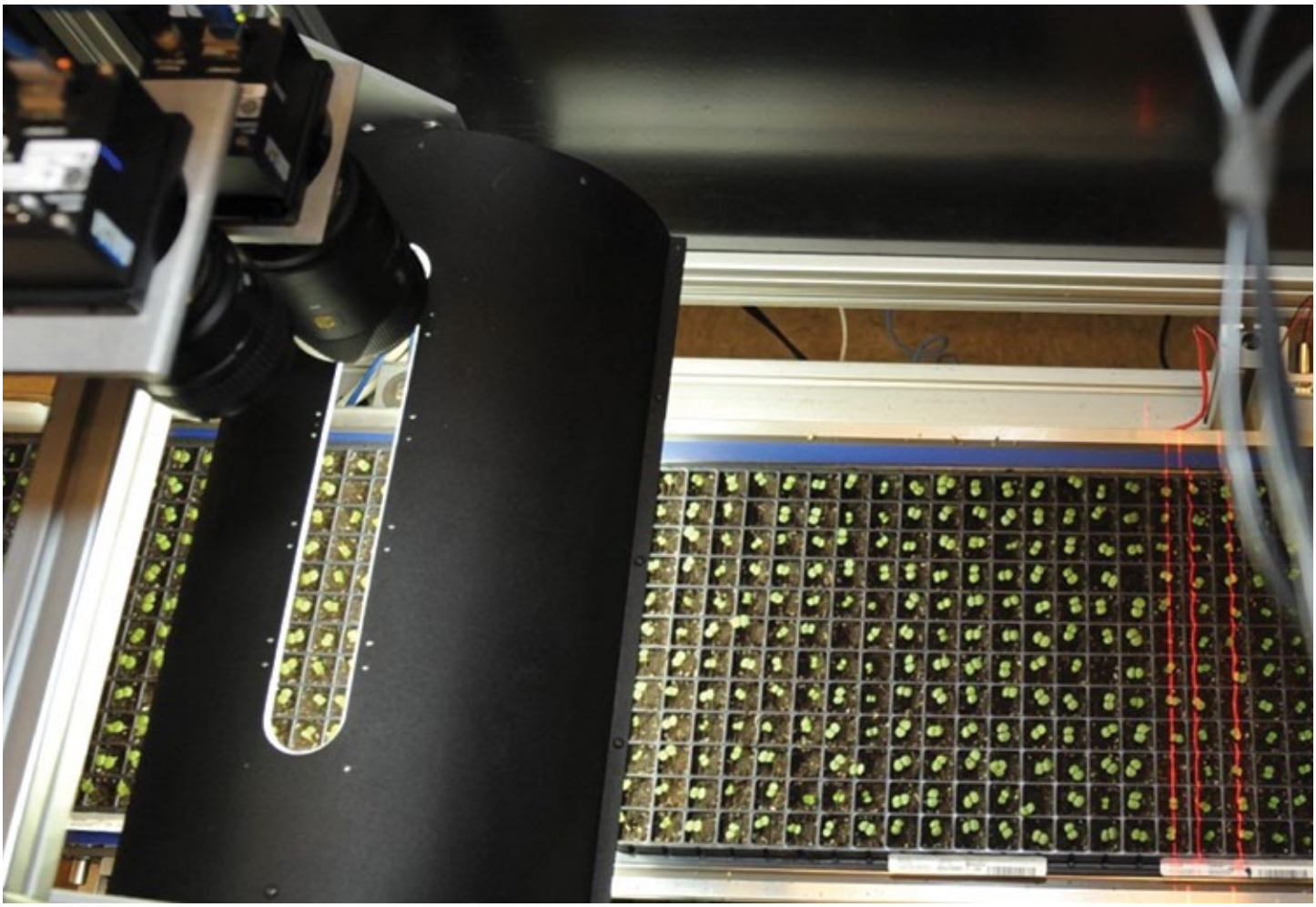
SeedView Inspection System



More data and fewer errors. SeedView gives you consistent, objective measurements for leaf area, height and photosynthetic activity on both soil trays and petri. It can also determine a grading for each milestone in germination, specifically:

- Root emergence
- Stem elongation
- Cotyledonary leaf development
- True leaf development

Speed and efficiency. SeedView runs one complete flat in just 36 seconds, giving you much more data, much faster, than you could collect manually...and frees personnel for other tasks.

Customized testing. Calibrate SeedView to your specifications; it stores the parameters you set for standardized testing over time and among multiple locations. You can also immediately share data anywhere, any time.

To order, email sales@ballcoleman.com, or contact:

North America:
Seed Technology Services
West Chicago, Illinois 60185 USA
630 231-9220

Europe:
Seed Tuning
1606 ZH Venhuizen, The Netherlands
+31 (0)228 54 1844

ball-technologies.com

Ball Technologies™

SeedView Inspection System 4.1

Monitoring the seed germination process can provide seed companies with a direct measure of product quality and allow them to successfully control their inventories and steer their breeding programs.

Ball Horticultural Company has developed an automated vision system, **SeedView Inspection System 4.1**, that combines multispectral imaging and chlorophyll measurement techniques. Seedlings can be grown on blotter paper or in soil.

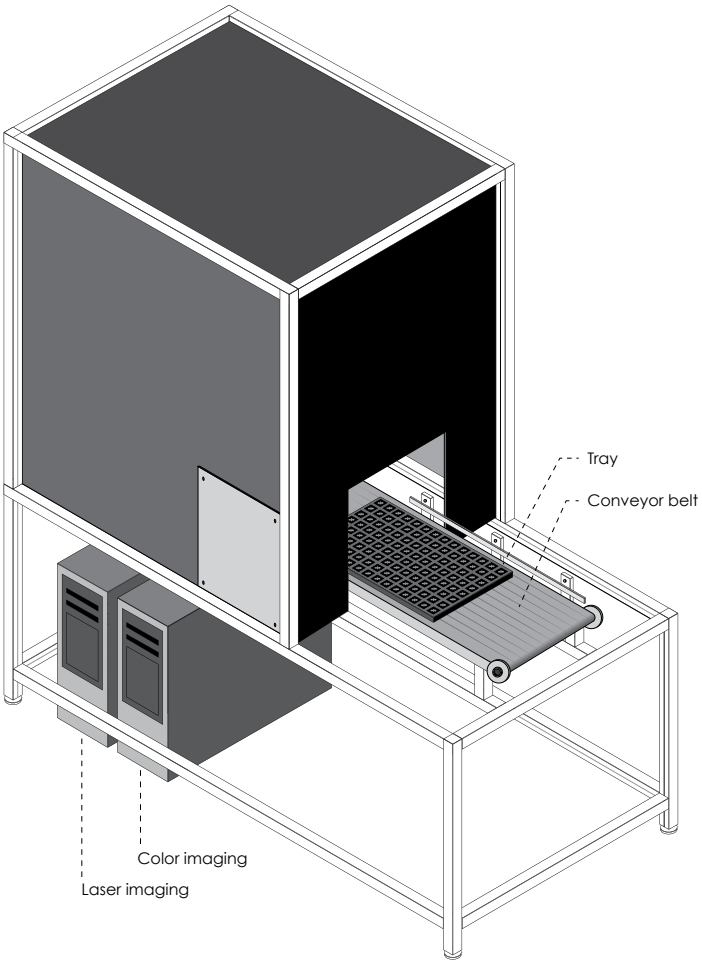
1 Scheduling
Trays of seeds are automatically scheduled and loaded onto the conveyor belt

2 Laser Imaging
Trays are imaged for chlorophyll intensity and height data

3 Color Imaging
High resolution image of tray is captured and each seed is analyzed for germination

4 Analysis
Each seed is analyzed for germination

5 Database
Results are recorded and data-mined

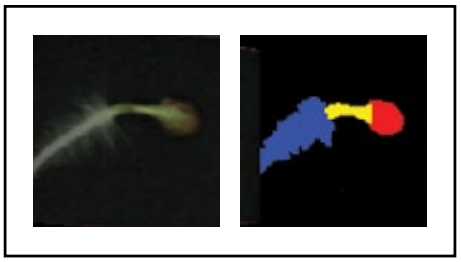


Classification

Identify and classify seedling structures using multiple criteria:

- Radicles
- Hypocotyls
- Cotyledons
- True leaf

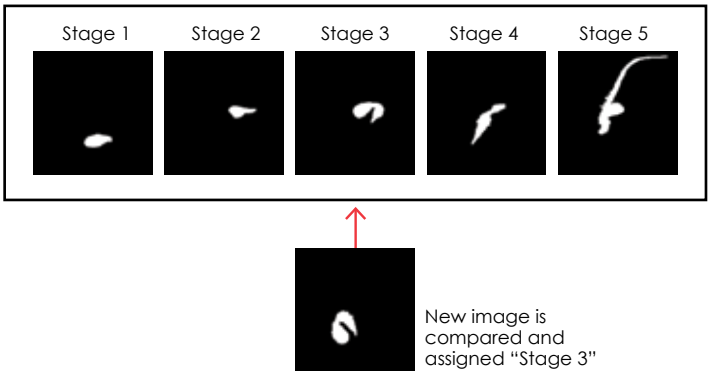

True leaf


Multispectral planes classify and quantify the image of this pansy seedling into distinct plant parts: seed, hypocotyl, and radicle.

Shape Recognition

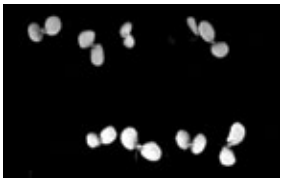
Example below shows five distinct stages of root development in tomatoes. New images are compared to your reference group and assigned the appropriate stage of development.

Reference group



New image is compared and assigned "Stage 3"

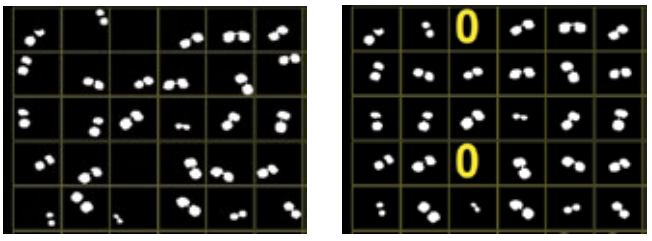
Measures


Chlorophyll image

One black & white camera and multiple lasers record:

- Leaf area
- Height
- Chlorophyll intensity

Data and images can be evaluated remotely. Images below show soil test before and after editing. Outsource image editing service is available.



Before After