



# INTERVIEW

## JOSHUA MAYS,

TriEst Ag Group

By Joe Kertzman, managing editor, *Badger Common'Tater*

**NAME:** Joshua Mays

**TITLE:** Corporate agronomist

**COMPANY:** TriEst Ag Group

**LOCATION:** Greenville, NC

**HOMETOWN:** Clarendon, NC, and currently living in Jackson Springs

**YEARS IN PRESENT POSITION:** Three

**PREVIOUS EMPLOYMENT:** Alliance One International, North Carolina Department of Agriculture, North Carolina State University – Research Stations Division, and Full Circle Agronomics (personally owned/operated crop consulting business)

**SCHOOLING:** Master of Science in Agricultural Education & Professional Service - North Carolina A&T State University with a research focus of nutrient management in season extension production of strawberry; Bachelor of Science in Agricultural Education & Professional Service - North Carolina A&T State University; and Associate of Applied Science in Turfgrass Management - North Carolina State University

**ACTIVITIES/ORGANIZATIONS:** Wide range of speaking and presentation engagements across the United States with crop organizations regarding the use of chloropicrin-based products and production of soft fruits in substrate production systems

**FAMILY:** Lives on the family farm with his wife, Brittney; son, Rowan; daughter, Leanna; and mother, Anita Cartrette

**HOBBIES:** Enjoys the outdoors, traveling with family, longleaf pine farming/restoration on his own farm, big game and fowl hunting, and live music

*TriEst Ag Group has a rich history* with over 50 years of experience in the agriculture industry and a presence that now spans the globe through the company's affiliation with the TriCal Group.

TriEst Ag Group is part of a family of companies known as the TriCal Group. The vision of the group is to promote the most beneficial soil environment for growers to produce healthy, bountiful crops that feed the world.

Today, the privately held TriCal Group family of companies continues to lead in innovative solutions for growers with a presence in the Americas, Western Europe, the Mediterranean, Australia, New Zealand, Africa, Japan, China, and Southeast Asia.

From the beginning, the TriEst Ag Group approach has been in prescription-based service. The approach focuses on what is being grown, the region where the crop is being grown, the problem the grower is having, and how they want to optimize their farm for a better quality, higher-yielding crop harvest.

Services include soil conditioning and fumigation, soil health, irrigation, grafted plants, plant nutrition, liquid fertilizers, and agricultural equipment.

TriEst is focused on treating each



customer as an individual, using soil test results, plant samples, and other data to make customized solution recommendations.

Corporate Agronomist Joshua Mays of Jackson Springs, North Carolina, answered questions for this crop protection issue of the *Badger Common'Tater*.

**How long have you been with TriEst Ag Group, in what role, and what attracted you to the international company?** I've been with the company for three years as a corporate agronomist focused

**Above:** Joshua Mays, corporate agronomist for TriEst Ag Group, poses in a field of sweet potatoes treated with the company's chloropicrin-based products. Mays is based out of the Greenville, North Carolina, facility also shown here.





on supporting the sales staff and integrating our products into a wide range of crops and growing systems.

While assisting our sales teams, I'm exposed to a lot of new issues and innovation opportunities. I prioritize those issues and opportunities, forming special projects to drive our business and customers forward.

I was really attracted to the diversity of product offerings for specialty crop growers and their proven efficacy over decades of use in the specialty crop industry.

Such include soil fumigation products, drip irrigation systems and automation, fertigation grade liquid fertilizers, plasticulture equipment (soil fumigation film, irrigation drip tape/tubing, etc.), grafted plants, and substrate growing systems.

TriEst prides itself in offering cradle-to-grave cultural production systems for specialty crop growers.

The core leadership was widely responsible for the transition from bare ground to plasticulture production in fruits and vegetables in the United States.

That was the kind of impact that I wanted to have on agriculture in my career, and TriEst had the tools and resources to make that goal a reality.

**Can you give me a few sentences on the history of TriEst Ag Group?**

TriEst Ag Group is part of a family of companies known as the TriCal Group.

TriEst is a distributor and applicator of soil fumigation, irrigation, fertilizer, and equipment products with a focus on fresh fruits, vegetables, tobacco, and custom turf applications.

We have developed a unique group of company brands that allows us to offer growers our support from pre-plant through harvest, season after season.

This picture, taken in 2022, shows a green bean field after a low-rate application of a TriEst Ag chloropicrin-based fumigant.

TriEst Ag Group came together, in 2010, as the combination of three leading soil fumigation companies: Reddick Fumigants, Hendrix and Dail, and Hy-Yield Products.

TriEst Irrigation formed in 2015 as a consolidation of BB Hobbs Company and United Irrigation Supply, which merged into TriEst Ag Group in 2020.

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### How many locations and employees does TriEst Ag Group have in the U.S.?

TriEst Ag Group has eight brick and mortar locations and sales staff that cover dedicated regions across the United States. Our corporate headquarters is in Greenville, North Carolina.

TriEst Ag Group encompasses approximately 190 employees. We're a part of the TriCal Group, which spans across the globe and is based in California.

### What are the advantages of chloropicrin-based products to manage soilborne pests and

**pathogens?** Chloropicrin is a proven chemical compound with over 50 years of agricultural use. Heavily researched across the globe as the premier soilborne pest fumigant in crop production, chloropicrin is a bio-nutritional fumigant with crop benefits beyond just pest control.

We see better crop vigor and larger root systems with the use of the product, and better pumps make better plants.

We are actively researching and deciphering the relationship between chloropicrin-based products and soil biology to learn more about the

**Left:** A field is fumigated with a chloropicrin-based fumigant using a FlexFume independent row unit system.

**Right:** The tomato plants have been fumigated and drip irrigated.

growth responses we've seen over decades of agricultural use.

Chloropicrin leaves no residue and breaks down into nitrogen, carbon, chlorine, and oxygen, all of which are naturally taken up by plants.

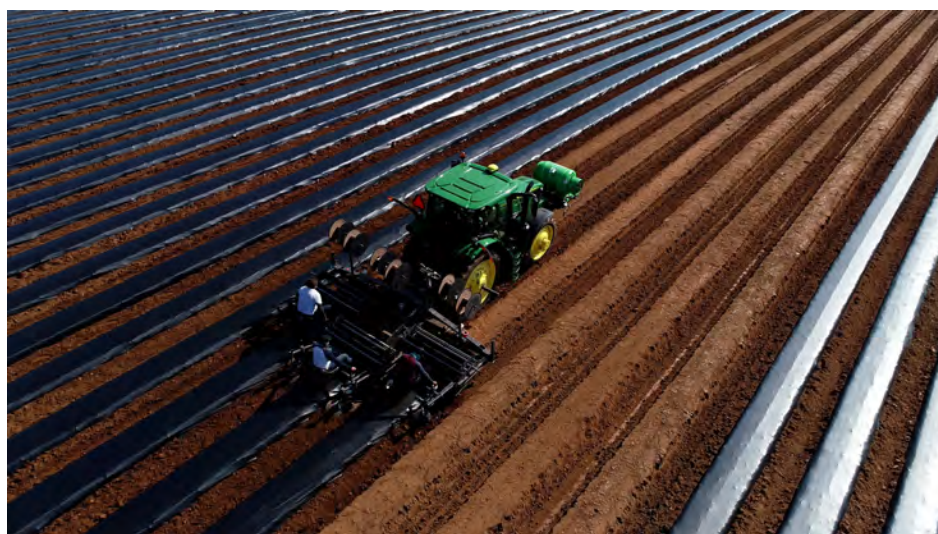
### What pests, organisms and crops do the products excel at protecting?

The use of chloropicrin-based products shows significant reduction of soilborne pest load, primarily pathogens and nematodes.

By reducing pest load, you can consistently grow a healthy and economically viable crop.

Crops include strawberry, pepper, tomato, potato, tobacco, onion, carrot, watermelon, sweet potato, green bean, nursery crops, and perennials.

Land availability and cost-effective crop rotations are major issues for many of the specialty crops listed here. The use of chloropicrin-based products facilitates reduced rotations without sacrificing yield and quality.



Plastic is laid down on a treated field to hold the fumigants in the soil at the doses needed to control pests and to prevent loss of the fumigant.



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Most of our inputs have an “all crops” label, which speaks to the fact that this is a soil application, leaving no plant residue after application.

**How does that tie in with sustainability?** A farmer once asked me, “What is sustainable about me trying to build a better farm for someone else’s children or family? Because I can’t afford to keep this land without producing a successful crop.”

Chloropicrin-based products tie

into sustainability by consistently providing soilborne pest suppression, resulting in yields and quality that a grower can count on when it comes time to pay their bills.

Farmers who can’t maintain a return on investment because of poor crop production will not be farming long, and there is nothing sustainable regarding the loss of farm families and agricultural businesses in the United States.

With that said, TriEst Ag Group

**Above:** The potato field at left was treated with a chloropicrin-based fumigant, while the potatoes at right were left untreated.

is dedicated to more sustainable practices regarding all our products and crop production recommendations that will continue to maintain or exceed the yields and market demands being placed on farmers, our customers.

A good example of this is heavily studying the interactions and impact of chloropicrin-based products on soil health and the microbiome.

We have conducted and are in the process of funding numerous university-based studies on this topic, in addition to our internal research and development efforts.

What we have found to date is that chloropicrin-based products do not sterilize soils, but instead create a shift in the microbiome community with an initial reduction of overall biomass.

Beneficials recover quickly, within weeks, and then exploit a large food source due to the reduction in soilborne pests, like host-dependent pathogens, which do not recover as quickly as beneficials.

The relationship between the incredibly diverse and resilient soil microbiome and chloropicrin-based products is a great path forward for



When he’s not in the field with sales staff and customers, Joshua Mays can be found in the greenhouse researching the effects of TriEst Ag products on plants.





It is TriEst Ag's goal to help growers produce consistent results and reliable crop yields, as exemplified by this healthy red potato plant treated with the company's products.

*“Farmers who can’t maintain a return on investment because of poor crop production will not be farming long, and there is nothing sustainable regarding the loss of farm families in the United States.”*

**– Joshua Mays**

sustainability.

We aim to discover new and innovative ways to have these systems work together and provide better solutions for our customers and American agriculture.

**What is your specific role in introducing TriEst products to customers?** My role as an agronomist

is to view chloropicrin-based products as a spoke in the wheel of the overall production system.

How are our applications impacting the whole system and what could be changed to enhance the efficacy of chloropicrin?

Through this process, I generate a lot of hypothesized solutions or

improvements, which in turn become on-farm side-by-side demonstrations at a commercial scale to determine their viability.

When introducing chloropicrin to customers for the first time, we begin by discussing the major pain points in the production system for the

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customer, like soilborne pathogens, and the best rates and application methods for suppression based on their crop and cultural practices.

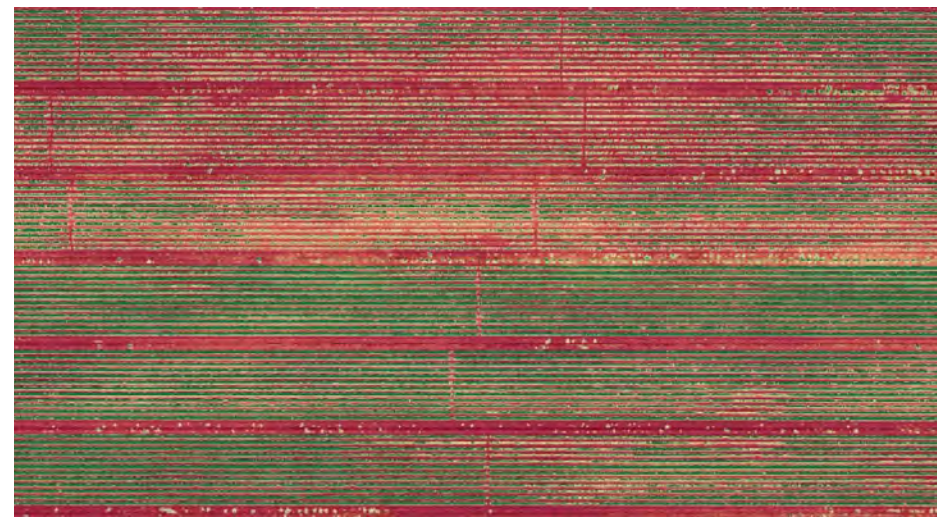
Once a solution is found, we analyze the economic impact of the soilborne pest against the cost of application for our products. Providing a better crop and consistent return on investment for our customer is the main goal.

### Why do you believe in the

**products?** The basis for my belief in chloropicrin-based products is the years dedicated to evaluating their efficacy across the United States in a wide range of specialty crops and geographies.

My job is to find solutions for soilborne pests in crop production, and typically these pests are resulting in significant yield or quality losses. I have seen TriEst Ag products turn those yield losses into yield surplus, and seeing is believing.

**Do you differentiate between crop protection products and nutrient inputs?** I do differentiate between crop protection products and nutrient



inputs, but they also work together in producing a healthy crop.

A farm that has excellent soil and crop nutrition practices, but is burdened with heavy soilborne pest loads, isn't going to perform well. The same would be true on the flip side of that coin, with having low pest pressure, but poor fertility practices.

We aim to maximize the potential of chloropicrin-based products, which are powerful tools to suppress soilborne pests, and shift soil biology.

Once TriEst Ag products have been applied, we build an agronomic plan around the reduced pest pressure

**Above:** The three green bean rows at bottom were treated with TriEst Ag chloropicrin-based product, while those at top were left untreated.

and plant growth advantages. This often results in fertility program changes, target pH differences and reduction of other pest control products.

TriEst Ag Group markets both crop protection products and nutrient inputs by building crop production plans based on the specific needs of a farm or operation.

Agriculture is too diverse to provide black-and-white-based solutions.



**Above:** A Tri-Hishtil-grafted watermelon plant is held up in the first photo, and the second drone image shows grafted plants in a field. Grafting vegetables can result in disease-resistant roots and provide earlier and higher-yielding crops.



This is our crop protection issue of the Badger Common’Tater. What specific products does TriEst Ag Group offer for crop protection, and why should potato and vegetable growers in Wisconsin and the Midwest, specifically, consider their use? In addition to inputs, TriEst Ag Group offers drip- and micro-irrigation systems, components and automation, grafted plants, plasticulture equipment, and substrate and protected agriculture growing systems.

Growers in the Midwest who are producing potato or vegetable crops should consider using TriEst Ag products because they are scientifically proven to reduce soilborne pests and represent decades of successful crops across the world.

No matter the severity or diversity of pest pressures, chloropicrin-based products will help bring success to their farming operations.



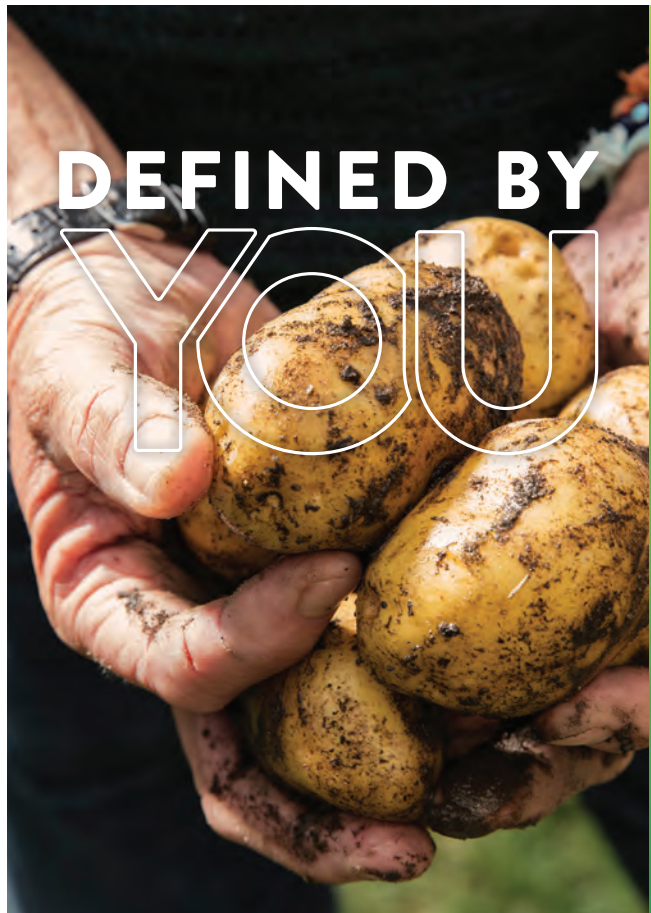
Shown is a treated and harvested field of sweet potatoes in central North Carolina.

**Why is chloropicrin an ideal soil fumigant?** Chloropicrin is a true soil fumigant and is active against soilborne pests immediately at the time of application, without the need of additional irrigation beyond labeled soil moisture

requirements, or activation of any kind.

Chloropicrin is applied underground as a liquid. It volatilizes into gas diffusing through the soil air space, suppressing soil pests and pathogens.

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The fumigant then decomposes rapidly in the soil, dissipating before the crop is planted. There is no uptake of fumigant into the plant root or residue on the plant.

Chloropicrin is EPA Residue Tolerance Exempt, meaning the EPA has confirmed there is no residue in or on food.

**Do chloropicrin-based products aid in the suppression of rhizoctonia, fusarium, verticillium wilts, pythium or parasitic nematodes?** Yes, they are proven, both scientifically and in the field, to suppress all the pests mentioned above.

The intricacies of product formulation, application rate, application method, cultural practices, crop, and variety all impact the degree of suppression to target pests.

TriEst Ag Group specializes in gathering all these details to form the best application possible for a healthier crop.



**Is there a way to treat soil health and pests and diseases at the same time?** This has become a major focus of TriEst Ag Group and my work personally with the company.

We know chloropicrin-based products treat soilborne pests and diseases, but we've only recently been able

**Above:** The high tunnel covers drip-irrigated strawberries.

to test and learn about the interactions with soil health.

We've already learned that the inputs do not sterilize soils, but instead create a shift in the soil microbiome. We are working hard to learn how we can better maximize this shift to grow better crops and be better stewards of our products for the agricultural community.

We must find a balance between crop rotations, land availability, economic sustainability of growers and better stewardship of our agricultural lands.

TriEst Ag Group is committed to this challenge and welcomes all opportunities to collaborate with those pursuing better soil health, without sacrificing crop performance and economic return.

**Are these products used in addition to or in conjunction with other standard crop protection products and inputs?** In conjunction with other products and inputs, and the system should be re-evaluated based on the diversity of control from chloropicrin-



**The higher yielding potato plant at right was treated with chloropicrin versus the plant at left.**



based products.

Few products in the market can provide the scope of suppression for soilborne pests as TriEst Ag inputs, so we typically can consider reducing the use of other inputs that are overlapping control of similar pests.

**Do you or other team members work with growers in the field? And, if so, in what respects?**

Agriculture is very diverse, and the devil is always in the details, which are difficult to understand until you put your hands on them in the field.

I spend 75% of my time in the field with our sales staff and customers, preparing for proper applications of products and following through on their performance. This is where the heart of our company is based.

Our sales staff stewards the safety and proper application of products, while I am a resource for them and the grower in solving new and emerging problems as an agronomist.

**Is this a favorite aspect of your job, or what do you most enjoy doing?**

Yes, it certainly is. I get to work with some of the best farming operations in the world, which provides me with field experiences that I can share with our customers to help drive innovation.

I learn more from our customers than I could ever teach them, but the combination of our experiences and ideas has created a lot of success in a wide array of crops, geographies, and production systems.

**How necessary are these crop protection and nutrient products to the future of agriculture and why?**

I believe the use of our crop protection and nutrient products is critical to the future of agriculture, especially the specialty crop industries.

The loss of agricultural land to development, water availability and worldwide competition for

crop production is putting constant pressure on our business and customers to be better.

We must be better stewards, achieve better yields and quality, and do so on less acres of land with a worldwide population that continues to increase.

Our food security and economic viability need consistent results and reliable crop yields, which chloropicrin-based products provide.

**What are your goals for the future?**

My personal goal for the future is to continue to learn and be open-minded, alongside the farming and agricultural community, about new paths to achieve better agricultural systems.

I believe that new waves of success will be reached by finding middle ground between proven agricultural chemistries, like chloropicrin-based

products, and the diversity and health of soils.

Keeping farmers economically healthy is sustainable agriculture. We must continue to grow successful crops, while striving to be better stewards.

TriEst Ag Group will continue to provide the best solutions possible for soilborne pests and is dedicated to using current technology to discover more about the amazingly complex world of soil microbiology and health.

**Is there anything I've missed that you'd like to add?** Thank you to all the farm families and associated businesses that represent American agriculture. I am proud to work with you and hope to take our businesses to new heights together in the future. **BCT**



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