L&A Announces Patent Application for Integrated Photonic Phenotyping and Trait Development System

A non-chemical, closed-loop platform designed to accelerate crop trait discovery and redefine how seeds are bred for the post-chemical era

CHICO, CA, UNITED STATES, February 9, 2026 /EINPresswire.com/ -- FOR IMMEDIATE RELEASE

Laudando & Associates LLC (L&A), an independent agricultural automation and perception company, today announced the filing of a new patent-pending system that integrates photonic treatment, multimodal phenotyping, and recurrent trait selection into a single closed-loop architecture for crop improvement.

uspto UNITED STATES PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
63/978,334	02/09/2026 12:55:31 PM ET	-

Title of Invention

Integrated Photonic Phenotyping and Trait Development System for Crop Improvement

Application Information

APPLICATION TYPE	Utility-Provisional Application under 35 USC 111(b)	PATENT #	-
CONFIRMATION #	8755	FILED BY	CHRISTOPHER LAUDANDO
PATENT CENTER #	74392609	AUTHORIZED BY	-
CUSTOMER #		FILING DATE	-
CORRESPONDENCE ADDRESS	Christopher William Laudando 62 Beacham Loop Chico, CA95973 US	FIRST NAMED INVENTOR	Christopher William Laudando

Integrated Photonic Phenotyping and Trait Development System for Crop Improvement

The newly disclosed system brings together greenhouse phenotyping, in-field and harvest-stage analysis, and controlled photonic stress application to empirically accelerate trait discovery and validation. Rather than organizing seed development around chemical tolerance, the platform is designed to identify and propagate crop varieties that perform under non-chemical, light-based management systems.

> ...the next generation of crop traits will be 'Photonic Crop Protection-Ready'"
>
> *Chris Laudando*

"Modern seed development has been optimized around chemistry for decades," said Chris Laudando, Founder and President of Laudando & Associates. "We believe the next generation of crop traits will be 'Photonic Crop Protection-Ready' and discovered through direct observation, measurement, and iteration - not by guessing which chemistries and chemical tolerant traits will still work ten years from now. This system was built to make that transition possible."

A Closed-Loop Approach to Trait Discovery: At its core, the patent-pending platform is a recurrent feedback system. Early-stage phenotyping in controlled environments is correlated with in-field growth behavior and harvest-stage performance, enabling selective breeding decisions to be made using real, multi-stage phenotype data rather than isolated trial results.

The system architecture is intentionally modular and may incorporate:

Greenhouse phenotyping for early plant development and morphology;

In-field phenotyping for canopy development, plant architecture, and structural performance;

Harvest-stage analysis capturing physical yield attributes, including size, geometry, weight, and moisture; and

Optional below-ground phenotyping to correlate root architecture with above-ground performance.

These data streams are aggregated into a centralized analysis and trait selection engine, enabling closed-loop iteration across accelerated breeding cycles.

Designed for the Post-Chemical Herbicide Era: Unlike traditional approaches that depend on herbicide tolerance as the primary selection pressure, L&A's patent-pending system is designed to support the development of crop varieties compatible with non-chemical, photonic-based management strategies.

By decoupling trait discovery from chemical inputs, the platform is intended to reduce development timelines, increase adaptability across crops and regions, and provide growers with alternatives as regulatory, environmental, and resistance pressures continue to mount.

“Outcomes alone aren’t inventions,” Laudando added. “The hard work is building systems that can reliably discover, measure, and reproduce performance in the real world. That’s what this platform was designed to do.”

Broad Applicability Across Crops and Markets: The system is designed to be applicable across row crops, specialty vegetables, turf, and consumer agricultural applications. Its modular architecture also allows for integration with third-party sensing and measurement platforms, supporting collaboration while preserving clear system boundaries.

The patent filing establishes priority around the integrated architecture while remaining independent of any specific photonic implementation, preserving flexibility as the technology evolves.

About L&A LLC: Laudando & Associates is an independent agricultural technology company focused on automation, perception, and non-chemical crop management systems. Through its AgCeption™ perception platform and L&Aser™ photonic treatment technologies, L&A develops tools designed to give farmers, breeders, and integrators practical alternatives to legacy chemical-centric inputs.

This announcement contains forward-looking statements related to technology development and potential applications. Actual results may vary as technologies progress from research and development to commercial deployment.

email us here
Chris Laudando
Laudando & Associates LLC
Visit us on social media:
LinkedIn
Instagram
YouTube
Other
