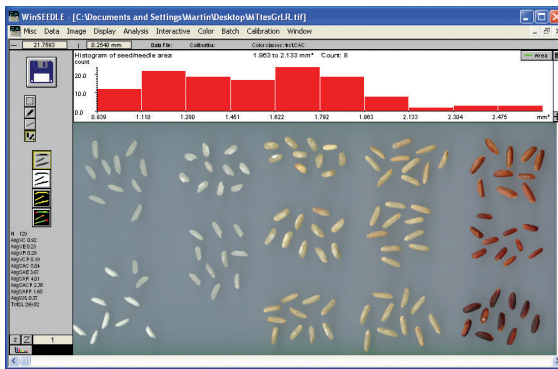




WinSEEDLE™ 2022

For SEED and Conifer NEEDLE Morphology and Disease Analysis

WinSEEDLE is an image analysis system for needles and seeds morphology and diseases analysis.



WinSEEDLE comprises hardware for image acquisition (scanner and accessories) and a computer program, WinSEEDLE, specifically designed for seeds and needles analysis (area, morphology and diseases analysis). Different configurations are offered in function of measurements, speed, accuracy and cost.

The WinSEEDLE software program is very easy to use. To get an image from a scanner, simply click the scanner icon and specify the scan area size. After the scan, the image is displayed in WinSEEDLE's Image area, ready to be analysed. A simple click on the image is all that is required for basic analyses (like seedles area, length and width). More complex analyses (color analysis) require a few other clicks.

An Histogram of morphological data (length, width, area, curvature, volume...) or area per color (Pro) is displayed above the image during measurement.



Needle digitized with a bad lighting setup. Shadows can be seen around the needle. These significantly reduce the accuracy of measurements.



Needle digitized with Regent's lighting system. No shadows are present.

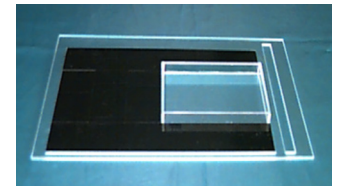
WinSEEDLE™ measures straight or curved seed and needle morphology (length, width, area, volume,...). The Pro software version can color classify them and quantify disease areas.

Seeds and needles are classified in groups based on their color (brown vs. green, as in above image or different brownish tint as in image to the left) and are analysed separately. Measurement of the area occupied by each color is used to quantify disease or insect damage. Very subtle color differences can be detected.



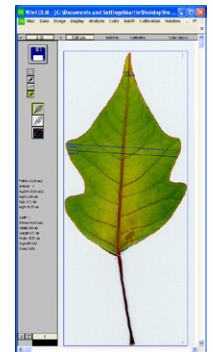
Our scanners come with accessories like the positioning system illustrated below.

This positioning system can accommodate different scan areas or tray sizes for scanning seeds and needles. Installed and removed in a few seconds, it allows to scan more effectively by repetitively placing samples at the same position in a few seconds and by bypassing the scanner *Preview* step. When more than one tray is used, the operator (or another one) can place the sample in one tray while the other is being scanned or analysed.



For broadleaf analysis, we offer the WinFOLIA™ program which can share with WinSEEDLE™ the same image acquisition hardware. A rebate is offered when both products are purchased.

WinSEEDLE™ comes with our custom manual illustrating how to scan biological samples for analysis with our programs and how to obtain the best images for accurate measurement. It also gives some tips specific to the scanner you own. Besides, our scanners come with a fixed permanent calibration used by our programs to increase the precision of measurements made from their images.



WinSEEDLE™ Features and Measurements

WinSEEDLE™ measurements data are automatically produced on an individual basis (per seedle) and globally (total or average value for the analysed set).

Data are shown on screen during the analysis and are saved to standard ASCII text files that can easily be opened from many types of programs (like Excel) for data visualization and analysis.

Individual measurements

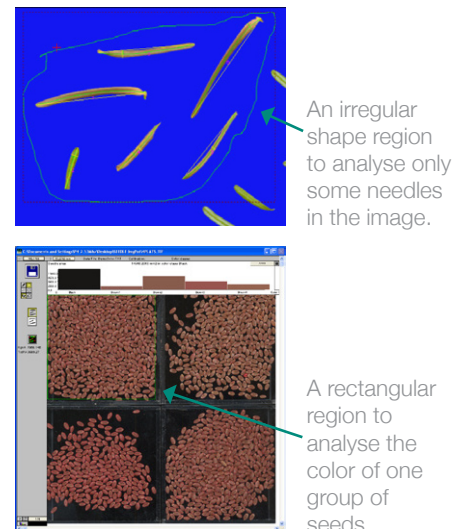
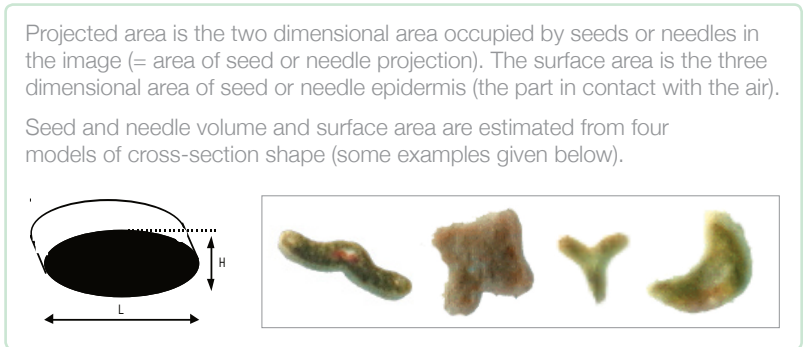
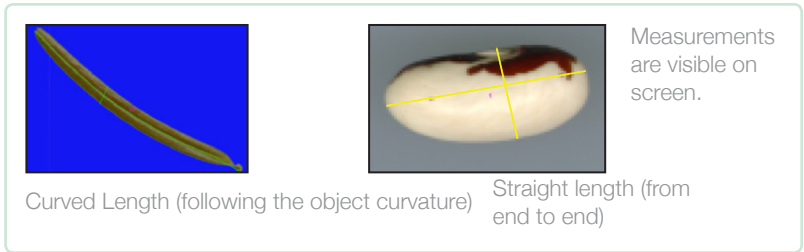
- Straight and curved length
- Maximum width
- Curvature
- Perimeter
- Projected and surface area
- Volume (estimated)
- Disease areas quantification (Pro version)
- Color classification (Pro version)
- Interactive length (done manually by the operator)
- Form coefficient

Global measurements and average values

- Average length (straight and curved)
- Average maximum width
- Average curvature
- Average projected and surface area
- Total projected and surface area
- Average volume
- Seedle count
- Total disease areas
- Total area per color or group of colors

Other Features

- Analyse whole images or their sub-regions. Sub-regions can have any circular, rectangular or irregular shape made with the lasso tool. You can create practically an unlimited number of sub-regions and resize them at anytime.
- Exclude regions of the image from the analysis.
- Batch scanning and analysis to scan and store images on disk and analyze them later interactively or without supervision.
- Automatic filtering of defects and debris based on shape (Reg & Pro) or color (Pro).
- Interactive image edition with any color present in the image or defined by users to remove artefacts or debris.
- Information about the dominant color class (area, hue, saturation intensity, and class name) saved with the data (Pro version).
- Available for Windows based computers (Windows 7 to 11, 32 or 64-bit).
- WinSEEDLE™ is updated regularly and includes printed and pdf color manuals abundantly illustrated and a prompt and competent after-sales technical support by e-mail.



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