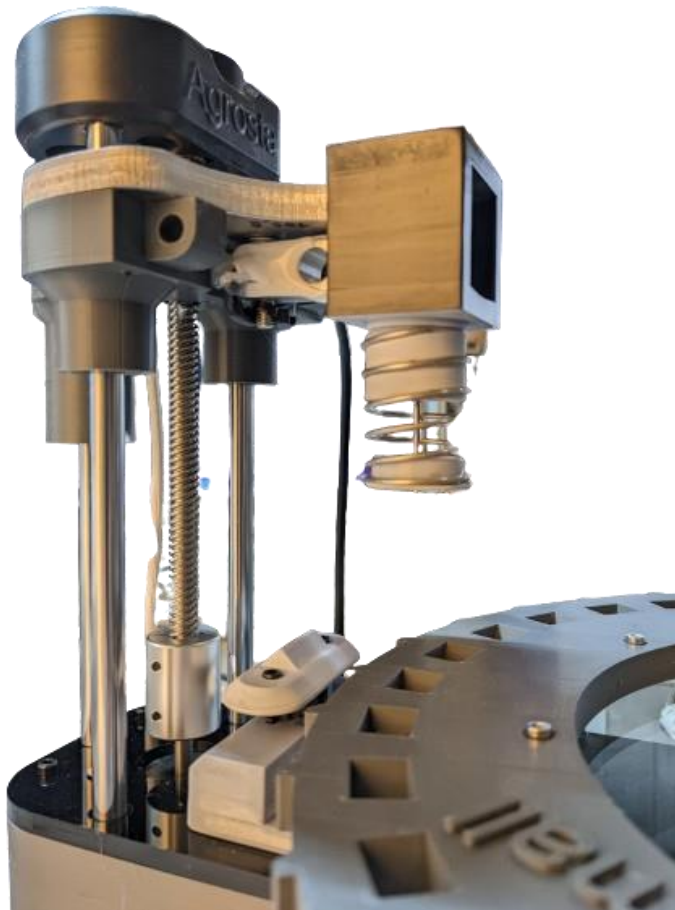The Agrosta®Wonderfast has been designed in 2020, improved in 2024 in order to provide a top accurate machine for testing automatically any kind of fruit using penetrometry or deflection

Many thanks for having acquired an Agrosta instrument

Your package contains :

- The machine itself
- 2 Tips : For penetrometry standard or according to client request
- 2 turntables (According to your request, 2 identical or 2 different turntables)
- A manual with certificate of conformity
- A 110V / 220 V power supply
- A Usb stick with the software
- A Usb cable

Agrosta®WONDERFAST
Digital Firmness and size measurement of fruits

The Agrosta®Wonderfast version is entirely designed and assembled in France. The motherboards come from USA, and the shield boards are made in Hong Kong and USA.

The Agrosta®Wonderfast version is not waterproof! It is a precision instrument; please take care to avoid dropping or knocking it.

The Agrosta®Wonderfast version comes with two years guarantee

- Minimum Pressure : 100 grams
- Maximum Pressure : 10 000 grams
- Resolution: +/- 1g
- Software compatible with Windows XP, 7, 8 and 10
- The size is provided in mm (The user has to enter the initial size, between the sensor head, and the bottom of the cup of the turntable)

The software is compatible with all Windows versions

Version December 2022 :

1/ Install Driver

- Don't connect your machine
- Insert USB stick in your computer

- Double click on "DRIVER1" – Follow setup procedure
- Double click on "DRIVER2" – Follow setup procedure
-

2/ Connect Usb cable between instrument and your computer

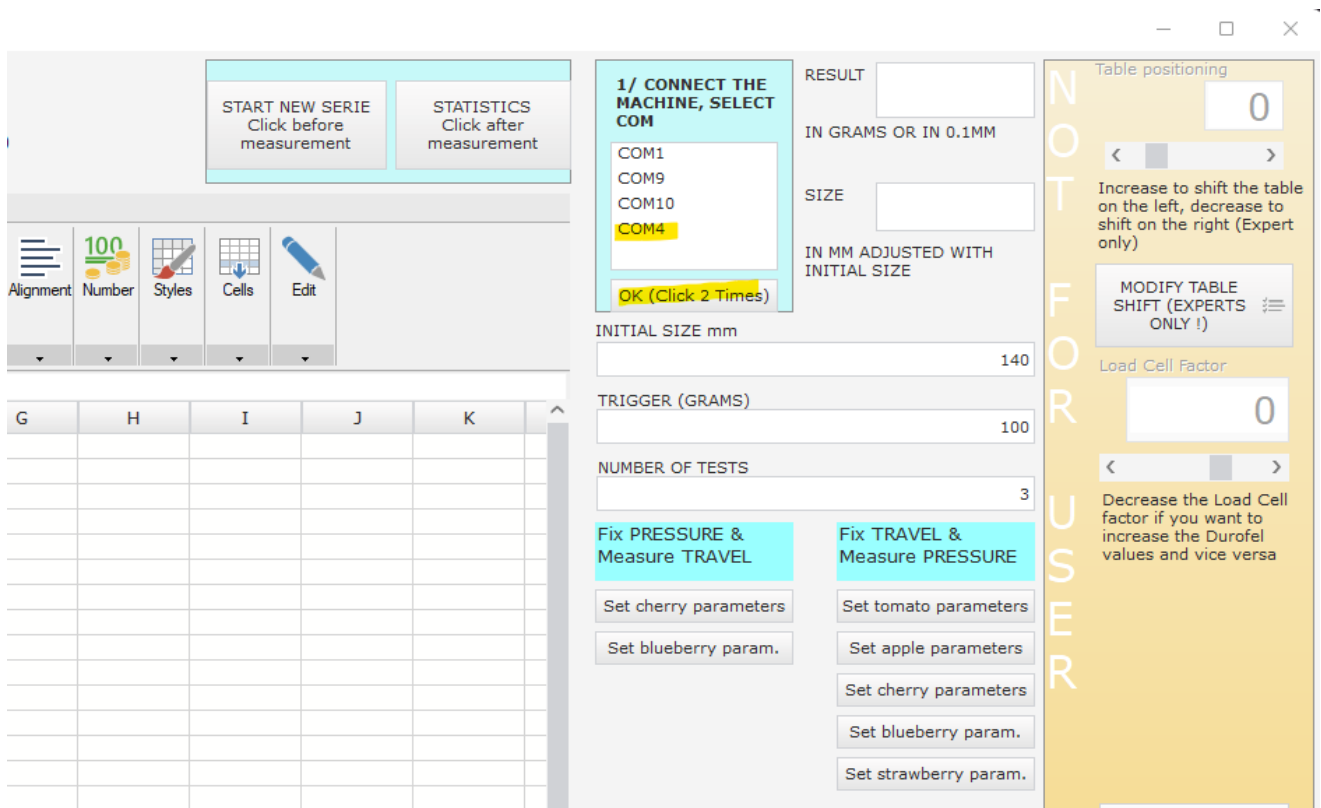# 3/ Wait a few seconds till it is recognized (Driver linked to device)

4/ Install Software from USB Stick

- Double click on "INSTALL"
- Follow Setup procedure

5/ Connect Power plug

6/ The software starts after setup

- On the right/top of the window appears a list of COM ports
- Select the one corresponding to your machine
- Usually, the last COM port corresponds to your machine
- Click 2 times on "OK"

7/ Start a new Serie

The software comes with a light version of Excel :

- You can open any Excel file

- Or use the blank sheet that appears when you start the soft

- Click on the cell where you want the data to start to be displayed

- Then click on "START NEW SERIE" : Date / time and column headers will be displayed

- You can click in any other cell in order to add any other information (like sugar content..)

- Or start another batch in another position of the sheet

- At the end of your tests, you can record the Excel file
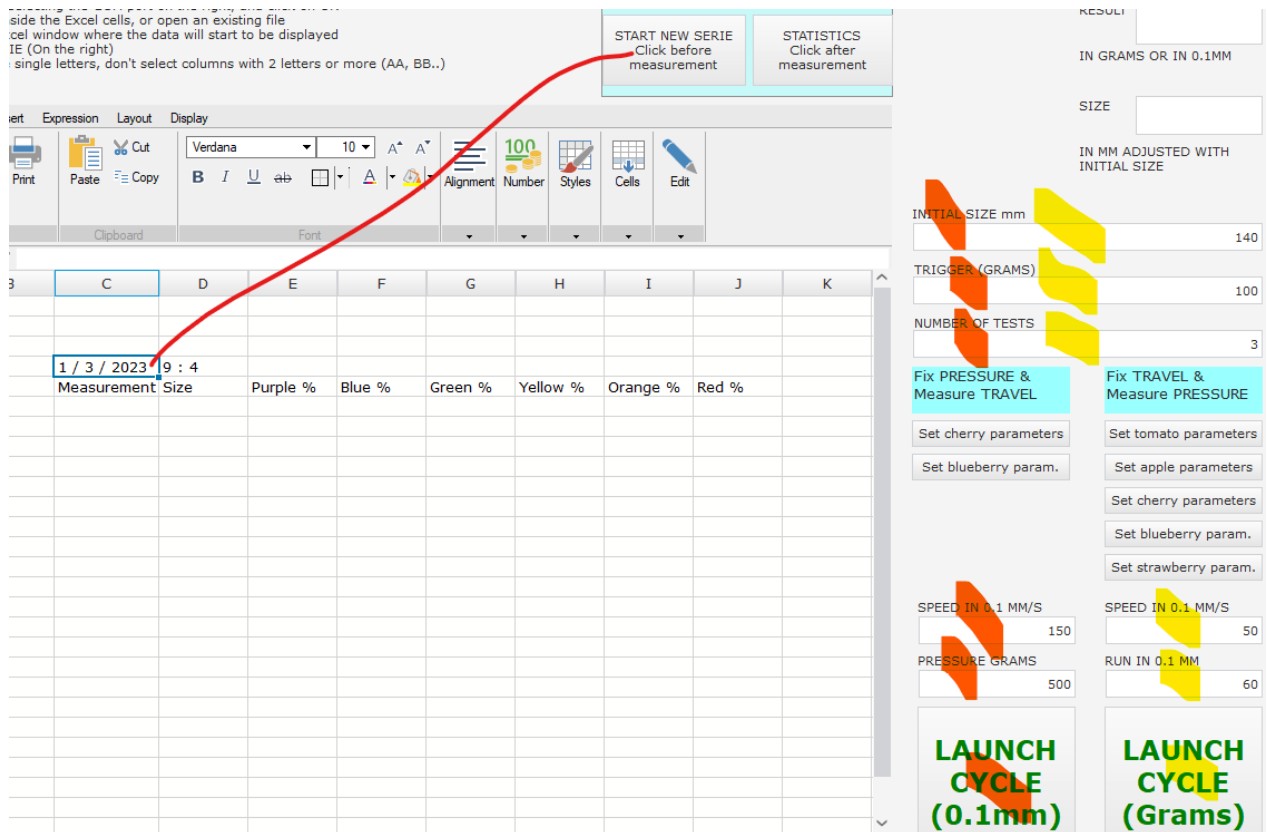
- You can use a barcode reader, and select the cell where you want the barcode reference to appear

8/ Launch a cycle

- Define the number of tests you want to perform (The number of fruits placed on the table, between 1 and 32), enter this value in the corresponding field
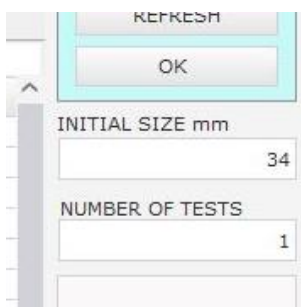

- For blueberries, if the table is full of fruits, this value is 32
- For citrus or apples, this value is either 8 or 10, for cherries 20
- If you want to make continuous testing (remove and replace berries during the cycle), you can put a value like 1000 – The machine will then test 1000 fruits / If you want to stop, remove the USB plug and the Power plug / Then reconnect and restart the software

- Place the table : Switch between 2 cups as on photo hereafter / The machine will start with the cup on the right side :

WARNING
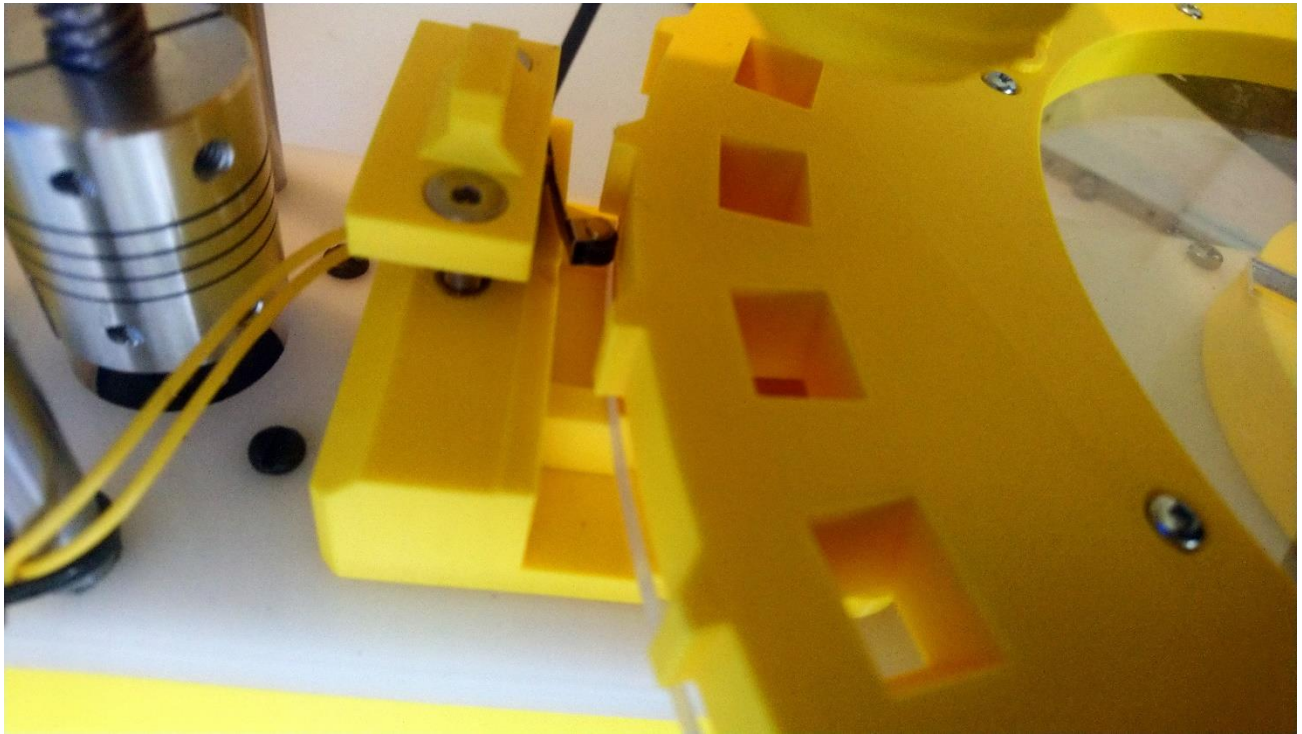
- **The biggest fruit** has to start the cycle (This will define the maximum size for the machine)
- Hereafter, the first fruit to be tested is the pomelo (The biggest)
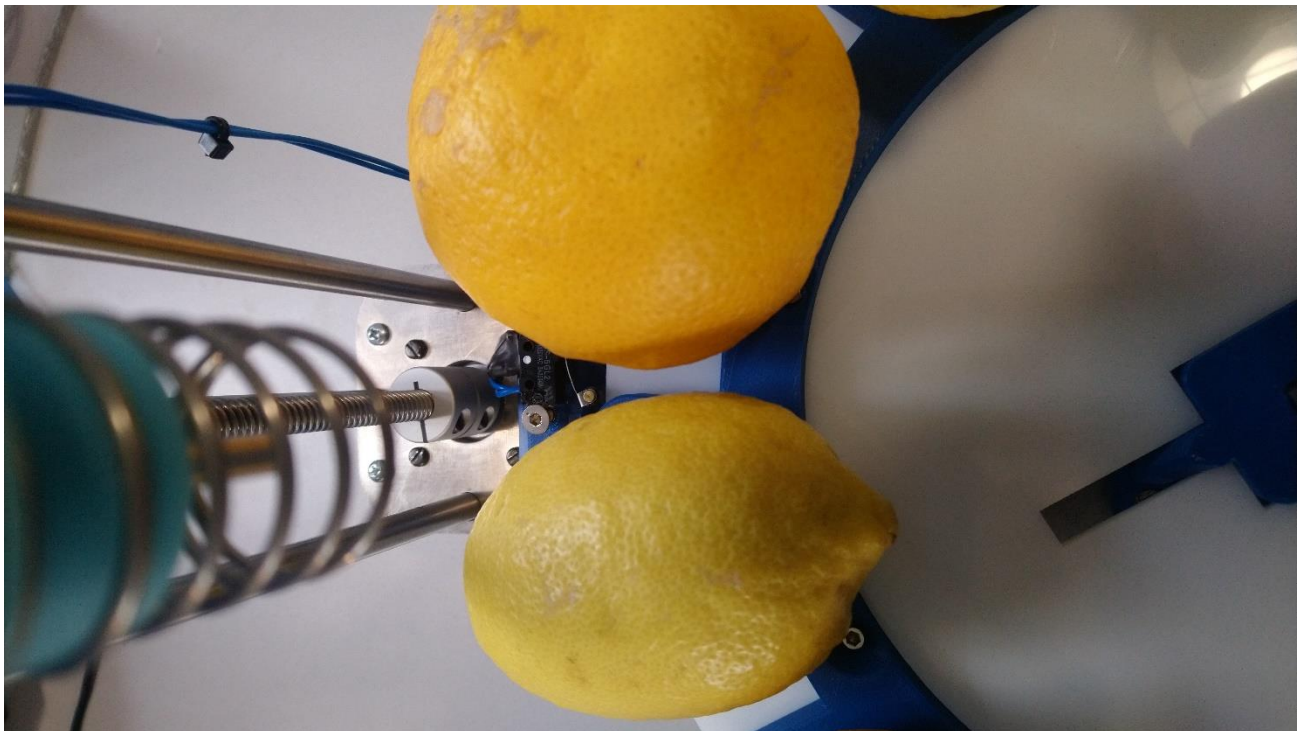
You can use 2 different measurement strategies:

- Either you fix the RUN (Travel) inside the fruit and measure the pressure (usually used for **PENETROMETRY**) – <mark>FILL THE FIELDS HIGHLIGHTED IN YELLOW</mark>

- Or you can fix the PRESSURE to be applied and measure the deformation (usually used for soft fruits) – With this strategie, you can measure according to **FIRMTECH** standard : The low pressure corresponds to the TRIGGER, and the high pressure to PRESSURE GRAMS - <mark>FILL THE FIELDS HIGHLIGHTED IN ORANGE</mark>

9/ Adjust the size measurement

- You need to enter the initial size in mm (Distance between the sensor head and the middle of the cup height of the turntable you are using)
- Enter this value in the field "Initial size"

REFRESH

OK

INITIAL SIZE mm

34

NUMBER OF TESTS

1
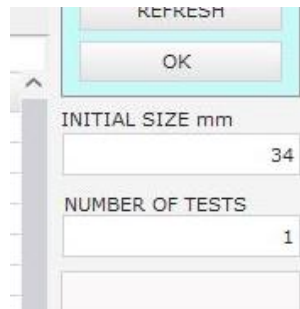
- Make some tests with fruits for which you know the size, and adjust the initial value : Adding 1mm to initial size adds 1 mm to fruit size

Bottom of sensor to top of turntable is X mm

Depth of the hole is 10mm
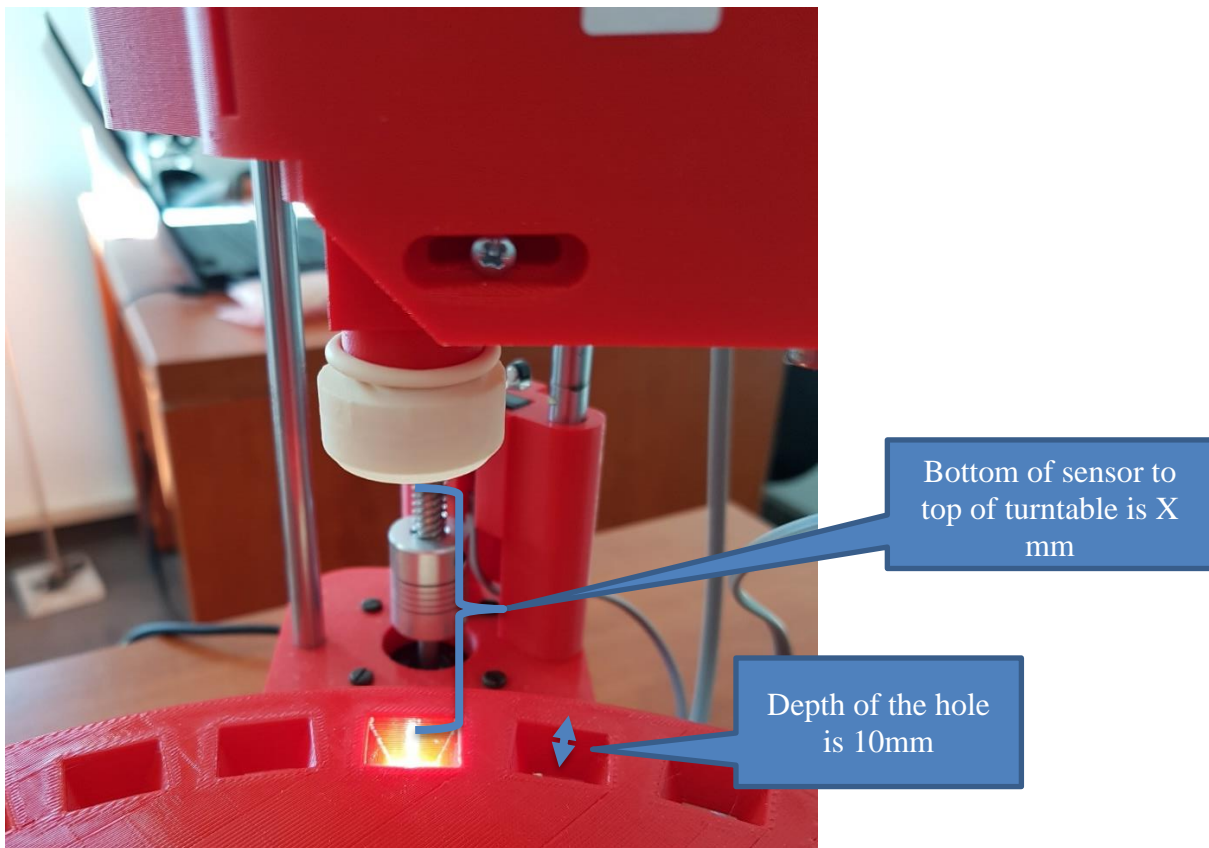
10/ Adjust the trigger, speed and run (stroke) parameters (In RUN adjustment mode)

TRIGGER (GRAMS)

32

NUMBER OF TESTS

3

SPEED IN 0.1 MM/S

30

RUN IN 0.1 MM

45

The TRIGGER is the pressure for which the machine considers the fruit is touched : When the trigger pressure is reached, the machine starts the RUN as defined (in 0.1mm)

If you increase the TRIGGER, the tip will penetrate more inside the fruit
For fruits with a non-smooth surface like raspberry or blackberry, you can increase the TRIGGER in order to reduce the incidence of the irregularities on the surface of the fruit

Those 2 other parameters adjust the speed and stroke after the contact with the fruit (Impact on measurement is very high)
The maximum speed is 200 = 20mm/second (if more than 200 is requested, the motor will be blocked, it will not move at all, but don't worry, the machine won't be damaged), there is no minimum speed
The minimum run is 20, which corresponds to 2mm

If the pressure reaches 13 000 grams, the tray will go back without finishing the defined stroke
So if you obtain values of 13 000 exactly, you should modify your parameters (reduce the RUN) or change the tip for a smaller one

11/ Use additional functions

The software comes with a light version of Excel
You can use Excel formulas, add comments and highlight some areas

If you select a cell and then click on "START NEW SERIE", all comments and headers indicated in GREEN hereafter will appear

Once you have finished the measurement of a batch, just click on "STATISTICS" button on top, and statistics will be automatically calculated, they appear in YELLOW hereafter

OPTIONAL COLORIMETER

The color is taken from under the table

	A	B	C	D	E	F	G	H	I	J	K
1	12 / 23 / 2022	15 : 51									
2	Measurement	Size	Purple %	Blue %	Green %	Yellow %	Orange %	Red %			
3	1325	132	0	0	-3	-1	4	0		No sample	
4	2509	107	95	91	93	99	102	101		White sheet	
5	2050	114	6	0	8	6	33	38		Cherry 1	
6	2125	94	5	0	10	4	36	38		Cherry 1	
7	2577	108	4	1	6	3	34	43		Cherry 2	
8	1758	95	3	0	6	1	23	32		Cherry 3	
9	14	110	7	1	10	6	41	50		Cherry 4	
10	12	107	8	3	9	7	40	50		Cherry 4	
11	7	54	53	52	41	57	46	57		Grey sample	
12	7	54	54	52	42	57	47	57		Grey sample	
13											
14											
15											
16											

6 different colors are measured
They give relative value

For all of them, the maximum is given by a "Pure white" and the minimum by "No sample"
They correspond to the following wavelengths :
450 / 500 / 550 / 570 / 600 / 650 nm

A pure white placed on the turntable gives 1000 for each wavelength

The dominant colors give the highest percentage (Here cherry 1 to 4 in Red and Orange)

EXCEL FUNCTIONS

All standard Excel functions can be used inside the software, like =AVERAGE() for average or =STDEV() for standard deviation
And many more.. in the tab "Expression"

SPRING SYSTEM

The spring system is made to maintain the fruit on the table during measurement
If you prefer, you can remove it
It's not a part that need to be there for the machine functions