

Plant Phenotyping Equipment Market Size, Share & Trends Analysis Report By Equipment, By End Use (Greenhouse, Field, Laboratory), By Application, By Region, And Segment Forecasts, 2018 - 2025

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Abstracts

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The global plant phenotyping equipment market size is estimated to reach USD 276.86 million by 2025, according to a new report by Grand View Research, Inc., expanding at a CAGR of 10.51% over the forecast period. Global population is projected to surpass 9 billion by 2050, thus posing the challenge of adequate crop production to meet rising food needs. This, in turn, is expected to open up potential opportunities for crop improvement and plant science. However, adequate crop production would be challenging, particularly since crop production has been rising by approximately 1.3% per year on an average. This is not sufficient to meet the pace of population growth. Plant phenotyping is emerging as an effective means to overcome this challenge. Thus, the plant phenotyping equipment market is expected to witness significant growth over the forecast period.

Plants have different optical properties; healthy plants transmit, emit, reflect, absorb, and fluoresce with electromagnetic radiation in a different manner as compared to infected plants. Imaging techniques assist in detecting these properties, particularly those invisible to naked eye. Imaging methodologies, such as imaging spectroscopy, infrared imaging, fluorescence imaging, and visible light imaging among others, are increasingly being used to aggregate multi-level phenotype data. This data ranges from macroscopic to molecular scale for a duration of a few seconds to a few weeks.

Spectroscopy imaging helps measure interaction of solar radiation with plants and is

one of the promising methodologies used for plant phenotyping. This methodology is suitable for field phenotyping when used with aerial platforms. However, cost of spectral cameras is comparatively higher. Infrared imaging technologies aid in screening objects of internal molecular movements which release infrared radiation and offer precise measurement and spatial resolution under altering environmental conditions.

Fluorescence imaging is used in many areas of plant physiology. It provides diagnostic tools to resolve heterogeneity issue of leaf photosynthetic performance. Its applications are limited to a single leaf or seedling levels of a model crop. Visible light imaging is easy to use and cost-effective. This imaging system offers 2D images using a wavelength perception similar to the human eye. The images can be used to monitor changes in a plant's biomass and to study numerous phenotypic characteristics.

Further key findings from the report suggest:

Rapidly increasing population across the world has boosted demand for agricultural goods

Advancements in imaging techniques are facilitating a better assessment of plant characteristics, thereby helping in development of better plant breeds

North America plant phenotyping equipment market is expected to witness significant growth owing to increasing research activities

Key market participants include Keygene; Heinz Walz GmbH; LemnaTec GmbH; Photon Systems Instruments; spol. s.r.o.; and Qubit Systems Inc.

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