

PROTOCOLL SYSTEM

MONTY'S FAMILY OF ENCAPSULATED FERTILIZERS



**THE NEXT GENERATION
OF FERTILITY AND
NUTRIENT MANAGEMENT**

Monty's ProtoColl™ System

The Next Generation of Fertility & Nutrient Management

Monty's ProtoColl System is built upon our proprietary humic technology. The unique fertilizer system is designed to make your nutrient program more efficient – stabilizing and maximizing nutrients in the soil – creating an unmatched environment for the soil biome to thrive. ProtoColl combines the benefits of both solid and liquid fertilizers, delivering both immediate nutrient availability and sustained release. This improved soil environment creates healthier roots and better plant growth. Benefits include:

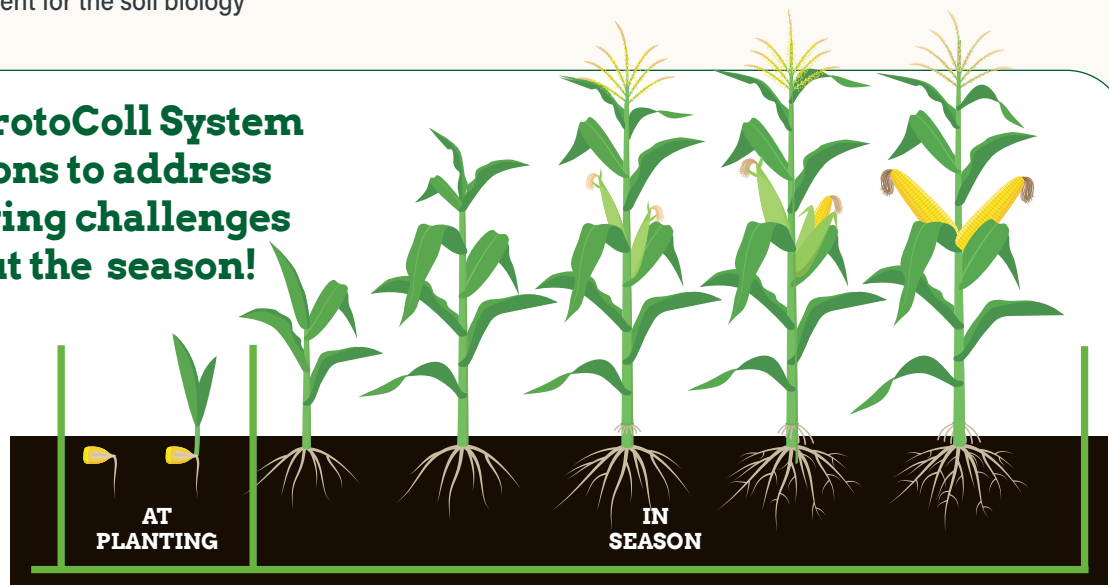
- ✓ A balanced macronutrient supply at planting
- ✓ Reduces the amount of NPK inputs and applications throughout the season
- ✓ Slower, more controlled release of nutrients all season
- ✓ Less leaching and volatilization of nutrients
- ✓ Helps mitigate damaging salts
- ✓ Lower use-rate compared to other NPK sources
- ✓ Increased water retention to mitigate drought
- ✓ Stabilized and maximized nutrients in the soil
- ✓ More efficient nutrient uptake
- ✓ Improved microbiome vitality for sustained plant nutrition
- ✓ Healthier environment for the soil biology



The ProtoColl treated corn showed higher nutrient balance; larger, healthier roots and leaves; and larger ears — leading to significantly higher ROI.

Monty's ProtoColl System has solutions to address your growing challenges throughout the season!

A third-party trial showed a 25% bushel increase and an ROI of \$176.50 per acre!

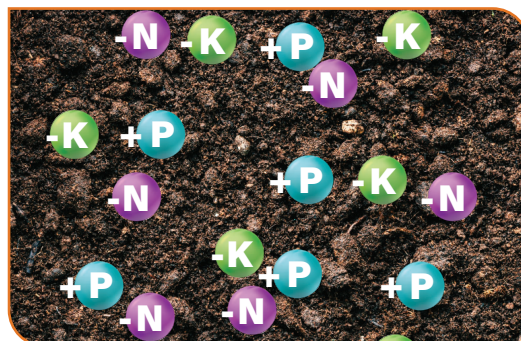


	AT PLANTING									IN SEASON						
	Supplies Essential Nutrients	Maintains Nutrient Balance	Mitigates Salt Injury	Reduces Volatility and Leaching	Promotes Biologicals	Supports Microbial Synergy	Retains Soil Moisture	Promotes Root Development	Facilitates Precision Application	Supplies Essential MacroNutrients	Extends Nutrient Availability	Decreases Nutrient Loss	Mitigates Drought Stress	Enhances Water Use Efficiency	Increases Yield with Reduced Inputs	Facilitates Precision Application
Standard Starters	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
ProtoColl Products	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Monty's ProtoColl System consists of bundled, micro-droplets (micelles) of nutrients encapsulated by PEBs — which maximize the nutrient's efficiency.

Typical Liquid Fertilizer

Positively and negatively charged micronutrients are applied to the soil. They can be insoluble, leach out, or have minimal impact on the plant and soil, costing farmers time and money.

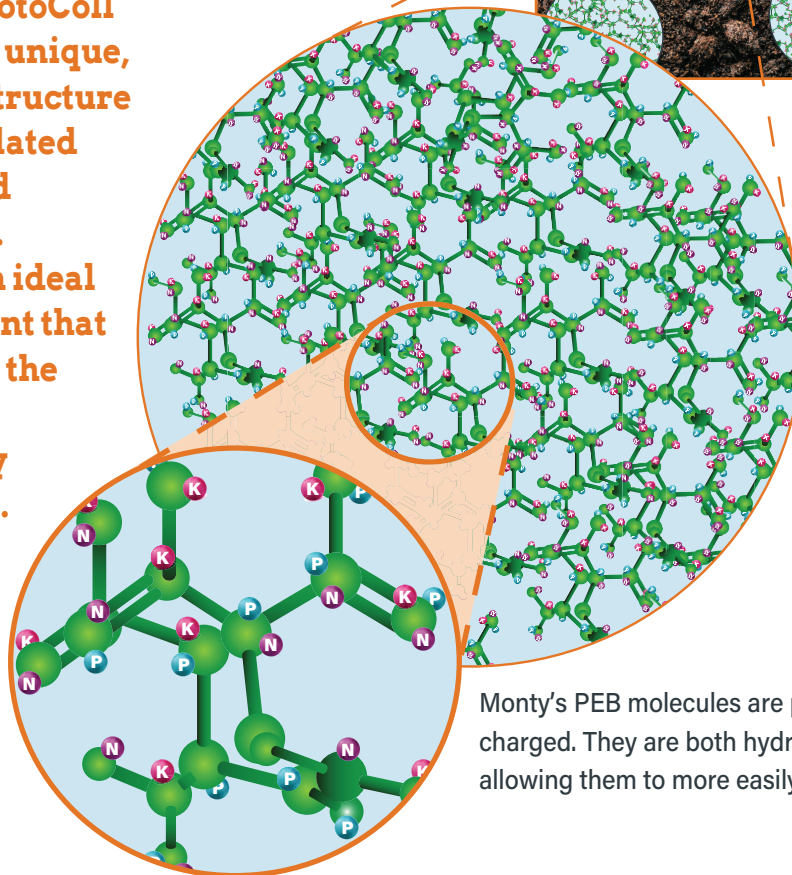


Monty's ProtoColl System

The nutrients are held together by Monty's PEB (Polyelectrolyte Enhanced Biopolymer) technology, forming a unique concentration of microdroplets (micelles), which act like a sticky glue.



Monty's ProtoColl System is a unique, balanced structure of encapsulated humics and nutrients ... creating an ideal environment that maximizes the nutrients availability to the plant.



Nutrients are encapsulated, occluded (absorbed), and held together in the PEB-forming nutrient micelles.

Monty's PEB molecules are positively and negatively charged. They are both hydrophobic and hydrophilic, allowing them to more easily interact.

“ Bundling the PEBs means less nutrient loss and longer plant availability. There is nothing like this in the industry! ”

— Alexander Shulgin, Ph.D. Chief Technology Officer

“ I was so pleased with what I saw with my ProtoColl trials this past season, I am going to add ProtoColl into my program this coming season. ”

— Kevin Kalb, National Award-winning Grower

Success in the Field

THIRD-PARTY TRIAL RESULTS

PROTOCOL 7 (100% ORTHO)

+49 BU/A
\$160 ROI

Monty's **199**

Control 150

+39 BU/A
\$121 ROI

Monty's **331**

Control 292

+13 BU/A
\$52 ROI

Monty's **188**

Control 175

PROTOCOL 8

+10 BU/A
\$20 ROI

Monty's **238**

Control 228

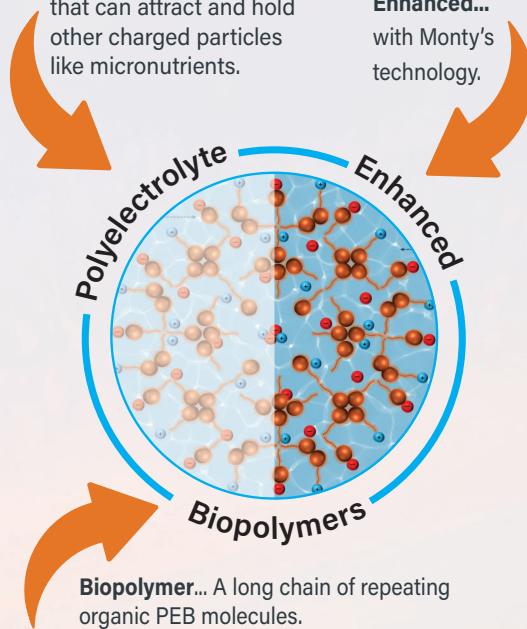
Ask your Monty's representative for detailed information about each of our trials.

What are PEBS?

POLYELECTROLYTE ENHANCED BIOPOLYMERS

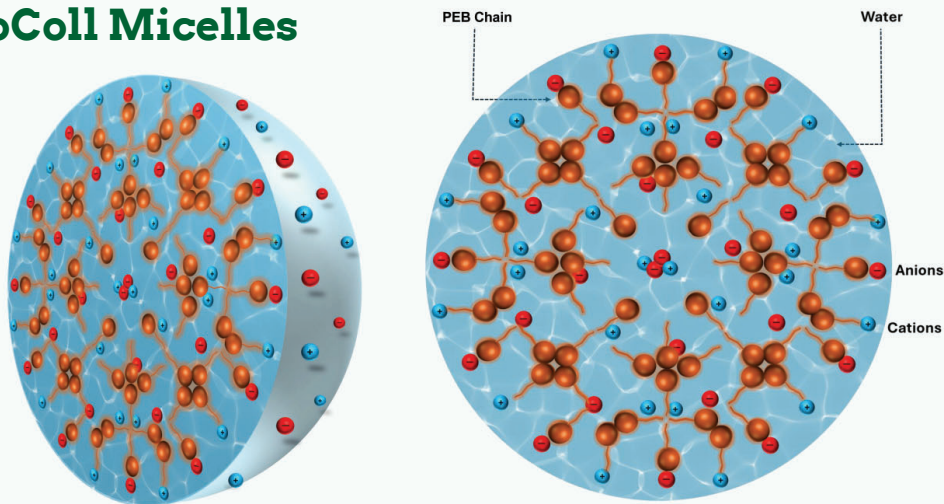
Polyelectrolyte... Positively and negatively charged ions that can attract and hold other charged particles like micronutrients.

Enhanced... with Monty's technology.



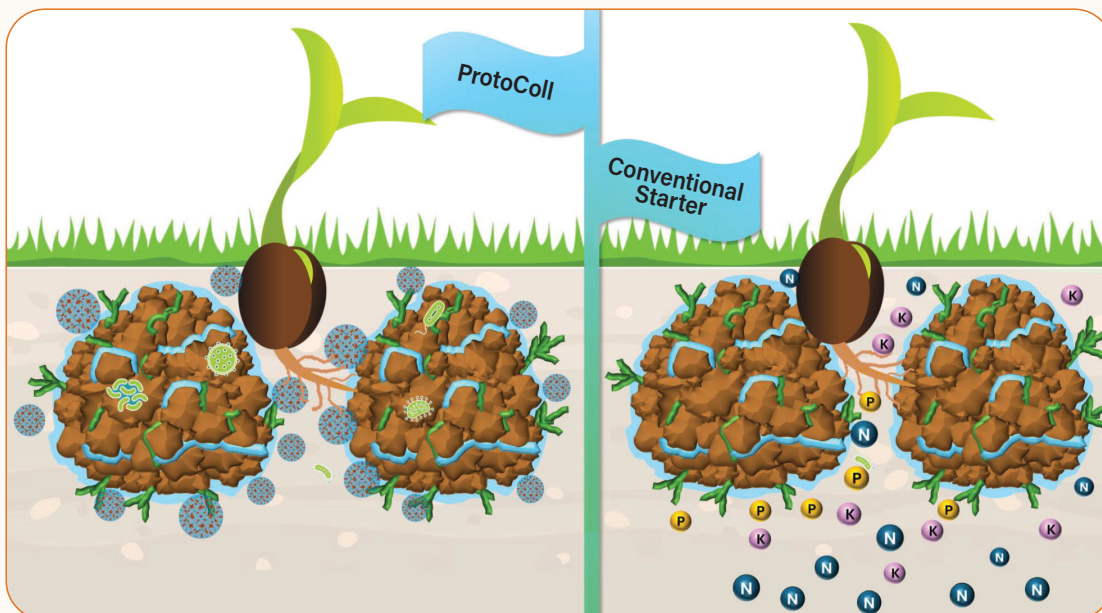
Biopolymer... A long chain of repeating organic PEB molecules.

Structure of ProtoColl Micelles



The image shows PEB molecules in solution, with blue representing water and brown representing PEB. PEB is modeled using a "ball and tail" to show its structure. The hydrophilic (water-attracting) groups form the tail, and the hydrophobic (water-repelling) carbon backbone forms the head. At typical concentrations, PEB forms micelle-like clusters, with hydrophobic heads inward and hydrophilic tails facing the water.

Interaction of ProtoColl Micelles with Soil Aggregates Compared with Conventional Starter



ProtoColl technology bridges liquid and solid fertilizers, offering efficient, controlled, gradual nutrient release. ProtoColl's controlled colloidal size prevents filter clogging. Unlike conventional fertilizers that release all nutrients immediately and lose them through leaching or evaporation, ProtoColl provides protection against nutrient loss from leaching, evaporation, or denitrification, sustaining nutrient availability for improved plant uptake.

Questions and Answers

Monty's ProtoColl System of Fertility Products

What problems does ProtoColl solve?

ProtoColl addresses nutrient imbalance, nitrogen loss, limited potassium and phosphorus mobility, and salt damage commonly seen with conventional starter fertilizers, while offering a balanced solution that supports soil health and early crop growth.

Can I use less NPK products than I have in the past?

Yes. ProtoColl's unique technology can reduce the amount of liquid and/or dry NPK applied throughout the season. Soil and tissue testing throughout the season will help determine the actual amount of NPK needed.

What makes ProtoColl a hybrid solution?

ProtoColl combines the benefits of both solid and liquid fertilizers, delivering both immediate nutrient availability and sustained release, thus bridging the gap between these two types.

How does ProtoColl improve environmental sustainability?

By stabilizing nutrients like N, P, and K in the soil, ProtoColl reduces ammonia volatilization, nutrient runoff, and nitrate leaching, which protects water resources and enhances nutrient use efficiency.

What are the key components in ProtoColl that benefit crops?

ProtoColl contains bundled micro-droplets (micelles) of PEBs (Polyelectrolyte Enhanced Biopolymers) and essential nutrients in a dispersion medium, ensuring rapid nutrient uptake and prolonged availability in the soil.

What results have been observed from ProtoColl research trials?

Research trials and grower field trials across the United States have shown ProtoColl significantly increases crop yields by as much as 25%, highlighting its effectiveness and consistency in diverse conditions.

Does ProtoColl system have a natural structure?

Yes. Monty's ProtoColl System consists of bundled, micro-droplets (micelles) of nutrients encapsulated by PEBs. The PEBs are naturally formed synergic structures that multiply the benefits of native humic molecules — maximizing the nutrients availability to the plant.

How does ProtoColl support early-stage plant growth?

ProtoColl promotes strong root systems and robust early crop growth by delivering a balanced profile of macronutrients in both fast-acting and slow-release forms.

Is ProtoColl adaptable to different soil types?

Yes, ProtoColl's hybrid formulation works well across diverse soil types, reducing nutrient losses in both clay-heavy and sandy soils by mitigating issues like nutrient fixation and leaching.

How does ProtoColl respond to climate stressors like drought?

ProtoColl provides immediate nutrients through its liquid component, while the solid portion ensures longer-term nutrient and water availability, which helps crops withstand drought, irregular rainfall and other negative weather conditions.

Can ProtoColl be used with precision farming equipment?

Yes, ProtoColl is compatible with precision agriculture tools, allowing for efficient and targeted nutrient placement near seeds using planters and sprayers in advanced farming systems.

Does ProtoColl require special storage or handling?

ProtoColl may experience natural settling over time like many other agricultural products, but can be agitated with light stirring, ensuring ease of use without affecting performance. For specific storage and handling information, refer to the SDS or talk to your Monty's representative.

“ I gave my neighbor 50 gallons of ProtoColl to finish his irrigated corn next to mine. In the areas where he applied it, yields were over 20 bushels higher. The only change he made was replacing his usual 10-34-0 with ProtoColl. ” — Cory Hardin, North Carolina Grower

“ We're going to simplify our in-furrow program by using ProtoColl 7 — a 100% orthophosphate product — across all of our fields. I was really pleased with the results last season, and I appreciate how much simpler it makes the process, especially by reducing the amount of mixing required. ” — Kevin Kalb, National Award-winning Grower

Monty's Family of Unique Bio-Encapsulated Fertilizer Products

ProtoColl 7

For growers who use 9-18-9 as a starter. 7-16-7 uses 100% orthophosphate for rapid availability and a quicker start. It is made with urea, ammonium polyphosphate, diammonium phosphate, and dipotassium phosphate. This can be applied in-furrow, 2x2, y-drop, or foliar.

ACTIVE INGREDIENTS

Total Nitrogen (N) 7%
 Available Phosphate (P₂O₅) 16%
 Soluble Potash (K₂O) 7%

> *Cannot be mixed with UAN.*

ProtoColl 8

For growers who use 9-24-3 as a starter. 8-18-2 is made with urea, ammonium polyphosphate, diammonium phosphate, and dipotassium phosphate. This can be applied in-furrow, 2x2, y-drop, or foliar.

ACTIVE INGREDIENTS

Total Nitrogen (N) 8%
 Available Phosphate (P₂O₅) 18%
 Soluble Potash (K₂O) 2%

> *Can be mixed with UAN.*

General Application

At planting (In-furrow, 2x2, y-drop): 2-3 gallons per acre. Foliar application with herbicides, fungicides, and insecticides: 2 gallons per acre. Best if used with other Monty's products including starters, foliar, micronutrients, and biologicals. Ask your Monty's representative about specialized programs. ProtoColl products are available in 275 gallon totes and bulk.

Award-winning grower Terry Vissing shares with Nate Schroeder, Monty's Director of Agronomy, the results he has seen applying ProtoColl 7 on his corn this season.





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MADE IN THE USA