(Option)

GXY-A plus

PLANT ROOT PHENOTYPE ANALYSIS SYSTEM

Introduction

Professional Root Nodule Analysis Assistant, dedicated to advanced analysis of root systems in leguminous crops.One click measurement of nodule number, nodule diameter, nodule R/G/B, color grading, nodule surface area contribution, root length, diameter, area, volume, root tip count, root connectivity analysis, topology analysis, and other indicators.

Features

• Professional root nodule analysis

It can automatically identify and analyze the root nodule parameters of leguminous plants such as soybeans and peanuts, automatically mark the root nodule position and draw the root nodule size, manually add unidentified root nodules, and also delete the root nodules that are incorrectly identified by the system.

• One click analysis of multiple parameters

One click operation to accurately obtain plant root parameters: total number of nodules, nodule diameter, nodule R/G/B, nodule color grading, total number of roots, number of root tips, total length of roots, average diameter of roots, total projected area of roots, total volume of roots, and other parameters.

• Powerful functionality to meet various research needs

Support overall analysis, root nodule analysis, connection segment analysis, topology analysis, root segmentation and grading, target area analysis, personalized display, etc.

• Automated analysis of large-scale root nodule/root data

Single batch analysis of over 100 images, automatic analysis of plant nodules, roots and other parameters, and saving of analyzed images and results, saving time and effort.

• Intelligent correction, precise data

It can automatically mark the location and draw the size of root nodules, and has correction operations such as merging bifurcations, merging root tips, deleting connections, disconnecting connections, correcting main roots, correcting root inversion, correcting root thickness, binarizing images, adding roots, and measuring distances. The output parameters are more accurate.

• Automatically remove outliers

By setting pixel values to remove outliers and highlight the contour of the target root system.

• Personalized display makes observation easier

Support the selection and setting of parameters for image analysis, which can display the endpoints, joint points, connecting line segments, root nodules, main roots, lateral roots, etc. of the root system in different colors for intuitive display and differentiation during detection.

• Automatic data saving

You can pause or resume data analysis at any time, and the data progress will be automatically saved.

• One click tabular export of data

Analysis images, distribution maps, and result data can be easily exported to an Excel spreadsheet with just one click, added to a designated folder, and uploaded to the cloud platform for easy viewing of data at any time.

• Comes with research app and cloud platform

Real time data analysis is saved to the cloud, shared across multiple platforms, and can be viewed and exported in real-time; Multi platform backup data, permanently saved to prevent loss.

• Software encryption, more secure data

Using dynamic QR code and dongle encryption to register the specific information of the user unit and prevent the loss of the dongle.

Technical Parameter

Appearance	Scanner size (mm)	576*297*118	Scanning range (mm)	215.9* 355.6
Error	Root tip accuracy	<5%	Surface area accuracy	<4%
	Root length accuracy	<4%	Average diameter accuracy	<0.04%
	Projection area accuracy	<4%	Volume accuracy	<4%
	Number of root nodules	<5%	Root nodule identification	RSD<5%
Overall parameters	Total root length	Total number of root tips	Total overlap quantity	Number of lateral root bifurcations
	Mean diameter of root system	volume	Projection area	Surface area
Topology analysis parameters	Root length at all levels	Average diameter of roots at all levels	Root surface area at all levels	Root projection area at all levels
	Number of root connections at all levels	Root volume at all levels	-	-
Root nodule analysis parameters	Number of root nodules	Root nodule area	Root nodule volume	-
Connection analysis parameters	The total average length of each segment		The total average projected area of each root segment	
	The overall average angle of each root segment		The total average surface area of each root segment	
	The total average volume of each root segment		The total average diameter of each root segment	