

## Compact & ergonomic solution for seed analysis & fast TSW



Type of seeds :	Corn	
Ref. of batch :	1	
Total Nb seeds :	290	Total weight : 76,75
<b>T.S.W :</b>	264,66	Nb meas : 1 <input type="button" value="Cancel"/>
<b>T.S.W corrected :</b>		Humidity :
Number of seeds to reach :	<input type="text"/>	Mass to reach :
	<input type="button" value="Compute"/>	
<input type="button" value="QUIT"/>	<input type="button" value="Init DB"/>	

Measure finished! Ready for measurement.

Mass :	76,75	<input type="button" value="OK"/>
Nb seeds :	290	<input type="button" value="OK"/>

09/01/2019-17:36:38 \*\* Analysis: Corn \*\* ID: 1 \*\* Mass: 76,75 g \*\* Cmpnt: 290 \*\* PMG:264,66 g \*\* Tc: 2,2 s

Economic or ecological aspects have a strong impact on the seed industry to develop and produce high-quality and top-performing seeds. Basis for this is a precise analysis of seed characteristics.

### Challenge

The TSW (Thousand Seed Weight) is an essential parameter of characterization used in crop research and variety breeding, seed trade and storage as well as for grain milling.

The TSW is specific for every species but depending on environmental conditions is subject to significant variations. The exact knowledge of the TSW is fundamental for calculating the seed rate, knowing the problems a plant has encountered during its development like pests or diseases, for measuring the optimal quantity of coating or judging the mill quality.

### Our solution

OPTOMachines provides with the **OPTO-Agri** a high-performing, one-step and ready-to-use device for calculating the TSW.

Fast, accurate and objective results are obtained by the perfect interaction of 3 elements: a **camera with a high resolution** depending on the grain size, a **laboratory balance** by Mettler Toledo and a **software for image processing** with an algorithm developed by

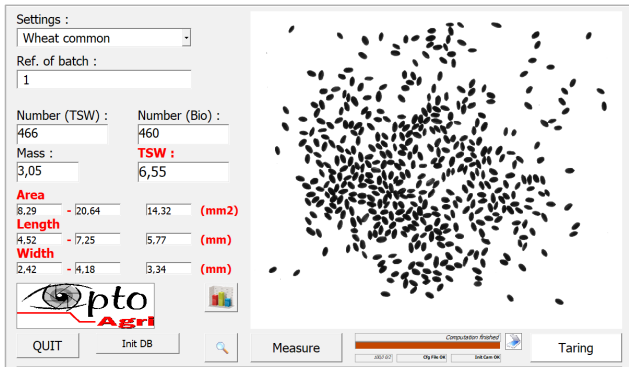
OPTOMachines. Pre-programmed **settings for more than 40 different species** guarantee perfect measuring results. Settings for other species can be provided on demand.

As the TSW is closely associated with size traits as length, width or surface the OPTO-Agri can be equipped with a **biometry module**.

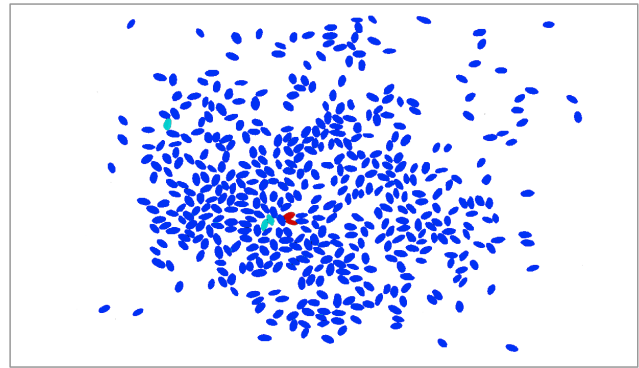
During the last 10 years, we've supplied the OPTO-Agri worldwide to leading seed companies, research institutes and independent analysis laboratories.

### Main benefits:

- Results in less than 5 seconds
- One-step TSW calculation: simultaneous weighing & counting
- Ready to use, no mechanical adjustments between 2 species
- User-friendly interface
- Small footprint, ergonomic & compact design
- Easy maintenance without dismounting
- Complete traceability of results
- Tested & certified precision and repeatability
- Entry for bar code reader
- Remote customer service



User interface of grain biometry



Processed image of grain biometry

### Features & main functions

The main function of counting, weighing and TSW calculation is available in 3 models:

- **Standard**: for big seeds like cereals, corn, beans, sunflower or rapeseed, ...
- **Micro**: for vegetable seeds < 2 mm like tomatoes, carrots, lettuce, onion, cabbage, ...
- **Super Micro**: for flower seeds like petunia, begonia, ...

Two models can be installed in the same OPTO-Agri: Standard & Micro or Micro & Super Micro.

The OPTO-Agri Standard measures samples of up to 3000 rape seeds, 1000 wheat or 500 corn grains. An integrated **anti-static bar** removes electrostatic charges from the seeds and the tray when being placed in the OPTO-Agri. After taring the balance and choosing the seed type, the result appears after **less than 5 seconds** by a simple click on the dialog box.

All results are displayed and saved automatically as images and tables.

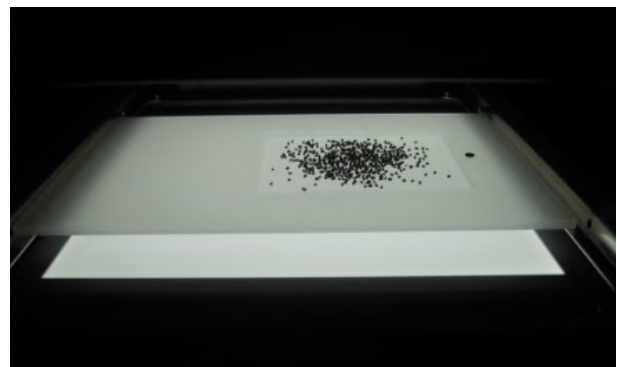
The OPTO-Agri with its **small footprint** offers an ergonomic and compact design where balance and touch screen PC are completely integrated. The device is equipped with an entry for a bar code reader.

### Dimensions

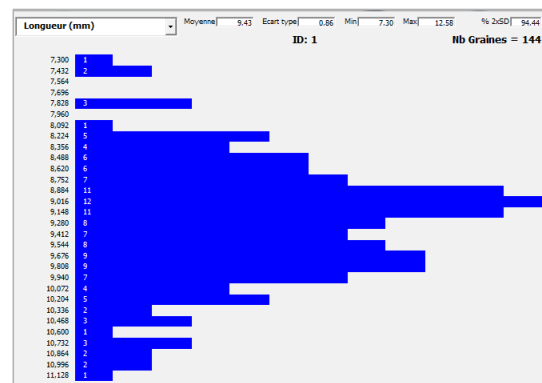
- Height: 79 cm
- Length: 41 cm
- Width: 38,5 cm
- Weight: 40 kg

### Available options

- **Biometry**: for Standard and Micro models, measure of 7 parameters like length, width, surface, eccentricity ...
- **Air intake**: for connecting the OPT-Agri to a ventilation system, recommended for treated or very dusty seeds
- **Measure of leaf area**
- **Measure of rape seed pods**, etc.



OPTO-Agri Micro TSW measuring



Biometry results displayed in a histogram

*The French company OPTOmachines is a renowned specialist for optical measuring and analysing equipment to the agronomy industry.*

*The portfolio contains devices for weighing, counting, classifying applications but also complete custom-made lines for phenotyping, packaging and treatment, etc. OPTOmachines supplies the seed industry leaders, prestigious research institutes and independent laboratories.*