



AgriMatrix

For smarter agriculture.



*Located in **McMurray, PA**, Simmons Farm provides a wide variety of freshly picked, locally grown fruits and vegetables. The farm also offers a full-service greenhouse and seasonal Pick-Your-Own experiences, including strawberries, apples, peaches, flowers, and pumpkins. Simmons Farm is especially known for its Pick-Your-Own experiences, which include strawberries, apples, peaches, flowers, and pumpkins depending on the season. Beyond produce, the farm hosts family-friendly events such as hayrides, birthday parties, summer camps, and educational field trips. Their fall activities, including pumpkin picking and nighttime hayrides, are particularly popular and draw large crowds each year.*

The farm's commitment to agricultural education and community engagement makes it a valuable resource for families, schools, and experienced growers alike. With a full-service greenhouse and a focus on fresh, local production, Simmons Farm continues to uphold its mission: "A local farmer growing for you."



LONG-TERM SUSTAINABLE STRATEGIES

The pursuit of sustainable and efficient strategies to enhance crop performance has led to growing interest in soil amendments such as magnesium silicate (AgriMatrix). Recognized for its ability to reinforce cell walls, improve nutrient uptake, and mitigate abiotic stress.

At Simmons Farm, we conducted a trial on yellow and green beans —crops of high commercial and nutritional value — to evaluate the benefits of AgriMatrix as a tool for optimizing crop quality and profitability. The results support its potential to enhance plant resilience and align with Simmons Farm’s commitment to sustainable, high-performance agriculture.

Description of the field trials, July 31st 2025

Plot	Name	Total area	Treated area	Crop	Yield/plot	Yield/acre
1	Green Beans 1	20 ft x 427 ft = 0.20 Acre	1/15 of acre, 8 Kg AgriMatrix	Green Beans Yellow Beans	3.8 bins	19 bins
2	Green Beans 2	20 ft x 705 ft = 0.20 Acre	1/15 of acre. 8 Kg AgriMatrix	Green Beans Yellow Beans	2 bins	10 bins*

* Almost ½ the beans were left behind as the first pass was too much for the store to handle, not harvested.

Some remarkable results, under intensive **drought** stress, but with regular irrigation:

Green Beans

1. Root system structure noticeable bigger from the 4th week till the harvest time.
2. Even after first pick, during the second pass, the yield was 27% higher in average for the treated vs the control plants.
3. The weight of 100 beans was 23% higher for the treated than the control plants.
4. The biomass was 42% higher in average for the treated plants, than the control.




ANALYSIS REPORT

Treated



Control



 The Treated plot shows visibly denser, more uniform crop growth and production, compared to the Control plot, which exhibits patchier vegetation and exposed soil.


ANALYSIS REPORT

Treated



Control



 The Treated plot shows more uniform crop rows, reduced weed pressure, and healthier overall plant development, while the Control plot reveals uneven growth. This demonstrates AgriMatrix's role in improving early crop establishment and field uniformity.

ANALYSIS REPORT

🌿 Treated plants exhibit thicker stems, larger and healthier leaves, and more structured root system, while the Control plants show signs of stress—thinner stems, smaller foliage, and lower color intensity.

🌿 At harvest time the early green beans were uniform and abundant in the treated area, vs irregular growth and development in the Control.

🌿 The root system is longer and denser, more root hairs, allowing the plant to increase significantly the places for nutrient exchange and intake.

Treated



Control



ANALYSIS REPORT

🌿 Treated rows show denser foliage and more consistent plant height versus Control rows with irregular and variable canopy structure and growth.

🌿 Harvest evident plants uniformity, green beans higher weight and numbers in the treated than the control.

🌿 This highlights AgriMatrix's role in promoting uniform development and early vigor across the field.

Treated



Control



ANALYSIS REPORT

🌱 The control group shows fewer, shorter, and thinner yellow bean pods, while the treated group presents a larger quantity of longer, fuller pods

🌱 In the treated plot **15** plants were necessary to get **100** beans, vs **25** plants in the Control. Even though 100 treated beans were **3% less** heavy than control ones, in total, plants achieved a **65% higher yield**.

🌱 The biomass left in the plant, after removing the marketable yellow beans, was **44.5%** heavier in the treated plants versus the control plants.

Treated



Control



ANALYSIS REPORT

Simmons Farm – Greenbean Harvest Data (Oct 14)


Harvest Name	Treated	Control	Type
Jose	7	4	Yellow
Francisco	4	4	Green
Antonio	6	3	Green
Erasmus	7	5	Green
Gustavo	9	6	Green
Jose Luis	4	4	Green
Pedro	10	3	Green
Juan	8	2	Green
Eduardo	6	0	Yellow
Totals	60	31	91 beans




 The treated plot yielded more than twice the bean buckets compared to the control.

The data suggests that AgriMatrix treatment enhances productivity, consistency, and harvest efficiency, increasing total output per worker and supporting its use to boost productivity under given field conditions (drought stress + irrigation).

ANALYSIS REPORT

 AgriMatrix treatment significantly enhances individual plant productivity. This suggests improved nutrient efficiency and growth uniformity —key factors for maximizing yield quality and profitability, especially under challenging harvest conditions.

 Both for first and second pick the difference was consistent in uniformity, productivity, fruit size and total biomass of the plants.

	Control		Treated	
	Yellow	Green	Yellow	Green
# of Beans *	100	100	100	92
Plants	20	24	15	15
Beans Plant	5.8	4.8	7.3	6.1
Treatment Av Gain			25.9%	27.1%
Weight gr	763	600	745	524
Harvest Weight/ plant gr	38.2	25	49.7	34.9
Treatment Av Gain			30.1%	39.6%
Biomass gr	695	883	753	774
Av Biomass weight gr	34.8	36.8	50.2	51.6
Treatment Av Gain			44.5%	40.2%
Total gr /plant	72.9	61.8	99.9	86.5
Treatment Av Gain			37%	40%

* Only beans longer than 5 inches were harvested.



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