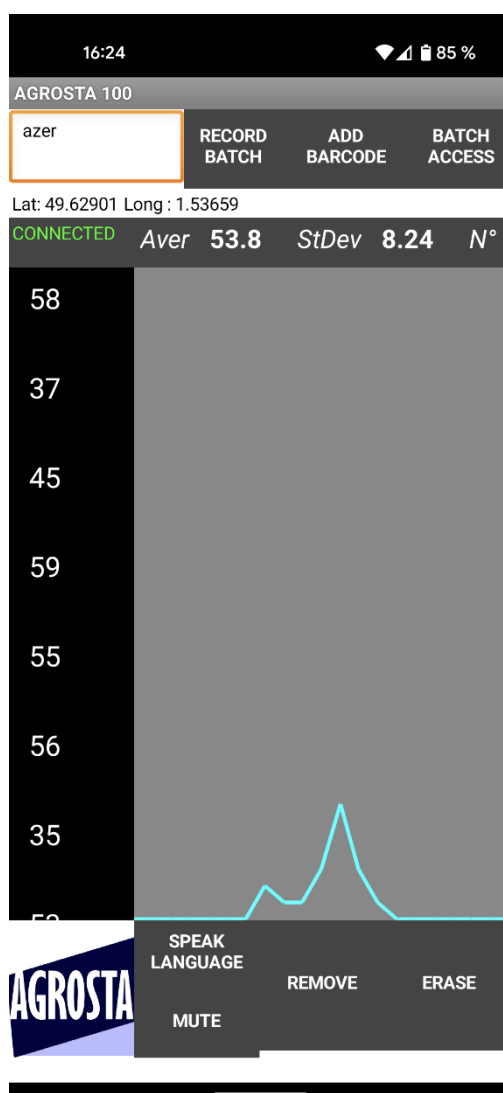
For using the APP :

- AGROSTA 100 Field : Start the device, and go till the measurement page
- Once installed, start the app (only after having switched ON the device) :

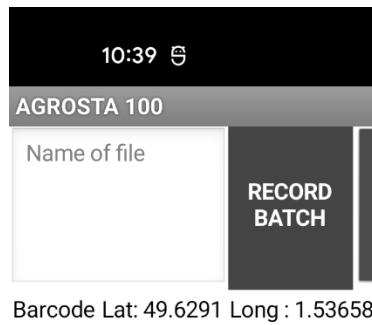




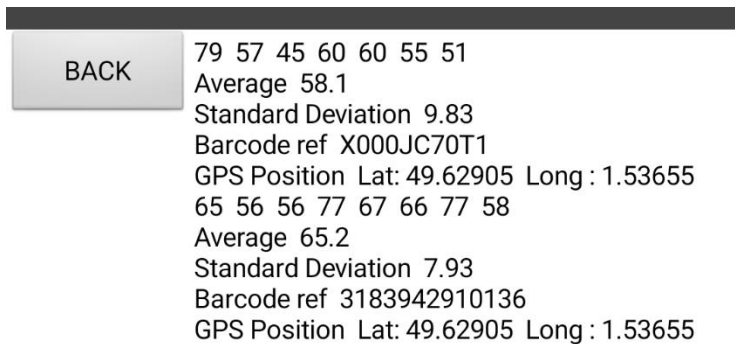
- You see now CONNECTED appearing in green, which means the device is connected to your smartphone / tablet
- You can now start the measurements



- 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/com.lak.agrostabm/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								

- **Voice function :** Click on UNMUTE and choose between more than 40 languages

The results will be said by a voice

It's a very good help for the user, that does not need to watch the phone or tablet when measuring

## Communication with a PC under WINDOWS

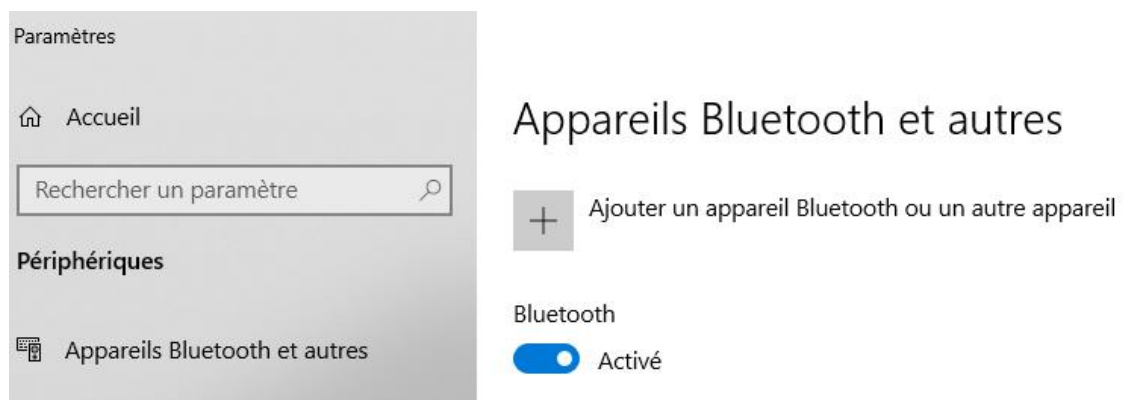
You can download the app for Windows here :

**<https://agrosta.org/AGROSTA102.zip>**

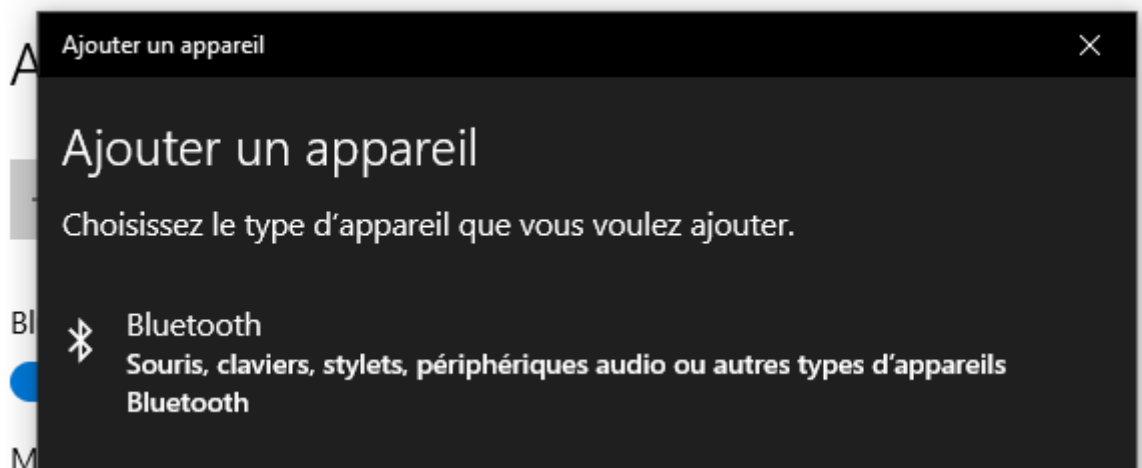
First, you need to add the Bluetooth device to your PC :

### Setting up the Bluetooth communication :

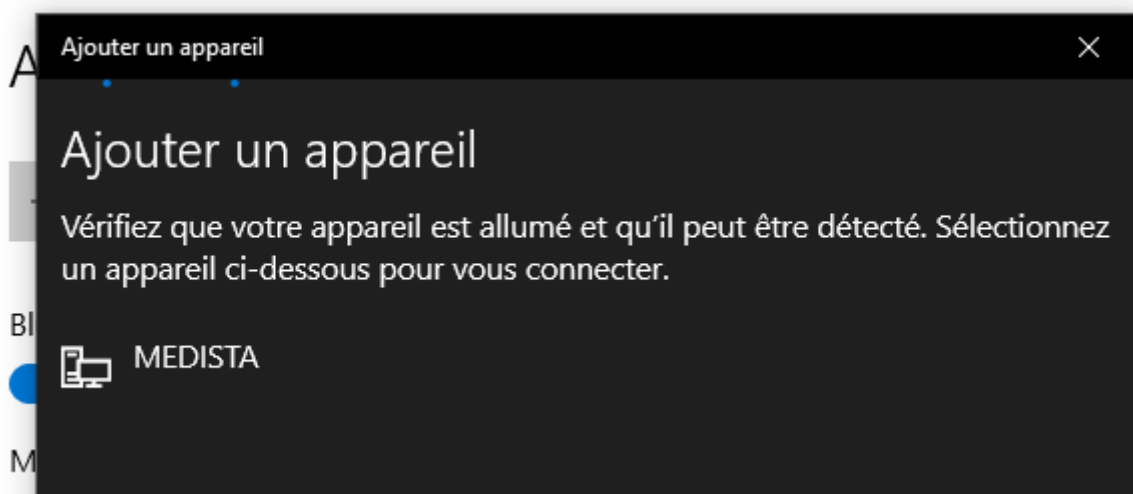
- AGROSTA 100 Field : Start the device, and go till the measurement page
- On your computer, go the parameters, and then Bluetooth devices:



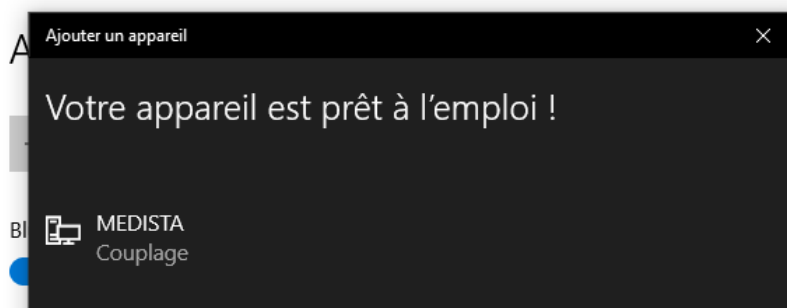
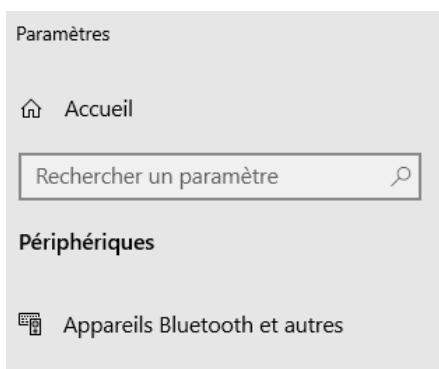
- Click on “Add a Bluetooth device”, and check that the Bluetooth is activated
- Then click on the first category : Bluetooth keyboards, mouse, audio and others :



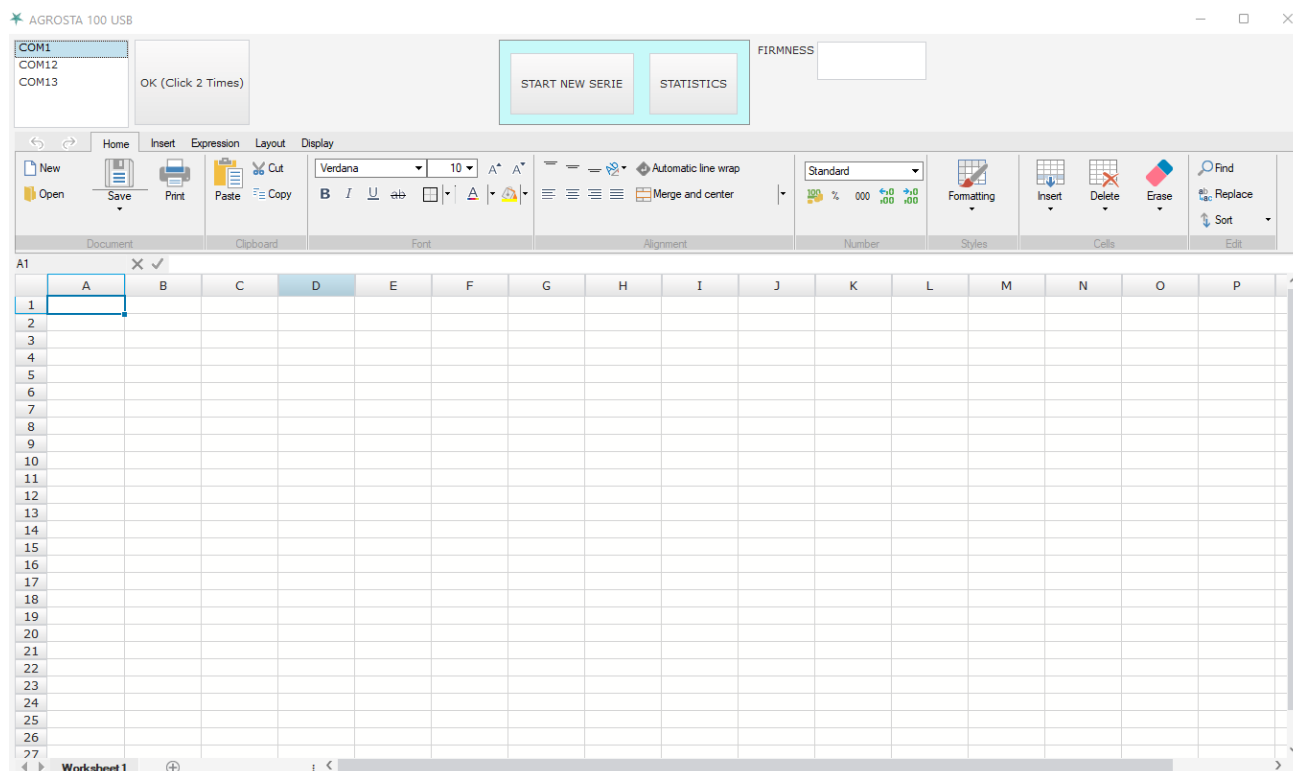
- Then click on “AGROSTA100”



- Once you have clicked on “AGROSTA100”
- Your computer indicates : “the device is ready to use”



Start the software – One of the COM indicated on top left corresponds to your device  
Click on it, and then 2 times on OK



To start a new batch, click on any cell in the chart, where you want the data to be displayed  
Then click on “START NEW SERIE”  
Make the measurements  
When finished, click on “STATISTICS”  
You will obtain the average and standard deviation