QM3i Analyzer
Seed and Grains Analyzer

Non-destructive, high-throughput seed phenotyping for breeding programs, research labs, and at-line production testing.

The QM3i Analyzer delivers NIST-traceable, non-destructive measurements via computer vision and image segmentation: length, width, shape, surface area, and absolute L*a*b* color. A simple three-step workflow moves your lab from manual inspection to morphological profiling with bioinformatics-ready outputs.

CAPABILITIES

Key features

Morphological profiling & sizing

- ✓ 1,000 weight and seed count
- ✓ Length, width, and projected area via image segmentation
- ✓ Length/width ratio and shape descriptors
- ✓ Broken % and foreign object detection — USDA/FGIS-compatible
- ✓ Group distribution sizing for genotype-to-phenotype studies

Color characterization & texture

- ✓ NIST-traceable absolute L*a*b* color scale
- ✓ Vitreousness and endosperm texture scoring
- ✓ Abnormal color, black-tip, and pericarp damage detection
- ✓ Color homogeneity and distribution reporting

INTEGRATIONS

Connect your lab tools

Scales
Attach net sample weight directly to each analysis run.

Barcodes
Scan lot IDs and operators to reduce manual entry errors.

Traceability
Keep searchable run history with export-ready metadata.

Key benefits for researchers

- ✓ Non-destructive — samples remain intact for downstream work
- ✓ Simple three-step process: load, click, get results
- ✓ Results stored in database for audit trails and batch processing
- ✓ Integrates with scales, barcodes, and LIMS
- ✓ Reduces inspection time for large experimental designs
- ✓ Reproducible NIST-traceable measurements for methods sections
- ✓ CSV and Parquet export for R and Python pipelines

TECHNICAL SPECIFICATIONS

Hardware & performance

Camera	**High resolution color**	Moving parts	**None**
Color scale	**Absolute L*a*b***	Color pixels / seed	**2,000 – 6,000**
Lighting	**Advanced controlled LED**	Measurement accuracy	**100 micron**
Color accuracy	**2 %**	Broken seed detection	**0.5 % accuracy**
Inspection area	**255 × 180 mm (10 × 7.1 in)**	Dimensions	**400 × 400 × 500 mm**

APPLICATIONS

Grain and seed types commonly analyzed

Rice & paddy
Chalkiness, head rice yield, length/width ratio, color.

Wheat & durum
Kernel morphological profiling, broken %, endosperm texture and vitreousness scoring.

Pulses & lentils
Defect detection, grading, color homogeneity.

Oilseeds
Size distribution and color for oil content and purity.

Vegetable seeds
Pepper, tomato, melon and more for seed quality programs.

Specialty & hemp
Trait discovery and QC in niche and regulated crops.

Ready to get started?

Request a sample analysis or contact us for pricing and configuration options.

research.vibeia.com/contact
research.vibeia.com/demo