

# CITATION REPORT

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## A review of imaging techniques for plant phenotyping

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#	Paper	IF	Citations
677	From image processing to computer vision: plant imaging grows up. <b>2015</b> , 42, iii-v		6
676	3D Maize Plant Reconstruction Based on Georeferenced Overlapping LiDAR Point Clouds. <i>Remote Sensing</i> , <b>2015</b> , 7, 17077-17096	5	41
675	Advanced phenotyping and phenotype data analysis for the study of plant growth and development. <i>Frontiers in Plant Science</i> , <b>2015</b> , 6, 619	6.2	155
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491	An Ultra-Wideband Frequency System for Non-Destructive Root Imaging. <i>Sensors</i> , <b>2018</b> , 18,	3.8	7
490	3D Perception-Based Collision-Free Robotic Leaf Probing for Automated Indoor Plant Phenotyping. <b>2018</b> , 61, 859-872		7
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488	Development of an automated phenotyping platform for quantifying soybean dynamic responses to salinity stress in greenhouse environment. <b>2018</b> , 151, 319-330		17
487	Quantifying Vegetation Biophysical Variables from Imaging Spectroscopy Data: A Review on Retrieval Methods. <b>2019</b> , 40, 589-629		146
486	Quantitative and comparative analysis of whole-plant performance for functional physiological traits phenotyping: New tools to support pre-breeding and plant stress physiology studies. <b>2019</b> , 282, 49-59		27
485	Machine Vision System for 3D Plant Phenotyping. <b>2019</b> , 16, 2009-2022		28
484	: A semi-automated graphic software: applications for plant phenotyping. <i>Plant Methods</i> , <b>2019</b> , 15, 90	5.8	5
483	Designing Future Precision Agriculture: Detection of Seeds Germination Using Artificial Intelligence on a Low-Power Embedded System. <b>2019</b> , 19, 11573-11582		26
482	Using Unmanned Aerial Systems (UAS) and Object-Based Image Analysis (OBIA) for Measuring Plant-Soil Feedback Effects on Crop Productivity. <b>2019</b> , 3, 54		8
481	Design of a Remote-Controlled Platform for Green Roof Plants Monitoring via Hyperspectral Sensors. <b>2019</b> , 11, 1368		3

480	A Comparison of Effectiveness Between 2-Dimensional and 3-Dimensional Data Visualization in Detecting Plant Architectural Characteristics. <b>2019</b> , 223-236		1
479	Non-destructive techniques of detecting plant diseases: A review. <b>2019</b> , 108, 101426		37
478	High-Throughput Field Phenotyping to Assess Irrigation Treatment Effects in Quinoa. <b>2019</b> , 2, 1-7		4
477	Image-Derived Traits Related to Mid-Season Growth Performance of Maize Under Nitrogen and Water Stress. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 814	6.2	8
476	Dynamic Physiological Phenotyping of Drought-Stressed Pepper Plants Treated With "Productivity-Enhancing" and "Survivability-Enhancing" Biostimulants. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 905	6.2	16
475	Advanced Imaging for Quantitative Evaluation of Aphanomyces Root Rot Resistance in Lentil. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 383	6.2	17
474	An Overlapping-Free Leaf Segmentation Method for Plant Point Clouds. <b>2019</b> , 7, 129054-129070		17
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472	Assessment of grapevine germoplasm collection for resistance to grape leaf rust ( <i>Phakopsora euvitis</i> ) using a leaf disc assay. <b>2019</b> , 215, 1		3
471	Optimizing the procedure of grain nutrient predictions in barley via hyperspectral imaging. <b>2019</b> , 14, e0224491		10
470	Generation of High-Density Hyperspectral Point Clouds of Crops with Robotic Multi-Camera Planning. <b>2019</b> ,		2
469	High-throughput phenotyping in cotton: a review. <b>2019</b> , 2,		8
468	An Object-Based Image Analysis Approach to Assess Persistence of Perennial Ryegrass ( <i>Lolium perenne</i> L.) in Pasture Breeding. <b>2019</b> , 9, 501		2
467	Vegetation monitoring via a novel push-broom-sensor-based hyperspectral device. <b>2019</b> , 1249, 012007		1
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465	Noninvasive determination of toxic stress biomarkers by high-throughput screening of photoautotrophic cell suspension cultures with multicolor fluorescence imaging. <i>Plant Methods</i> , <b>2019</b> , 15, 100	5.8	3
464	System Identification - Soilless Growth of Tomatoes. <b>2019</b> ,		2
463	Terahertz spectral imaging based quantitative determination of spatial distribution of plant leaf constituents. <i>Plant Methods</i> , <b>2019</b> , 15, 106	5.8	13

462	High throughput procedure utilising chlorophyll fluorescence imaging to phenotype dynamic photosynthesis and photoprotection in leaves under controlled gaseous conditions. <i>Plant Methods</i> , <b>2019</b> , 15, 109	5.8	25
461	Phenotyping Plant Responses to Biotic Stress by Chlorophyll Fluorescence Imaging. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 1135	6.2	65
460	Hyperspectral Leaf Reflectance as Proxy for Photosynthetic Capacities: An Ensemble Approach Based on Multiple Machine Learning Algorithms. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 730	6.2	38
459	Automated morphological traits extraction for sorghum plants via 3D point cloud data analysis. <b>2019</b> , 162, 951-961		23
458	Nanobiotechnology approaches for engineering smart plant sensors. <b>2019</b> , 14, 541-553		195
457	Optoelectronic proximal sensing vehicle-mounted technologies in precision agriculture: A review. <b>2019</b> , 162, 859-873		23
456	A photometric stereo-based 3D imaging system using computer vision and deep learning for tracking plant growth. <b>2019</b> , 8,		35
455	Using hyperspectral analysis as a potential high throughput phenotyping tool in GWAS for protein content of rice quality. <i>Plant Methods</i> , <b>2019</b> , 15, 54	5.8	30
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453	Evaluation of canopy temperature depression, transpiration, and canopy greenness in relation to yield of soybean at reproductive stage based on remote sensing imagery. <b>2019</b> , 222, 182-192		17
452	Predicting the quality of ryegrass using hyperspectral imaging. <i>Plant Methods</i> , <b>2019</b> , 15, 63	5.8	16
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450	Assessing crop damage from dicamba on non-dicamba-tolerant soybean by hyperspectral imaging through machine learning. <b>2019</b> , 75, 3260-3272		19
449	Unsupervised Greenhouse Tomato Plant Segmentation Based on Self-Adaptive Iterative Latent Dirichlet Allocation from Surveillance Camera. <b>2019</b> , 9, 91		2
448	Unmanned Aerial Vehicle-Based Phenotyping Using Morphometric and Spectral Analysis Can Quantify Responses of Wild Tomato Plants to Salinity Stress. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 370	6.2	29
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446	Development of a Peanut Canopy Measurement System Using a Ground-Based LiDAR Sensor. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 203	6.2	13
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444	Recent Applications of Multispectral Imaging in Seed Phenotyping and Quality Monitoring-An Overview. <i>Sensors</i> , <b>2019</b> , 19,	3.8	65
443	Modelling nitrogen content of pasture herbage using thermal images and artificial neural networks. <b>2019</b> , 11, 283-288		2
442	3D point cloud data to quantitatively characterize size and shape of shrub crops. <b>2019</b> , 6, 43		15
441	Selection of plant physiological parameters to detect stress effects in pot experiments using principal component analysis. <i>Acta Physiologiae Plantarum</i> , <b>2019</b> , 41, 1	2.6	23
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439	A Combined Phenotypic and Metabolomic Approach for Elucidating the Biostimulant Action of a Plant-Derived Protein Hydrolysate on Tomato Grown Under Limited Water Availability. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 493	6.2	45
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437	LiDARPheno - A Low-Cost LiDAR-Based 3D Scanning System for Leaf Morphological Trait Extraction. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 147	6.2	14
436	Identification and Classification of Maize Drought Stress Using Deep Convolutional Neural Network. <b>2019</b> , 11, 256		29
435	A low-cost and open-source platform for automated imaging. <i>Plant Methods</i> , <b>2019</b> , 15, 6	5.8	5
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433	Length Phenotyping With Interest Point Detection. <b>2019</b> ,		5
432	Early detection of Fusarium infection in corn using spectral analysis. <b>2019</b> ,		1
431	KL-Divergence as a Proxy for Plant Growth. <b>2019</b> ,		1
430	A Deep Learning Semantic Segmentation-Based Approach for Field-Level Sorghum Panicle Counting. <i>Remote Sensing</i> , <b>2019</b> , 11, 2939	5	20
429	A noninvasive, machine learning-based method for monitoring anthocyanin accumulation in plants using digital color imaging. <b>2019</b> , 7, e11301		1
428	The Development of Hyperspectral Distribution Maps to Predict the Content and Distribution of Nitrogen and Water in Wheat (). <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 1380	6.2	32
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425	PI-Plat: a high-resolution image-based 3D reconstruction method to estimate growth dynamics of rice inflorescence traits. <i>Plant Methods</i> , <b>2019</b> , 15, 162	5.8	10
424	An efficient RGB-UAV-based platform for field almond tree phenotyping: 3-D architecture and flowering traits. <i>Plant Methods</i> , <b>2019</b> , 15, 160	5.8	19
423	The Plant Health Monitoring System of the EDEN ISS Space Greenhouse in Antarctica During the 2018 Experiment Phase. <i>Frontiers in Plant Science</i> , <b>2019</b> , 10, 1457	6.2	17
422	Nondestructive Determination of Nitrogen, Phosphorus and Potassium Contents in Greenhouse Tomato Plants Based on Multispectral Three-Dimensional Imaging. <i>Sensors</i> , <b>2019</b> , 19,	3.8	6
421	Early Detection Of Drought Stress in Arabidopsis Thaliana Utilising a Portable Hyperspectral Imaging Setup. <b>2019</b> ,		4
420	Imaging Salt Uptake Dynamics in Plants Using PET. <i>Scientific Reports</i> , <b>2019</b> , 9, 18626	4.9	10
419	A Proposed Methodology to Analyze Plant Growth and Movement from Phenomics Data. <i>Remote Sensing</i> , <b>2019</b> , 11, 2839	5	2
418	In Situ Cotton Leaf Area Index by Height Using Three-Dimensional Point Clouds. <b>2019</b> , 111, 2999-3007		3
417	Wavelet and Pyramid Histogram Features for Image-Based Leaf Detection. <b>2019</b> , 269-278		0
416	Genetic and transcriptional variations in NRAMP-2 and OPAQUE1 genes are associated with salt stress response in wheat. <b>2019</b> , 132, 323-346		12
415	Overview of Biotechnology-Derived Herbicide Tolerance and Insect Resistance Traits in Plant Agriculture. <b>2019</b> , 1864, 313-342		8
414	Sparse NIR optimization method (SNIRO) to quantify analyte composition with visible (VIS)/near infrared (NIR) spectroscopy (350 nm-2500 nm). <b>2019</b> , 1051, 32-40		3
413	Phenotypic variation and biomass partitioning during post-flowering in two common bean cultivars ( <i>Phaseolus vulgaris</i> L.) under water restriction. <b>2019</b> , 121, 98-104		9
412	Optimized angles of the swing hyperspectral imaging system for single corn plant. <b>2019</b> , 156, 349-359		18
411	Morphological characterization and screening for sheath blight resistance using Indian isolates of <i>Rhizoctonia solani</i> AG11A. <b>2019</b> , 72, 107-124		2
410	Salinity stress response and 'omics' approaches for improving salinity stress tolerance in major grain legumes. <b>2019</b> , 38, 255-277		39
409	Plant Phenotyping Research Trends, a Science Mapping Approach. <i>Frontiers in Plant Science</i> , <b>2018</b> , 9, 1933	6.2	65



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407	Ear density estimation from high resolution RGB imagery using deep learning technique. <b>2019</b> , 264, 225-234	91
406	Genetics of barley tiller and leaf development. <b>2019</b> , 61, 226-256	16
405	Omics Approaches in Developing Abiotic Stress Tolerance in Rice ( <i>Oryza sativa</i> L.). <b>2019</b> , 767-779	7
404	The road towards plant phenotyping via WSNs: An overview. <b>2019</b> , 161, 4-13	18
403	Image analysis of <i>Spirodela polyrhiza</i> for the semiquantitative detection of copper. <b>2020</b> , 8, 103043	1
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399	Fruit detection and 3D location using instance segmentation neural networks and structure-from-motion photogrammetry. <b>2020</b> , 169, 105165	31
398	Soybean yield prediction from UAV using multimodal data fusion and deep learning. <b>2020</b> , 237, 111599	174
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396	A Dual Strategy of Breeding for Drought Tolerance and Introducing Drought-Tolerant, Underutilized Crops into Production Systems to Enhance Their Resilience to Water Deficiency. <b>2020</b> , 9,	6
395	A review on plant high-throughput phenotyping traits using UAV-based sensors. <b>2020</b> , 178, 105731	49
394	Length phenotyping with interest point detection. <b>2020</b> , 176, 105629	2
393	Phenotypic characterization of lines overexpressing and in response to abiotic stresses. <b>2020</b> , 8, e11384	3
392	Robust mosaicking of maize fields from aerial imagery. <b>2020</b> , 8, e11387	8
391	Emerging non-destructive thermal imaging technique coupled with chemometrics on quality and safety inspection in food and agriculture. <b>2020</b> , 105, 176-185	11

390	Leaf water diffusion dynamics in vivo through a sub-terahertz portable imaging system. <b>2020</b> , 1548, 012002	0
389	Agricultural nanodiagnosics for plant diseases: recent advances and challenges. <b>2020</b> , 2, 3083-3094	43
388	Hyperspectral imaging and 3D technologies for plant phenotyping: From satellite to close-range sensing. <b>2020</b> , 175, 105621	24
387	Evaluation of a hand-held spectrophotometer as an in-field phenotyping tool for tomato and pepper fruit quality. <b>2020</b> , 3, e20008	2
386	Diagnosis of Nitrogen Nutrition in Sugar Beet Based on the Characteristics of Scanned Leaf Images. <b>2020</b> , 14, 663-677	2
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384	A Nonparametric Model for Analysis of Flowering Patterns of Herbaceous Multi-flowered Monocarpic Shoots. <b>2020</b> , 82, 146	
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378	Fuzzy Tuned PID Controller for Vibration Control of Agricultural Manipulator. <b>2020</b> ,	4
377	Wheat ear counting using K-means clustering segmentation and convolutional neural network. <i>Plant Methods</i> , <b>2020</b> , 16, 106	5.8 21
376	Reconstruction method and optimum range of camera-shooting angle for 3D plant modeling using a multi-camera photography system. <i>Plant Methods</i> , <b>2020</b> , 16, 118	5.8 1
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374	Simulation and Verification of Vertical Heterogeneity Spectral Response of Winter Wheat Based on the mSCOPE Model. <i>Sensors</i> , <b>2020</b> , 20,	3.8 0
373	Wheat Grain Yield Estimation Based on Image Morphological Properties and Wheat Biomass. <b>2020</b> , 2020, 1-11	7

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370	Plant phenomics: High-throughput technology for accelerating genomics. <b>2020</b> , 45, 1		6
369	3D characterization of walnut morphological traits using X-ray computed tomography. <i>Plant Methods</i> , <b>2020</b> , 16, 115	5.8	4
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366	Spectrum- and RGB-D-Based Image Fusion for the Prediction of Nitrogen Accumulation in Wheat. <i>Remote Sensing</i> , <b>2020</b> , 12, 4040	5	5
365	Avenues to realize potential of phenomics to accelerate crop breeding for heat tolerance. <b>2020</b> , 25, 594-610		3
364	Close-range hyperspectral imaging of whole plants for digital phenotyping: Recent applications and illumination correction approaches. <b>2020</b> , 178, 105780		33
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362	Advanced Modeling for the Identification of Different Pathogen Tolerant Vines to Reduce Fungicides and Energy Consumption. <b>2020</b> , 12, 1900		2
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360	Application of non-linear partial least squares analysis on prediction of biomass of maize plants using hyperspectral images. <b>2020</b> , 200, 40-54		9
359	In Vivo Chemical Analysis of Plant Sap from the Xylem and Single Parenchymal Cells by Capillary Microsampling Electrospray Ionization Mass Spectrometry. <b>2020</b> , 92, 7299-7306		5
358	A Leaf Segmentation and Phenotypic Feature Extraction Framework for Multiview Stereo Plant Point Clouds. <b>2020</b> , 13, 2321-2336		4
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356	Plant Phenomics: Fundamental Bases, Software and Hardware Platforms, and Machine Learning. <b>2020</b> , 67, 397-412		9
355	Vineyard yield estimation by combining remote sensing, computer vision and artificial neural network techniques. <i>Precision Agriculture</i> , <b>2020</b> , 21, 1242-1262	5.6	23

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353	Analysing the phenotype development of soybean plants using low-cost 3D reconstruction. <i>Scientific Reports</i> , <b>2020</b> , 10, 7055	4.9	3
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351	Performances Evaluation of a Low-Cost Platform for High-Resolution Plant Phenotyping. <i>Sensors</i> , <b>2020</b> , 20,	3.8	4
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348	GRID: A Python Package for Field Plot Phenotyping Using Aerial Images. <i>Remote Sensing</i> , <b>2020</b> , 12, 16975		7
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343	A Computation Method Based on the Combination of Chlorophyll Fluorescence Parameters to Improve the Discrimination of Visually Similar Phenotypes Induced by Bacterial Virulence Factors. <i>Frontiers in Plant Science</i> , <b>2020</b> , 11, 213	6.2	2
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341	Abiotic Stress Tolerance in Field Crops: Integration of Omics Approaches. <b>2020</b> , 503-526		5
340	High-throughput phenotyping using digital and hyperspectral imaging-derived biomarkers for genotypic nitrogen response. <b>2020</b> , 71, 4604-4615		13
339	Phenomics-Assisted Breeding: An Emerging Way for Stress Management. <b>2020</b> , 295-310		2
338	Robust node detection and tracking in fruit-vegetable crops using deep learning and multi-view imaging. <b>2020</b> , 192, 117-132		14
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334	Gloxinia-An Open-Source Sensing Platform to Monitor the Dynamic Responses of Plants. <i>Sensors</i> , <b>2020</b> , 20,	3.8	3
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332	An Insight into Current Trends of Pathogen Identification in Plants. <b>2020</b> , 127-162		
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329	Imaging Wheat Canopy Through Stereo Vision: Overcoming the Challenges of the Laboratory to Field Transition for Morphological Features Extraction. <i>Frontiers in Plant Science</i> , <b>2020</b> , 11, 96	6.2	10
328	Acquiring Plant Features with Optical Sensing Devices in an Organic Strip-Cropping System. <b>2020</b> , 10, 197		5
327	Hyperspectral remote sensing to detect leafminer-induced stress in bok choy and spinach according to fertilizer regime and timing. <b>2020</b> , 76, 2208-2216		7
326	Emerging thermal imaging techniques for seed quality evaluation: Principles and applications. <b>2020</b> , 131, 109025		13
325	Modeling of Aboveground Biomass with Landsat 8 OLI and Machine Learning in Temperate Forests. <b>2020</b> , 11, 11		21
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323	Potential of vibrational spectroscopy for rapid and accurate determination of the hydrogen peroxide treatment of plant leaves. <b>2020</b> , 230, 118048		2
322	Review: Cost-Effective Unmanned Aerial Vehicle (UAV) Platform for Field Plant Breeding Application. <i>Remote Sensing</i> , <b>2020</b> , 12, 998	5	28
321	Model of Color Parameters Variation and Correction in Relation to Time-View Image Acquisition Effects in Wheat Crop. <b>2020</b> , 12, 2470		1
320	A 3D white referencing method for soybean leaves based on fusion of hyperspectral images and 3D point clouds. <i>Precision Agriculture</i> , <b>2020</b> , 21, 1173-1186	5.6	1
319	High-Throughput Estimation of Crop Traits: A Review of Ground and Aerial Phenotyping Platforms. <b>2021</b> , 9, 200-231		61

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317	Crop Breeding. <b>2021</b> ,		0
316	Outdoor infrared imaging for spatial and temporal thermography: A case study of necrotic versus healthy leaf areas on woody plants. <b>2021</b> , 169, 62-70		1
315	Machine learning in plant science and plant breeding. <b>2021</b> , 24, 101890		26
314	Lidar sheds new light on plant phenomics for plant breeding and management: Recent advances and future prospects. <b>2021</b> , 171, 202-223		25
313	A spatiotemporal data acquisition toolkit for volume estimation tools in precision agriculture. <b>2021</b> , 33, e5258		
312	Images carried before the fire: The power, promise, and responsibility of latent phenotyping in plants. <b>2021</b> , 4, e20023		0
311	Cable Suspended Large-Scale Field Phenotyping Facility for High-Throughput Phenotyping Research. <b>2021</b> , 39-53		
310	Contributions of Nano Biosensors in Managing Environmental Plant Stress Under Climatic Changing Era. <b>2021</b> , 117-137		1
309	Advances in sensing plant diseases by imaging and machine learning methods for precision crop protection. <b>2021</b> , 157-183		0
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