



More from Every Acre, More from Every Animal

Supercharge Your Soil with Algae, Cut Fertilizer, Boost Yield Potential

How do you produce 460-bushel corn? While there's no silver bullet, North Carolina farmer Russell Hedrick used system of biological inputs and regenerative management practices to help him reach 459.1 bushels per acre in 2022—a milestone many corn experts said was impossible. Included in the system was EnSoil Algae™, a powerful, living green algae biostimulant. Russell recognizes EnSoil Algae™ as a unique biological “enhancer” for his entire program.

Live-cell green algae is one of the hottest new technologies that's helping top growers get more from their acres. “It's all about harnessing the power of life in your soil to drive production,” said Tucker Garrigan, director of sales and partner development for Enlightened Soil Corp, which is teaming up with ProfitProAG to distribute EnSoil Algae™. “Algae has been around since life began on this planet, but we're talking about it in a new way.”

EnSoil Algae™ is a live-cell algae that can be tank-mixed and sprayed, either on the soil or through foliar applications. It helps improve grain quality, test weight and yield potential by helping unlock free fertilizer that's already in the soil.

The payoffs can be big when you build soil biology and back off the applied nutrients. “This is where the economic opportunity is with algae,” said Garrigan, who noted that EnSoil Algae™ can help farmers reduce their commercial fertilizer by a third—or more. “It's not uncommon for growers to cut their fertilizer by 50% or more.”

That's a big deal as the cost of Ag inputs continues to rise, profit margins shrink and farmers face pressures from all sides, Garrigan added.

EnSoil Algae™ harnesses the power of *Chlorella vulgaris* (Latin for “common green”) to build your soil biology bank. This ancient species of freshwater green algae is found almost everywhere around the globe—from Africa and Asia to areas covered with permafrost. “This algae has evolved over millions of years, and it's extremely durable,” Garrigan said. “It can handle cold temperatures and low or high pH.”

How to Use EnSoil Algae™

- All EnSoil Algae™ applications are 8 ounces per acre.
- Applications of EnSoil Algae™ work best after soil temperatures rise above 50 to 55 degrees.
- EnSoil Algae™ is compatible in tank mixes with herbicide, NPK, fungicide, biologicals and more.
- EnSoil Algae™ is compatible with all irrigation systems and application equipment, including pivots, drip irrigation, boom sprayers, drones, Y-drops and more.
- Corn: apply in-furrow, V3-V6, and V8-R2
- Soybeans: apply in-furrow, V8, and R1-R2
- Hay and pasture: apply 3 to 4 times per season, at green up and after each cutting/grazing. (Livestock do not need to be removed from pasture to apply.)
- Lawns, gardens and raised beds: apply once a week for two weeks, then once every four weeks.
- Potted plants and house plants: apply once a week for two weeks, then once every two weeks.
- Permanent crops like fruit trees: apply at bud break, fruit set, fruit fill and before stress.



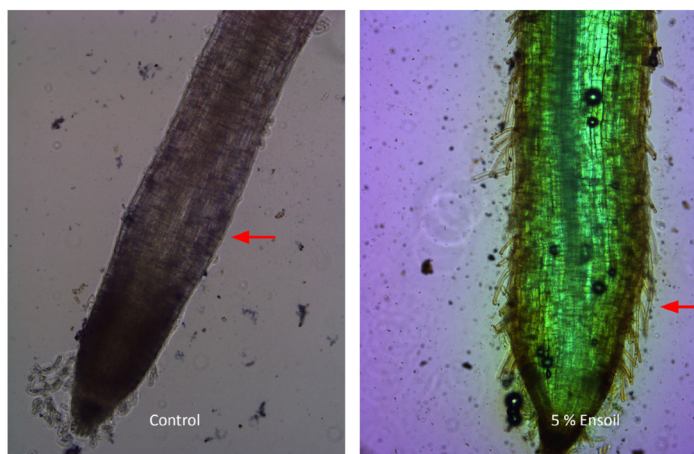
Hedrick, who farms with regenerative Ag practices, applied this live *Chlorella vulgaris* algae formulation three times during the growing season when he produced nearly 460 bushels of corn per acre. He recognized a significant contribution from the algae and continues to use it as a key component in his system today.

“Live algae is one of the most powerful, efficient biologicals you can apply, and it plays well with others,” said Camille Newsom, Director of Grower Support. She noted EnSoil Algae™ works with humic acid and fulvic acid, as well as other biologicals. Garrigan added, “It’s 1 + 1 = 3, 4, and sometimes 5.”

Science reveals live algae’s super powers

If all this sounds too good to be true, let’s take a look at the science. Dr. James White, a professor of plant pathology at Rutgers University, has spent the last decade advancing the work of a team of Australian microbiologist findings on plant and microbe interactions. They termed the process “Rhizophagy”, a previously unknown symbiotic interaction. An interaction essential to nutrient cycling. Dr. White has put EnSoil Algae to the test in multiple studies.

Using high-powered microscopes, Dr. White observed algae filled with bacteria in the rhizosphere—the soil zone directly influenced by plant roots. The loaded algae penetrated plant root hairs and then appeared to “explode,” releasing beneficial bacteria into the root hairs.



Since plants treated with EnSoil Algae™ had greater root length and mass, Dr. White postulated that beneficial bacteria that the living algae cells transported have a favorable effect on the host plant. The transport mechanism, attributed to live algae, is a novel finding.

Simply put, EnSoil Algae™ stimulates and grows the soil’s microbial population, along with the diversity of these helpful microorganisms. These microbes obtain nutrients (nitrogen and minerals) in soil, and nutrients

are extracted from microbes into the cells of plant roots to nourish the crop.

But there’s a catch. Over-applying nutrients (including synthetic nutrients) shuts down this natural cycle. “It makes the soil biology ‘lazy,’” Newsom said. “It’s important to give your soil biology a job.”

Think of this in terms of pizza. “If you’re sitting on the couch and someone brings you a pizza, you’re probably going to eat it,” Newsom said. “But if no one brings you pizza, you’ll have to get up and make your own.”

When *Chlorella vulgaris* (the live algae in EnSoil Algae™) are present, they release signaling hormones (phytochemicals) that tell other beneficial microorganisms in the soil to wake up and go to work. It’s essential to have living roots in the ground to feed carbon to the soil microbes to power this system, Newsom said.

“EnSoil Algae™ contributes to the photosynthetic capacity of the plants, because it has been shown to increase chlorophyll in the plants,” she added. “This puts more carbon in the soil to feed that population of microbes that’s now ‘awake’ and working.”

This works, no matter where you farm. “We’re seeing consistent results with EnSoil Algae™, regardless of climate or soil type,” Garrigan said. “It works in North Carolina as well as in Montana.”

Dennis Klockenga, a Certified Crop Adviser (CCA) and crop management consultant with ProfitProAG, likes how EnSoil Algae™ fits well with ProfitProAG’s systems for regenerative Ag and organic farming.



“Algae is a living plant without roots, stems or leaves, but it promotes biodiversity. This incredible technology improves soil function, promotes plant health, boosts yield potential and helps produce more nutrient-dense food.”

Growing healthier food

The goal of producing nutrient-dense food propelled EnSoil Algae research from the start. “Human health is at the core of all this,” Garrigan said.

The research started with Dr. George Taylor, a professor of medicine at the Medical University of South Carolina. “Dr. Taylor is a cardiologist who became interested in the connection between soil health, the nutrient density of the food grown in that soil and the health of our bodies,” Garrigan said. “They are intricately linked.”

Scientific studies, as well as farmers’ practical experiences, confirm that EnSoil Algae™ produces healthier food. “Animals that eat forage from pastures where algae has been applied are healthier animals than they were before they started eating this forage,” Garrigan said. “Also, we’ve seen how citrus grown on Georgia farms that use EnSoil Algae™ shows significant improvements in nutrient density.”

EnSoil Algae™ also works well with most cropping systems, including corn and soybean production. It’s also a good fit for pastures, orchards, lawns, gardens, and more.

“The more farms we can help economically with EnSoil Algae™, the more nutrients we’re putting into the marketplace,” said Garrigan, who added that healthier soils also contribute to improved water

quality, due to less erosion and nutrient runoff. “This can lead to some really exciting, long-term, human-health outcomes.”

How to use EnSoil Algae™

While algae is nothing new, EnSoil Algae™ offers a unique solution for production agriculture. The EnSoil Algae™ team developed a process that allows green algae to stay alive in the dark. EnSoil Algae™ can be bottled and shipped anywhere, allowing farmers across the country to unleash a powerful biological response in their fields.

“It’s remarkably consistent for building life in the soil,” Garrigan said. “This algae works with the native biology everywhere in the world.”

It’s a plus that EnSoil Algae™ works morning, noon and night, Garrigan added. Even when the algae cells die, they are still beneficial, because they become food in the food chain.

It’s easy to put EnSoil Algae™ to work for you. All EnSoil Algae™ applications are 8 ounces per acre. The product is compatible in tank mixes with herbicide, NPK, fungicide, biologicals and more. EnSoil Algae™ works with Y-drops, boom sprayers, drones and all irrigation systems and application equipment, including pivots, drip irrigation, and more.

Farmers’ interest in EnSoil Algae™ has been tremendous, Klockenga said. ProfitProAG clients plan to apply EnSoil Algae™ to more than 20,000 acres in 2025. “Many of my customers are using it on farms with 2,000 acres or more,” he noted.

EnSoil Algae™ packs a triple punch

Soil health can improve rapidly when EnSoil Algae™ is applied. “Waking up” the microbial activity in the soil drives beneficial microbes to produce the natural “glues” that form soil aggregates. These aggregates (which make the soil texture look like chocolate cake) improve the infiltration of air and water into the soil, which nourishes growing plants.

All this means EnSoil Algae™ packs a triple punch by:

1. Making plants more stress adaptive, meaning they can handle dry conditions, extreme temperatures, salinity and other environmental challenges better. “The more stress adaptive your plants are, the more resilient they’ll be,” Garrigan said.



2. Improved nutrient cycling. “When you activate the phosphorus cycle, this supports the nitrogen cycle, too,” Newsom said.
3. Less pathogen and pest pressure.

ProfitProAG is pleased to be the EnSoil Algae™ distributor for the Midwest. “If you’re looking for an alternative to anhydrous ammonia, high-salt fertilizers and other expenses of industrial Ag, this system is for you,” said Dr. Jim Ladlie, founder and CEO of ProfitProAG. “EnSoil Algae™ helps you work with nature, so you can have more life in your soil.”

See it for yourself. Use the Haney test, for example, to measure your soil health and the effects of EnSoil Algae™. The Haney test provides a health score for your soil by measuring available nutrients, as well as microbial activity. “If you understand nature, you understand life,” Ladlie said. “EnSoil Algae™ is a sustainable system that fits with our Recipe for Success, which focuses on controlling the controllables in farming to help make your farm more profitable.”

Garrigan, who has painted his office walls “algae green,” offers a bit of caution about using EnSoil Algae™. “If you start studying algae, you won’t want to stop! It’s fascinating. While it has been an under-appreciated organism in the soil-food web, that’s changing. When you start farming this way, it’s a lot more fulfilling and fun.”

To learn more about how EnSoil Algae™ can work for you, contact ProfitProAG at 507-373-2550, info@profitproag.com or visit our website at www.profitproag.com.