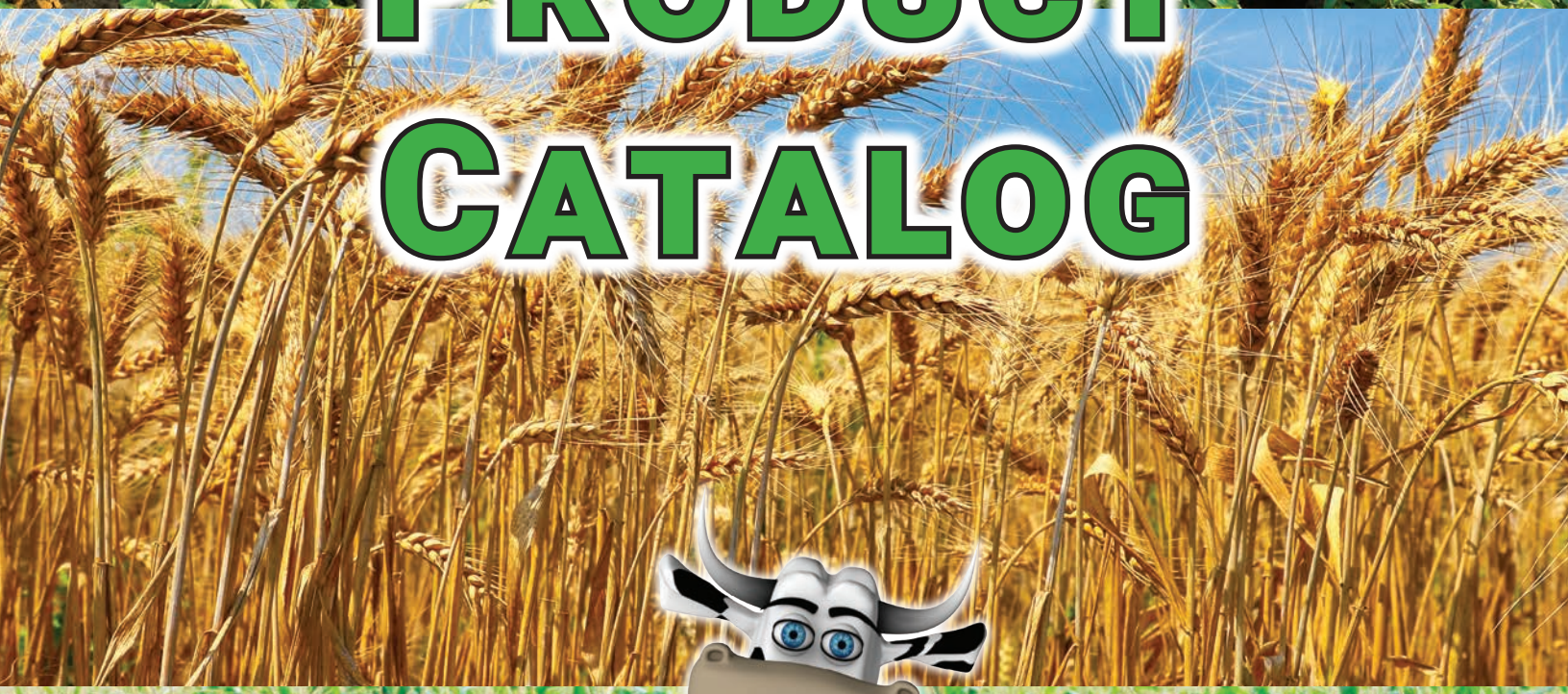
Morgan Composting inc.

Agriculture Product Catalog



Updated December 2023

Morgan Composting inc.

Ag Product Catalog

What Can Morgan Composting DOO for You?

Morgan Composting designs, manufactures, and distributes powerful soil amendments and blends for Michigan and beyond. It all began in 1996 when Brad Morgan had a manure management problem on his dairy farm. Brad and his father decided to take a gamble on an idea to use manures and waste products that others were trying to dispose of to make something valuable.

Brad started making **DAIRY DOO** - an organic, thermophilic, and weed-free designer compost that is full of the biology soil needs to grow the healthiest plants possible. **DAIRY DOO** is more than a backyard compost. It's specially designed to restore health to depleted soils without the use of harmful chemicals. **DAIRY DOO** has a specific recipe, much like baking a cake, in order to create a consistently high-quality product.

Today the cows are gone and instead the original farm is used to produce a whole line of **DAIRY DOO** products: **DAIRY DOO** Organic Compost, Custom Blends made specific for your soil, Organic Potting Soils, Organic Granulated Fertilizers, and Sustainable Liquid Amendments.

From day one we've been innovating by taking what no one wants and making it into something we can all use.

We use manures & waste products to create the **DAIRY DOO** line

This recycling helps protect the environment

Gardeners & Farmers use **DAIRY DOO** products to improve soil health for healthier plants

Healthier soils grow healthier plants which reduces the need for chemicals and pesticides

HEALTHIER MICHIGAN!

The Morgan Family: (L-R) Nicole, Ensley, Justin, Dale (Grandpa), Reenie (Grandma), Brad, and Sue.

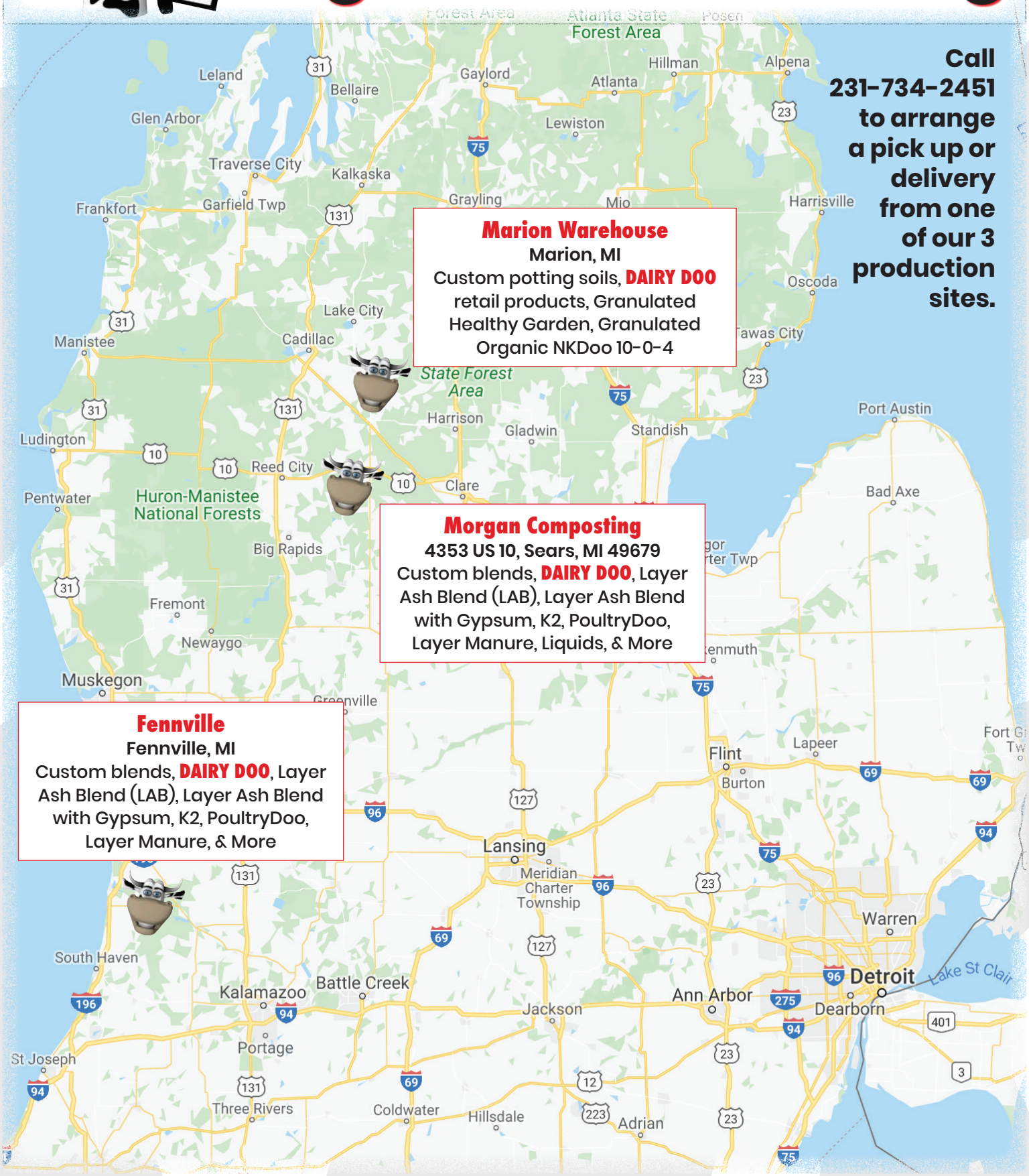
Brad was, and still is, a farmer through and through. He is passionate about soil health and creating sustainable practices that benefit everyone. Today his sons have joined the business and are committed to a healthier Michigan for all.

The **DOO** Crew is here to serve you! Pick a product from this catalog or call us for help designing the perfect blend for your needs: 231-734-2451 or **dairydoo.com**.

Are you farming for today or for the future?

Morgan Composting inc.

Ag Product Catalog



Call 231-734-2451 to arrange a pick up or delivery from one of our 3 production sites.

Marion Warehouse
Marion, MI
Custom potting soils, **DAIRY DOO** retail products, Granulated Healthy Garden, Granulated Organic NKDoo 10-0-4

Morgan Composting
4353 US 10, Sears, MI 49679
Custom blends, **DAIRY DOO**, Layer Ash Blend (LAB), Layer Ash Blend with Gypsum, K2, PoultryDoo, Layer Manure, & More

Fennville
Fennville, MI
Custom blends, **DAIRY DOO**, Layer Ash Blend (LAB), Layer Ash Blend with Gypsum, K2, PoultryDoo, Layer Manure, & More

DAIRY DOO *(Can certify organic)*

Organic Designer Compost

NPK: 1-1-1

Approx NPK in Pounds Per Ton:
20-20-20-66Ca-8S

Organic and high-quality **DAIRY DOO** compost stands alone for enhancing soil health with its weed-free biology. Just a small amount ramps up the microbes and trace minerals in tired soils to help get nutrients into your plants. Plus, the cost-effectiveness of **DAIRY DOO** as an amendment makes it an affordable way to get the job done right.

Why DAIRY DOO?

-***Increase the Right Biology:*** **DAIRY DOO** adds live microbes to your soil, helping all nutrients become more available getting you more bang for your buck on any fertilizers you use.

-***Add Organic Matter***: Increasing organic matter in the soil is like adding little sponges that can hold nutrients and water in place instead of allowing them to just seep away.

-***Improve Soil Structure***: **DAIRY DOO** adds carbon and biology to the soil which binds sand and loosens clay

Use with: all crops, greenhouses, gardens, deer food plots, and potted plants

Recommended Rate of Application: can be used individually or in a custom blend. Application varies depending on the soil. For best results, consult a soil test analysis. **DO NOT USE FOR DIRECT PLANTING**.

**Always confirm with your certifying agency prior to use.*

Sample ID: DAIRY DOO
Lab Number: 29127

COMPOST ANALYSIS

Date Received: 10/16/2020
Date Reported: 10/20/2020 Page: 3 of 8

Analysis	Unit	Analysis Result	Dry Basis Result	Analysis Method
Moisture @ 70 C	%	37.10		TMECC 03.09-A
Solids	%	62.90		TMECC 03.09-A
Total Nitrogen (N)	%	0.89	1.42	TMECC 04.02-D
Phosphorus (P)	%	0.89	1.42	TMECC 04.03-A
Phosphate (P_2O_5)	%	2.05	3.25	TMECC 04.03-A
Potassium (K)	%	0.67	1.06	TMECC 04.04-A
Potash (K_2O)	%	0.80	1.27	TMECC 04.04-A
Sulfur (S)	%	0.41	0.65	TMECC 04.05-S
Magnesium (Mg)	%	0.41	0.65	TMECC 04.05-MG
Calcium (Ca)	%	5.12	8.14	TMECC 04.05-CA
Sodium (Na)	%	0.13	0.21	TMECC 04.05-NA
Iron (Fe)	%	1.21	1.93	TMECC 04.05-FE
Aluminum (Al)	%	0.28	0.44	TMECC 04.07-AL
Copper (Cu)	mg/kg	40	64	TMECC 04.05-CU
Manganese (Mn)	mg/kg	348	553	TMECC 04.05-MN

Layer Manure *(Can certify organic)*

Average NPK: 4-3-2 11Ca

Approx NPK in Pounds Per Ton: 80-60-40-160Ca

Layer Manure is an economical soil amendment with added benefits of calcium, sulfur, biology, and trace minerals. It provides for approximately 60% availability of nitrogen within the first year.

We haul chicken litter from 5 different barns in Southwest Michigan directly from the laying operation to your farm. Manures can be purchased in semi load quantities which is roughly 45 tons.

Use with: all row crops, but we suggest using compost for food production due to food safety regulations

Recommended Rate of Application: 1-3 tons per acre, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Sample ID: **Layer Manure** Lab Number: **10223451** Date Sampled: **2023-10-25**

Parameter	Analysis As Received	Pounds of Nutrient AR per ton	Est. First Year Availability lbs per ton	Method	Reviewer-Date
Ammonium nitrogen (total)	0.62 %	12.4	6	AOAC 2001.11	tat9 2023-11-01 13:34:02
Organic nitrogen	3.12 %	62.4	22	Calculation	Auto 2023-11-01 13:34:02
Total Kjeldahl nitrogen (TKN)	3.74 %	74.8	28	AOAC 2001.11	tat9 2023-11-01 13:34:02
Phosphorus (as P2O5)	2.82 %	56.4	40	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:02
Potassium (as K2O)	2.36 %	47.2	42	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:02
Sulfur (total)	0.37 %	7.4	3	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Calcium (total)	7.25 %	145	102	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Magnesium (total)	0.48 %	9.6	7	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Sodium (total)	0.30 %	6.0	4	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Copper (total)	34 ppm	0.07	0.05	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Iron (total)	773 ppm	1.55	1.08	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Manganese (total)	279 ppm	0.56	0.39	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Zinc (total)	326 ppm	0.65	0.46	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Moisture	32.2 %			SM 2540 G-(2015)	tat9 2023-11-01 13:34:02
Total solids	67.80 %	1360		Calculation	Auto 2023-11-01 13:34:02
Total salts	11.0 %	220		Calculation	Auto 2023-11-01 13:34:02
pH	7.4 S.U.			EPA 9045C *	tat9 2023-11-01 13:34:02

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

PoultryDoo *(Can certify organic)*

Average NPK: 1-2-1 5Ca

Approx NPK in Pounds Per Ton: 12-24-12-100Ca

PoultryDoo is derived from **Layer Manure**, but composted to meet any food safety standards! Laying hens have a fixed diet, making the manure, and our resulting compost, more consistent. This compost provides organic matter, beneficial biology, and carbon to the soil.

Use with: crops of any kind, including food producing crops.

Recommended Rate of Application: 1-3 yards, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Sample ID: POULTRY DOO SITE 3
Lab Number: 29128

COMPOST ANALYSIS

Date Received: 10/16/2020
Date Reported: 10/20/2020 Page: 5 of 8

Analysis	Unit	Analysis Result	Dry Basis Result	Analysis Method
Moisture @ 70 C	%	41.23		TMECC 03.09-A
Solids	%	58.77		TMECC 03.09-A
Total Nitrogen (N)	%	0.84	1.43	TMECC 04.02-D
Phosphorus (P)	%	0.83	1.42	TMECC 04.03-A
Phosphate (P_2O_5)	%	1.92	3.25	TMECC 04.03-A
Potassium (K)	%	0.69	1.17	TMECC 04.04-A
Potash (K_2O)	%	0.83	1.40	TMECC 04.04-A
Sulfur (S)	%	0.39	0.66	TMECC 04.05-S
Magnesium (Mg)	%	0.37	0.63	TMECC 04.05-MG
Calcium (Ca)	%	5.23	8.90	TMECC 04.05-CA
Sodium (Na)	%	0.13	0.22	TMECC 04.05-NA
Iron (Fe)	%	0.75	1.28	TMECC 04.05-FE
Aluminum (Al)	%	0.30	0.51	TMECC 04.07-AL
Copper (Cu)	mg/kg	41	69	TMECC 04.05-CU
Manganese (Mn)	mg/kg	302	514	TMECC 04.05-MN

Food Safety: When To Use Manures Vs. Compost

One of the biggest concerns when working with manures in vegetable food production is food safety. If not managed properly, manures present the risk of E. coli, coliform, and listeria outbreaks. The importance of food safety and best management practices are made clear by the all-too-common E. coli outbreaks in lettuce we see on the news.

At Morgan Composting, we are no stranger to manures and the necessary precautions that must be taken. While it seems easiest to say, "no manure allowed in vegetable production" this is generally not an economically feasible option. This is especially true in organic agriculture, where alternative nitrogen sources can be extremely expensive. It also negates the use of a valuable commodity that, if not reused in the agricultural system, can present major environmental and water quality concerns for everyone. It can also present major management problems for farmers with excess manure, forcing them to landfill their manure or find expensive alternative solutions. Proper best management practices, found to the left, can negate the concerns presented by manures and ensure they are used to their fullest economic and agronomic potential.

Compost can be allowed for use in food safe systems much closer to harvest than raw manure, on the stipulation that it has gone through one of the FSMA approved composting methods. Currently, there are 2 approved methods of composting to meet food safety standards.

All of Morgan Composting's **DAIRY DOO** Compost and Compost Blends are produced using the thermophilic "turned windrow" method. We keep temperature and turning logs and ensure our compost reaches a minimum of 131°F for 15 days, with a minimum of 5 turnings during that time. We then allow for adequate curing before sale. To ensure that the composting process was effective, we sample every batch for salmonella, E. coli, and L. monocytogenes. Since our compost and compost blends meet the requirements laid out by FSMA, there is currently no preharvest interval defined by FSMA for properly processed compost. That being said, best management practices should seek to avoid contact between compost and vegetables, especially high-risk crops such as lettuce and broccoli.

Still unsure if raw manure or compost fits better into your growing plan? Call us for a consultation at 231-734-2451!

Why You Can Trust DAIRY DOO Compost Blends:

- ✓ Our record keeping goes above and beyond industry standards
- ✓ We add on our own Quality Control requirements, including MCI Toss Testing
- ✓ We keep advanced turning and temperature logs
- ✓ All our compost reaches a minimum of 131°F for 15 days , often topping 140°.
- ✓ There is a minimum of 5 turnings during the above 15 days
- ✓ We allow curing before sales
- ✓ We test every batch

When Using Raw Manure

Raw manure presents the greatest risk in food safety. The current requirement laid out by FSMA when using raw manure is a minimum of:

• 120 days between application and harvest for crops that contact the soil

• 90 days for crops that do not contact the soil

Best management practices, especially with 90 day crops, should avoid soil-to-vegetable contact from things like tires, ladders, shoes, and other possible sources of contact.

Fall applications can be a great option for higher risk crops, as it allows a long period between application and harvest.

Layer Ash Blend *(Can certify organic)*

Average NPK: 2-2-2 8Ca

Approx NPK in Pounds Per Ton: 42-44-42 167Ca

This is a custom mix that is based around Layer Manure. It takes the best of the Layer Manure world and combines it with **DAIRY DOO** Compost and Sili-K. This blend adds microbiological activity, calcium, silica, potash, and carbon to the soil while also releasing locked up nutrients. This increases water-holding capacity.

Layer Ash Blend has been used in recent potato trials conducted by Marisol Quintanilla, Ph.D., at the Department of Entomology at Michigan State University. Her trials revealed **Layer Ash Blend** is a powerful tool to use against harmful nematodes in the soil. To hear more about her research please visit dairydoo.com/potatoes.

Mix consists of:
Layer Manure | DAIRY DOO | Sili-K

Use with: all row crops, grains, and pasture crops.

Recommended Rate of Application: 1-2 tons per acre, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Layer Ash Blend with Gypsum

(Can certify organic)

Average NPK: 2-2-2

Approx NPK in Pounds Per Ton: 42-34-31 195Ca 74S

This mix has all of the benefits of our **Layer Ash Blend**, but with gypsum to provide additional calcium and sulfur. The organic matter of **Layer Ash Blend with Gypsum** will bind your sandy soils, break up compacted soils, and improve the nutrient holding capacity while preventing leaching. When the manure causes this blend to heat, the layer manure and gypsum react creating an ammonium sulfate-like product, giving you a quicker release.

Mix consists of:
Layer Manure | DAIRY DOO | Gypsum | Sili-K

Use with: all row crops, grains, and pasture crops.

Recommended Rate of Application: 1-2 tons per acre, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Sample ID: **Layer Ash Blend** Lab Number: **10223452** Date Sampled: **2023-10-25**

Parameter	Analysis As Received	Pounds of Nutrient AR per ton	Est. First Year Availability lbs per ton	Method	Reviewer-Date
Ammonium nitrogen (total)	0.78 %	15.6	8	AOAC 2001.11	tat9 2023-11-01 13:34:02
Organic nitrogen	1.75 %	35.0	12	Calculation	Auto 2023-11-01 13:34:02
Total Kjeldahl nitrogen (TKN)	2.53 %	50.6	20	AOAC 2001.11	tat9 2023-11-01 13:34:02
Phosphorus (as P2O5)	1.56 %	31.2	22	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:02
Potassium (as K2O)	1.55 %	31.0	28	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:02
Sulfur (total)	0.36 %	7.2	3	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Calcium (total)	5.91 %	118	83	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Magnesium (total)	0.44 %	8.8	6	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Sodium (total)	0.19 %	3.8	3	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Copper (total)	35 ppm	0.07	0.05	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Iron (total)	2350 ppm	4.70	3.29	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Manganese (total)	515 ppm	1.03	0.72	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Zinc (total)	225 ppm	0.45	0.32	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:02
Moisture	40.7 %			SM 2540 G-(2015)	tat9 2023-11-01 13:34:02
Total solids	59.30 %	1190		Calculation	Auto 2023-11-01 13:34:02
Total salts	8.87 %	177		Calculation	Auto 2023-11-01 13:34:02
pH	8.4 S.U.			EPA 9045C *	tat9 2023-11-01 13:34:02

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 Bsiecm. Less than 500 Bsiecm if annual rainfall is less than 20 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

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Sample ID: **Layer Ash Blend with Gypsum** Lab Number: **10223453** Date Sampled: **2023-10-26**

Parameter	Analysis As Received	Pounds of Nutrient AR per ton	Est. First Year Availability lbs per ton	Method	Reviewer-Date
Ammonium nitrogen (total)	0.58 %	11.6	6	AOAC 2001.11	tat9 2023-11-01 13:34:17
Organic nitrogen	1.32 %	26.4	9	Calculation	Auto 2023-11-01 13:34:17
Total Kjeldahl nitrogen (TKN)	1.90 %	38.0	15	AOAC 2001.11	tat9 2023-11-01 13:34:17
Phosphorus (as P2O5)	1.05 %	21.0	15	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:17
Potassium (as K2O)	0.98 %	19.6	18	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:17
Sulfur (total)	4.68 %	93.6	37	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Calcium (total)	9.24 %	185	130	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Magnesium (total)	0.43 %	8.6	6	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Sodium (total)	0.14 %	2.8	2	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Copper (total)	23 ppm	0.05	0.04	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Iron (total)	3300 ppm	6.60	4.62	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Manganese (total)	339 ppm	0.68	0.48	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Zinc (total)	138 ppm	0.28	0.20	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Moisture	38.4 %			SM 2540 G-(2015)	tat9 2023-11-01 13:34:17
Total solids	61.60 %	1230		Calculation	Auto 2023-11-01 13:34:17
Total salts	11.4 %	228		Calculation	Auto 2023-11-01 13:34:17
pH	8.2 S.U.			EPA 9045C *	tat9 2023-11-01 13:34:17

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 Bsiecm. Less than 500 Bsiecm if annual rainfall is less than 20 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

CAN COMPOSTS HELP MANAGE ROOT-LESION NEMATODES IN POTATOES?

Emilie Cole and Marisol Quintanilla
Michigan State University

INTRODUCTION

Root Lesion nematodes (*P. penetrans*) feed on potato roots (fig. 1) increasing Verticillium wilt infection thus leading to Potato Early Die Complex which can severely impact yields. Traditional control tactics are predominately chemical including fumigants and nematicides. Although some are effective, these products do little to promote soil health. Literature has suggested that utilizing manure-based compost can reduce nematode populations, but results have been mixed. Compost is inherently quite variable leading our project to collaborate with a local compost producer with consistent products to determine their efficacy against root lesion nematodes in potatoes.

Wilting, stunting, chlorosis and yield loss up to 50%!

Figure 1. Root lesion nematodes (not to scale) feed on potato roots

OBJECTIVES

I. Determine which compost/manure provides optimal control of root lesion nematodes

II. Establish which compost/manure has the most efficacy at low rates

III. Determine if composts/manures are effective in a field setting

MEET THE COMPOSTS

- **Dairy Doo** — Composted Diary Manure
- **Dairy Doo w/ Spelt** — Composted Diary Manure w/ Spelt Hulls
- **Chicken Manure** — Pure Chicken Manure
- **Poultry Compost** — Composted Chicken Manure
- **Layer Ash Blend** — Composted Chicken & Dairy Manure w/ Sili-K
- **Worm** — Red Wriggler Worm Castings
- **Control** — Play Sand

I. WHICH COMPOST IS MOST EFFECTIVE?

Methods

- The 7 products listed above were tested.
- 40 cc of each product were placed into 20 centrifuge tubes and inoculated with 200 root lesion nematodes (fig. 1a)

Figure 1. (a) Inoculating nematodes; (b) Modified Baermann Pan

- After 1, 2, 5 and 7 days 5 tubes from each treatment were placed in a modified Baermann pan (fig. 1b) to determine survival (fig. 2)

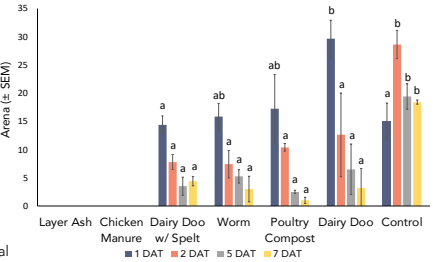


Figure 2. Average number of recovered nematodes per centrifuge tube separated by days after treatment (DAT). Treatments were analyzed by DAT . Treatments marked with different letters are significantly different (α=.05; Tukey HSD)

Results

- **Both the Layer Ash and Chicken Manure Treatments recovered ZERO root lesion nematodes**
- As time within the compost/manure progressed each treatment recovered fewer nematodes compared to control

II. WHICH RATE IS BEST?

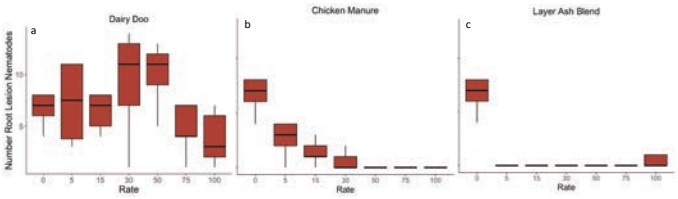


Figure 3. Boxplot representing the number of nematodes recovered from (a) Dairy Doo, (b) Chicken Manure (c) Layer Ash Blend at various rates of 0, 5, 15, 30, 50, 75 and 100% compost.

Methods

- Chicken Manure, Layer Ash Blend and Dairy Doo were tested at **rates of 100, 75, 50, 30, 15 and 5%** compost on a vol/vol ratio with sand. 100% sand served as a control
- The same methods from the previous experiment were used except arenas were left for 7 days.

Results

- Dairy Doo was variable in control suggesting it would be a poor nematicidal agent (Fig. 3a)
- Chicken manure had best results above 50% manure with moderate control below 50% manure (Fig. 3b)
- **Layer Ash provided optimal control even at 5% compost making it a promising candidate for a nematicidal agent (Fig. 3c)**

III. ARE COMPOSTS EFFECTIVE IN A FIELD SETTING?

Methods

- Russet Norkotah potatoes were planted at the Montcalm Research Center in early June.
- Dairy Doo, Layer Ash and Poultry Manure were tested at 1.25 tons per acre and 5 tons per acre against a non-treated control.
- Composts were spread one day prior to planting
- Soil was collected mid-August and nematode populations were determined
- Yields were determined by harvesting 23' from each plot.

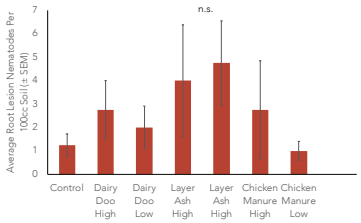


Fig 4. Average number of root lesion nematodes recovered from 100 cc of soil; n.s. indicates no significance (Tukey HSD; α = .05)

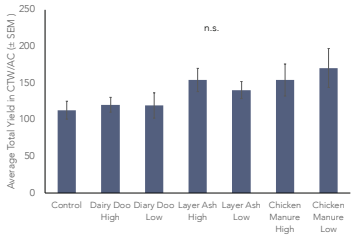


Fig 5. Average potato yield per plot in century weight per acre (CTW/AC); n.s indicates no significance (Tukey HSD; α = .05)

Results

- Plots treated with chicken manure at a low rate had fewer nematodes numerically, but overall field numbers were quite low and no statistical significances were found.
- Layer Ash applied at a high rate and chicken manure applied a low rate provided the highest yields, but no statistical significances were found.

SUMMARY

I. In a lab setting the Layer Ash Blend and chicken manure show promise in having nematicidal properties
II. The Layer Ash Blend reduced nematode populations at a rate of 5% compost
III. In the field, no significant differences were found but chicken manure at a low rate had the lowest nematode populations while Layer Ash at a high rate and chicken manure at a low rate had the highest yields.

Overall, compost has promising nematicidal effects but more field work needs to be done to determine efficacy in field situations.

ACKNOWLEDGEMENTS

We would like to thank Elisabeth Darling, Lauren Rodriguez, Brian Levene, Kristin Poley, and the Potato Outreach Program for all assistance along the way as well as Morgan Composting, the Michigan Potato Industry Commission and Project GREEEN for funding.

QUESTIONS/COMMENTS? Email me at coleemi1@msu.edu

K2 Blend *(Can certify organic)*

Average NPK: 2-2-1.5 10Ca 4S
Approx NPK in Pounds Per Ton:
40-40-30-200Ca-75S

K2 Blend is one of our most popular products! This blend is great for building soil health in grounds that have been under-performing. It increases the diversity of soil bacteria while activating microbes already present on your farm. The large addition of 600 lbs per ton of gypsum also increases calcium and sulfur levels in the soil. This is a great blend for spring or fall applications.

Mix consists of:
Layer Manure | Gypsum | DAIRY DOO

Use with: very beneficial for corn and soybeans.

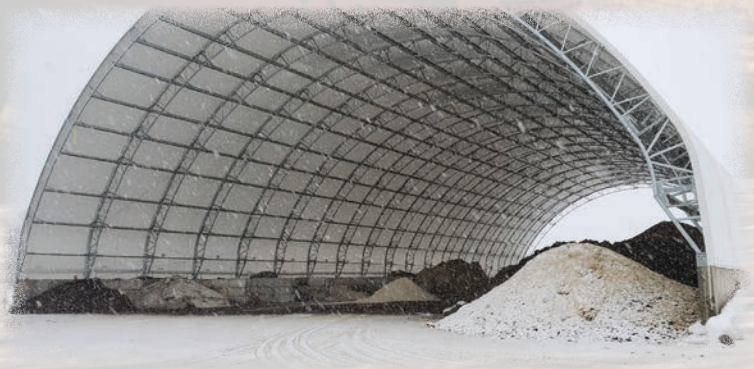
Recommended Rate of Application: 1-2 tons per acre, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Great option for fall applications. Check page 13 for more suggestions!

Ag Product Catalog

Morgan Composting is continuing to make investments that will allow us to better serve our customers and maintain the high level of quality we demand from our own products. This includes a granulating system in our warehouse in Marion, MI and a hoopbarn for mixing blends in Sears, MI added in 2020.



Gypsum Plus

(Can certify organic)
Average NPK: 1-1-1 16Ca 8S
Approx NPK in Pounds Per Ton:
30-30-20-255Ca-120S

Similar to our **K2 Blend** but with additional gypsum, **Gypsum Plus** is an affordable way to get calcium and sulfur into your soil in the very first year. This mix will help break up compacted soils and increase nitrogen use efficiency in your crops. It also includes plenty of active microbiology to benefit the soil's long-term health.

Mix consists of:
Layer Manure | Gypsum | DAIRY DOO

Use with: all row crops and grains

Recommended Rate of Application: 1-2 tons per acre, depending on soil health. For best results, consult a soil test analysis. Spread this product with a wet lime spreader.

**Always confirm with your certifying agency prior to use.*

Sample ID: **Gypsum Plus** Lab Number: **10223454** Date Sampled: **2023-10-25**

Parameter	Analysis As Received	Pounds of Nutrient AR per ton	Est. First Year Availability lbs per ton	Method	Reviewer-Date
Ammonium nitrogen (total)	0.68 %	13.6	7	AOAC 2001.11	tat9 2023-11-01 13:34:17
Organic nitrogen	0.62 %	12.4	4	Calculation	Auto 2023-11-01 13:34:17
Total Kjeldahl nitrogen (TKN)	1.30 %	26.0	11	AOAC 2001.11	tat9 2023-11-01 13:34:17
Phosphorus (as P2O5)	1.01 %	20.2	14	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:17
Potassium (as K2O)	0.80 %	16.0	14	AOAC 985.01 (mod)	Auto 2023-11-01 13:34:17
Sulfur (total)	7.16 %	143	57	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Calcium (total)	11.2 %	224	157	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Magnesium (total)	0.36 %	7.2	5	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Sodium (total)	0.11 %	2.2	2	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Copper (total)	18 ppm	0.04	0.03	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Iron (total)	2210 ppm	4.42	3.09	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Manganese (total)	141 ppm	0.28	0.20	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Zinc (total)	124 ppm	0.25	0.18	AOAC 985.01 (mod)	tat9 2023-11-01 13:34:17
Moisture	40.3 %			SM 2540 G-(2015)	tat9 2023-11-01 13:34:17
Total solids	59.70 %	1190		Calculation	Auto 2023-11-01 13:34:17
Total salts	13.2 %	264		Calculation	Auto 2023-11-01 13:34:17
pH	8.3 S.U.			EPA 9045C *	tat9 2023-11-01 13:34:17

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

Fall Applications: What to Use and Why

When signs of fall are in the air farmers start thinking forward to fall applications and deciding which, if any, products they'll use on their fields to strengthen soil health for next year.

Why a Fall Feeding Matters

If you've never fed your soil in the fall, you might wonder why anyone bothers. Why spread manure or compost in the fall? Because when you do, you open up the potential of utilizing your own crop residue as next year's plant food. What was once a problem- capable of attracting insects and disease- is now part of the solution.

With a complete soil health management system that is utilized year after year, which includes a fall application, it is possible to drastically change the makeup of your soil which changes the entire game of growing.

What Products to Use

We have multiple compost sites throughout the state of Michigan. One, our Fennville Site, is where we make several of our **DAIRY DOO** Compost Blends that are based on poultry manure. Our **K2 Blend** and **PoultryDoo** (formerly known as Poultry Compost), are both great options to try in your field this fall.

"K2 is really quite simple. It's


Brad Morgan

layer manure with gypsum with [**DAIRY DOO**] compost," says Brad Morgan, President and CEO of **Morgan Composting**. "The compost is in there for a biological stimulant. The gypsum is in there mainly to protect and actually add the sulfur and the calcium to the blend and it really makes for a very, very nice product."

"It's a very, very mellow product," he continues. "There is still temperature to it but it's very, very smooth- most of the gypsum has actually been incorporated, the nitrogen from the manures and the carbon from the compost- all have interacted. It spreads very easily, very nice to work with."

Brad is also a fan of using our **PoultryDoo** in the fall.

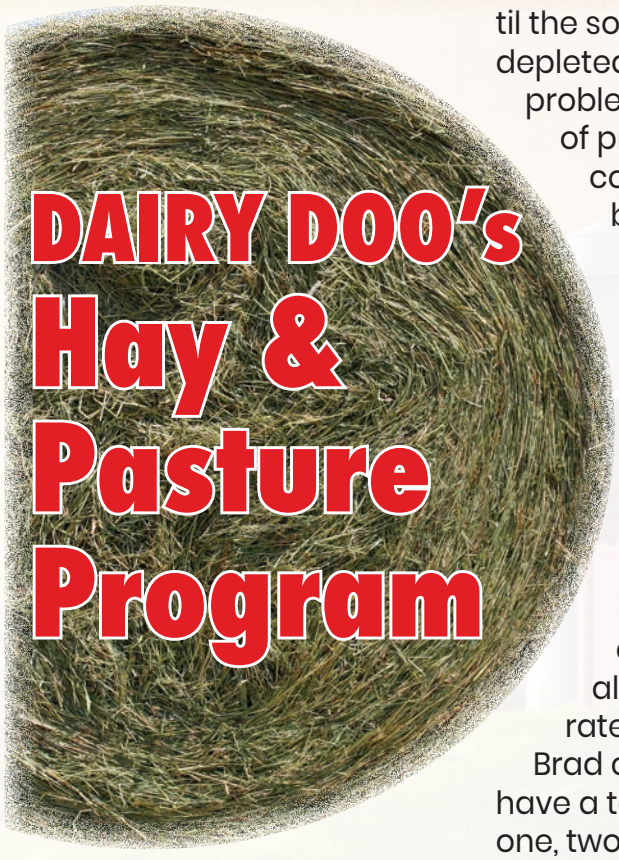
"Anytime that we are talking in the fall applications, we're talking about the potential of breaking down crop residues. And compost, and especially poultry compost, is designed to break down residue. So as we're heating it up, as we're going, we're growing basically bacterias and fungi that are residue breakers- they break down residue."

How to Get Help With Your Soil Health

If you've spread fall applications every year or if you've never tried, the Soil Health Experts at **Morgan Composting** can help. Reach out with your most recent soil test and discover which **DAIRY DOO** Compost Blend best fits your field's needs. Then you can decide if a fall application is best for you.

"Anytime I can take your crop residue," says Brad, "get it ready for the next year, it's like adding 80-100 pounds of potash. It's like adding and bringing back the phosphorus that it actually needs. So all that crop residue that was left back that had the potential for insects, disease, all of these problems, has now become part of the system that's going to be back into plant food which is actually going to be usable material."

Call the Soil Health Experts at **Morgan Composting** *today at 231-734-2451!*



DAIRY DOO's Hay & Pasture Program

What happens when you routinely farm a field without putting anything back into the soil? Eventually it catches up to you- reducing the quality and quantity of your yields and hurting your pocketbook.

"Alfalfa hay is very demanding on soil and it basically takes an awful lot of nutrient to grow the type of volumes of hay that we need to produce in Michigan," says Brad Morgan. "So finding some application of fertility in between cuttings is almost a necessity to keep up on the production and yields that we need."

A trend in farming is to wait until the soil has been drastically depleted and then try to fix the problem with heavy amounts of product. We would discourage this approach because it costs you more money all at once and its harder on the soil.

"If you're not constantly feeding some potash, maintaining the pH, what'll happen is there will be an encroachment of grasses coming into your alfalfa at a much faster rate than you really want," Brad continues. "People have a tendency to want to put one, two, even three ton of lime [on the field] to bring the pH back up to where it [needs to be]. We're trying to encourage people NOT to allow it to go to that point. Let's not deplete the soil, let's constantly manage the soil so we are maximizing production constantly."

Our recommendation is to be constantly watching your soils, amending it with smaller amounts of product, and developing a consistency that will help your plants thrive while being easier on your wallet. To meet this need, we have developed both organic and conventional blends specific for hay production- whether that is alfalfa or a grass/pasture.

"We know adding fertility in between cuttings is an added cost, but the truth be known, with the extra cost of equipment, labor, land rent, all of the above, yields are so critical to be able to run that equipment over. So the fact is, if you're not doing something in between cuttings, you really need to assess where your economics are within your program because you're going to have to constantly be feeding that plant. You can't take four, five, six, seven, up to twelve ton per acre of biomass off from a field consistently without replenishing...at some point in time remember, you're stealing and you're taking away from yourself if it's not a steady, constant reinvestment into it. I've farmed all my life and if we're not constantly looking at the economics of what we're doing, it won't be there for us in the future."

Check out the different Hay & Pasture blends from **Morgan Composting** *now or give us a call at 231-734-2451 to talk to a Soil Health Expert.*

Ag Product Catalog

Alfalfa Blend Conventional with Lime

Average NPK: 1-1-3 15Ca

Approx NPK in Pounds Per Ton: 20-20-60 309Ca

Calcium Carbonatite Equivalent: 42%

Mix consists of: Lime | Layer Manure | DAIRY DOO | Sili-K | Muriate of Potash

Alfalfa Blend Organic with Lime

Average NPK: 2-1-3 15Ca

Approx NPK in Pounds Per Ton: 34-27-61 299Ca

Calcium Carbonatite Equivalent: 40%

Mix consists of: Hi-Cal Lime | Sili-K | Layer Manure | DAIRY DOO | Sulfate of Potash

Alfalfa Blend Conventional without Lime

Average NPK: 1-1-4 7.25Ca

Approx NPK in Pounds Per Ton: 30-30-80-145Ca

Mix consists of: Sili-K | Layer Manure | DAIRY DOO | Muriate of Potash

Alfalfa Blend Organic without Lime

Average NPK: 2-2-4 6.5Ca

Approx NPK in Pounds Per Ton: 44-35-75 130Ca

Mix consists of: Sili-K | Layer Manure | DAIRY DOO | Sulfate of Potash

Grass & Pasture Organic with Lime

Average NPK: 1-1-1.5 15Ca

Approx NPK in Pounds Per Ton: 19-20-30 313Ca

Calcium Carbonatite Equivalent: 43%

Mix consists of:

Lime | Layer Manure | DAIRY DOO | Sili-K

Grass & Pasture Organic without Lime

Average NPK: 2-2-2 8Ca

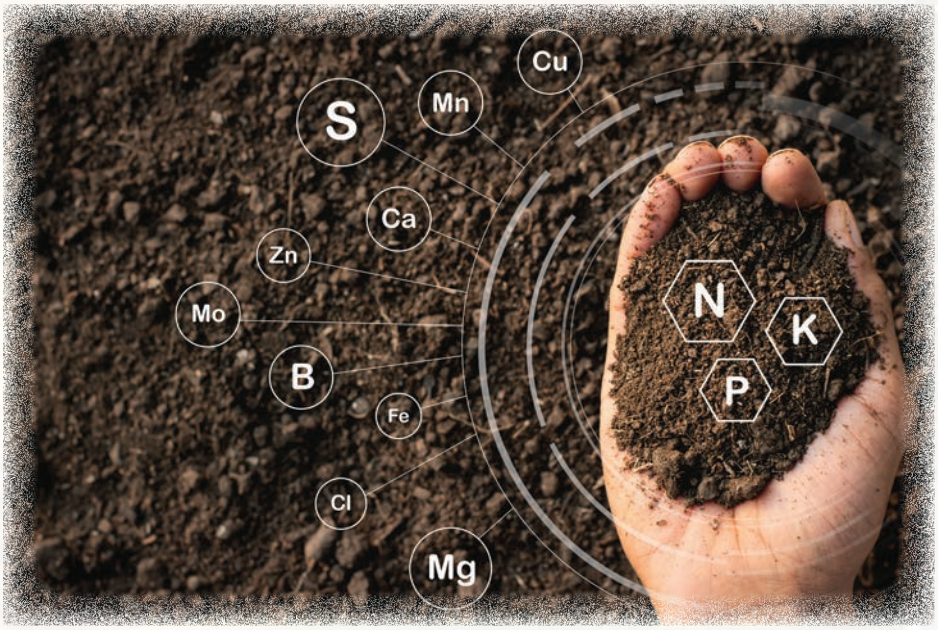
Approx NPK in Pounds Per Ton: 50-40-40 145Ca

Mix consists of:

Layer Manure | Sili-K | DAIRY DOO

Get a Custom Blend from DAIRY DOO

Each pass across a field costs farmers money- money to run the tractor, the cost of labor, and time taken from other projects. Each pass also causes the soil to compact even more.



As he does, when Brad Morgan looked at the problem, he saw a solution. Instead of one pass across the field to add biology and another to up the missing nutrients and then a third to add another missing ingredient, he said let's do it all in ONE pass. He developed **Custom Blends** from **DAIRY DOO**, a way for farmers to get everything they need and want in one easy application.

How to Order a Custom Blend

It starts with a soil test to determine exactly what a field needs. You can use a soil test you already have, order your own, or we can help you with one.

Then our ***Soil Health Experts*** build up a proposal for a blend that revives your tired soils. You take a look and to make sure it matches your goals and budget and then the **DOO Crew** gets to work. Each blend is mixed and flipped multiple times and checked for quality. Then the blend ships to you or is ready for pick up.

Morgan Composting's compost blends are soil amendments, not fertilizer. Therefore, all given analysis should be considered approximate, not guaranteed.

Compost blends: a key to optimizing soil health

Using compost for increased tuber yields is not a new concept, but in the last decade or so, a renewed interest in learning exactly how it works means that scientists are actively researching the effects of compost on soil health, harmful nematodes, returning biology to the soil and releasing locked-up nutrients to grow the most marketable potatoes possible.

Dr. George Bird, nematologist and professor emeritus at Michigan State University (MSU), still completes research on the impact of compost on soil health. A decade ago, Dr. Bird coordinated a soil health survey of 96 potato fields in Michigan. The Cornell University Soil Health Lab tested samples from each field for chemical, physical and biological factors. After analyzing research, Dr. Bird concluded these sites had outstanding scores for soil chemistries, with little or no room for improvement.

With regards to the physical and biological factors, however, these sites did not score well. Dr. Bird found growers knew how to utilize some compost and commercial fertilizers to net high yields, but had a lack of soil biology across the board as well as issues with compaction and other physical problems.

Since, Dr. Bird has made it his mission to educate growers on how they can improve on the areas where their fields showed problems, such as by utilizing higher quality compost and expanding their use of compost. While researchers are still figuring out exactly how much compost growers should use and the soil health benefits, Dr. Bird is sure that growers know that by using compost, they are growing a better product. "If any farmer that you work with starts changing what they do, and after doing it several times if they continue doing it, that is the bottom line, the answer is it is working," Dr. Bird said.

Dr. Bird also believes the growers are using compost as something called a "pulsing agent" which can awaken biology in the soil — sort of like water hitting a dormant bacterium. The nitrogen that lives in soil is primarily tied up in living and dead organic matter, inaccessible to tubers. The microorganisms in compost also will consume that organic matter and excrete the nitrogen in a form that plant roots can absorb, meaning compost can help unlock inaccessible nutrients for potato plant development and tuber yield.

Harmful nematodes are another area where compost has been shown in research studies to be a boon to potatoes. Dr. Marisol Quintanilla, research nematologist and assistant professor at MSU, recently proved that 100% compost will kill all harmful nematodes. The next step that Dr. Quintanilla is working on is figuring out what is the optimal amount of compost to use, considering costs and benefits, since 100% compost would also reduce tuber yield.

Dr. Quintanilla tested the rates of composted manure that most growers use — about 1.5 to 2 tons per acre — and concluded this rate would provide significant control of harmful nematodes, reducing the population. Future testing will check other rates to ensure that the results of the study will provide the best rates for growers to use. In field tests, the same plots also showed a "significant difference in vascular discoloration that happens when verticillium goes into the plant," Dr. Quintanilla said.

Dr. Bird and Dr. Quintanilla complete tests with a variety of compost blends from Morgan Composting, to see which type of compost is best for potatoes and to help Morgan Composting craft better customized compost for potatoes and other crops. "I am a real believer in compost technology, because compost technology helps soil chemistry, makes soil physics better, and it also enhances the biology that is necessary to make the soil work," Dr. Bird said. "The beauty of the Morgan Composting company is that if you know what compost you need, what the properties are, Morgan Composting will make you a designer compost to fill that bill," he continued.

Ultimately, the goals of this research and of Morgan Composting's efforts to customize compost for each grower's needs are to promote sustainability and cumulative effects.

Brad Morgan started Morgan Composting after seeing the waste that his former dairy farm produced. In the 1990s, Morgan began to sell composted manure, known as DAIRY DOO, to growers to solve soil health issues that the industry was facing.

Morgan Composting believes that using the right compost blend combination for each field offers cumulative effects for growers, helping reduce the chemical impact agriculture has on our environment, managing waste problems, reducing compaction and helping to overall increase sustainability.

"I think the longer-term success is from sustainability, actually reducing the use of other chemicals and pesticides. Where Morgan Composting fits in is the predictability aspect. We do a lot more testing and have invested into more research and product development than any other company that I am aware of. I believe I can have an influence on changing the biological performance of soil," Morgan said.

To learn more about the customized compost blends created specifically for potatoes by Morgan Composting, visit **dairydoo.com.**

From Spudman's August 2021 publication.

Ag Product Catalog

SOIL CONDITIONERS

Azomite - Soil amendment that

contains over 70 different trace minerals, helping you grow nutrient rich crops. Use this product to provide season-long feeding to your plants. Available in Granulated, Micronized and Slow-Release. We have 10lb bags, 44lb bags and bulk super sacks. Call for size availability.

Calcium Nitrate - YaraLiva Calcinit (Water Soluble) Calcium nitrates provide fast-acting nitrate-N, alongside strength-building calcium. These nutrients fuel prolonged growth. Plants and trees treated with calcium nitrate are naturally healthier and less sensitive to stress during growth. Available in 50lb bags.

Carbonatite - Spanish River Carbonatite is a type of rock that, when turned into powder, can be used as a slow-releasing lime. It can also serve as a source of additional potassium and magnesium in the soil and contains 70 different trace elements. Available in 40lb bags and 2,000lb super sacks.

Chilean Nitrate 15-0-2 - Chilean Nitrate is a soluble form of organic nitrate nitrogen. It is great for mid-season applications where nitrogen is immediately necessary. Only recommended in small doses. Available in 50lb bags and 2,645lb super sacks.

Coconut Coir - This is fiber

from the husk of coconuts, with a neutral pH and high nutrient holding capacity. It is a renewable alternative to peat moss that helps loosen soils to increase oxygen to the root systems. Available in 10.6lb bricks.

Colloidal Phosphate (Soft Rock Phosphate) - Colloidal Phosphate is slow-releasing phosphorus, best used around plants that hold blooms for a long period of time. Available in 50 lb bags and 2,000lb super sacks.

Crab Shell Flour - an excellent dry organic source of NPK, Calcium (23%) and Magnesium (1.33%). Crab Shell Flour will also help to create soil conditions that are naturally growth-suppressing for grubs, fungal organisms and other insects. Available in 44 lb bags or 2,000lb super sacks.

Diatomaceous Earth - This is a natural product that comes from fossilized sea mircoorganisms. It is a natural insecticide that gets rid of aphids, ants, mites, and more. Available in 50lb bags.

Elemental Sulfur - Elemental sulfur lowers the pH of soil and improves soil microbial health. With pH in balance, nutrients are available. Available in 50lb bags and 2,000lb super sacks. Available in 50 lb bags and 2,000 lb super sacks.

Feather Meal - Feather Meal is a slow-release nitrogen source. It increases green leaf growth, stimulates soil biology, and improves soil structure. Available in 30lb bags and 1,000lb super sacks.

Humates (Coarse Chips and Source X) - Humates are the purest form of natural organic carbon. Humates contain humic, fulvic, and ulmic acid and will boost crop production, strengthen root development, and improve soil quality. Available in 40lb bags and 2,000lb super sacks.

K*Ash (Sunflower Ash) - A source of 34% potassium from renewable source (not mined) with 4% phosphorus plus trace elements. Enriches the soil and tempers acidity. Improves soil structure and microbial flora. Beneficial for flowers and perennials when mixed with compost and other organic materials. Available in 40 lb bags and 2,000lb super sacks.

K Mag (Intrepid Trio) - This granular fertilizer improves crop quality and yield with potassium, magnesium, and sulfur. It is water soluble with a neutral pH. Available in 50lb bags and 2,000lb super sacks.

Kelp Meal - Kelp meal is made from dried ocean seaweed. It is full of beneficial micro- and macro-nutrients. Kelp meal improves plants' resistance to disease, boosts leaf production, and enhances crop size. Available in 40lb bags and 2,000lb super sacks.

Meat & Bone Meal - Meat & Bone Meal is an organic source of nitrogen, phosphorus, and calcium. It can help with soil structure. Available in 30lb bags and 2,000lb super sacks.

Muriate of Potash 0-0-60 - Muriate of Potash is non-organic potassium chloride. Potassium is important for root development, fruit formation, and stress tolerance. Can certify organic upon request. Available in 50lb bags and 2,000lb super sacks.

Ag Product Catalog

SOIL CONDITIONERS

Mycorrhizal Fungi

- These fungi are helpful for seed germination, boosts a plant's immune system, and helps keep parasitic nematodes away. It also helps plants survive in non-typical environments. Available by the pound.

NutraLime (Dolomite)

- This pelletized lime contains calcium and magnesium. It provides quick pH adjustments - essential to growing in the soil. High calcium or high magnesium lime is also available. Can certify organic upon request. Available in 40lb bags.

NutraSoft Gypsum - This

pelletized gypsum (calcium sulfate) provides calcium and sulfur to your plants. It has a neutral pH and is beneficial in loosening clay soils. Available in 40lb bags.

Paramagnetic Rock -

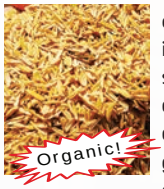
Paramagnetic rock is volcanic rock dust (basalt) that increases water retention and microbial stimulation. It also aids in nutrient uptake and seed germination. Available in 50lb bags and 2,000lb super sacks.

Perlite - Perlite is a volcanic mineral used for drainage and root strength. It has a netural pH, is odorless, and non-toxic. It is available in medium, coarse, and super coarse in 4 cubic foot bags and 60 cubic foot bales.

Potassium Nitrate (Yara) - This is a water soluble source of potassium and nitrate that is chloride free. It can be used in a dripline. Excellent for tomatoes! Available in 50lb bags and 2,000lb super sacks.

Pumice - Pumice is natural volcanic rock. It has a neutral pH and does not break down or compact. Adding pumice to the soil improves soil drainage and aeration. Available in 5lb bags, 30lb bags, and 1,500lb super sacks.

Rice Hulls - Rice hulls are excellent for improving soil structure and drainage and are a good source of silica. This renewable resource is a great replacement for vermiculite. Available in 7cf bags and 90cf bales.



Sphagnum Peat - When mixed with compost, sphagnum peat helps control compaction in soil. It helps with aeration, allowing nutrients, water and air to reach the plant's roots. Adding peat to your garden or containers will allow for longer water retention as well. Available in 3.8 cubic foot bales and 55 cubic foot bales.

Sulfate of Potash 0-0-50 (Solution Grade) - This OMRI listed, solution grade form of potassium and sulfur is low in chloride. It is excellent for greenhouses and driplines. Available in 50 lb bags .

Sulfate of Potash 0-0-50 - Sulfate of potash is one of the highest sources of organic potassium. It also offers sulfur. Available in 50 lb bags and 2,000 lb super sacks.

Super Green Sand -

Super Green Sand is a great source of potassium and helps to retain water and nutrients. It improves plant health and can also loosen solid soils. Available in 11lb and 44lb bags.

Tennessee Brown Rock Phosphate (Hard Rock Phosphate) - This is the cleanest and most affordable slow-release phosphorus. It increases photosynthesis, forage quality, and the plant's immune system. It also stimulates microbes. Available in 50lb bags and 2,000lb super sacks.

Vermiculite - Vermiculite provides aeration and retention of minerals and moisture. It is pH neutral and non-toxic. Vermiculite aids in seed germination and enables plants to absorb potassium, calcium, and magnesium more efficiently. Available in 4 cubic foot bags.

Wollastonite - Wollastonite can neutralize soil acidity, help suppress diseases, and supply calcium and silicon. Available in 40lb bags or 2,000lb super sacks.

More minerals available - too many to list!

- Ammonium Sulfate
- Boron 10%
- Blood Meal
- Calcium Nitrate
- Copper 12% Cu
- Gypsum (mined)

To name a few!

Morgan Composting inc.

Ag Product Catalog

Granular Fertilizer Products

Organic NKDoo 10-0-4

(Can certify organic)

Organic NKDoo is an organic, granulated fertilizer that is rich in nitrogen and potassium while omitting phosphorus completely. This fertilizer will help improve yields, stabilize nitrogen, strengthen stalks, and develop a stronger root system. **Organic NKDoo** is made with humates, zeolite, and **DAIRY DOO**, making it a great source of the right biology to bring tired soils back to life. Use **Organic NKDoo** with any general agricultural application such as row crops, vegetable production, fruit trees, and even turf!

Available in: 40lb bags, 1 ton super sack, and bulk.

Organic NKDoo
10-0-4

Guaranteed Analysis:

Total Nitrogen (N)	10%
0.10% Ammoniacal Nitrogen	
8.25% Water Insoluble Nitrogen*	
1.65% Other Water Soluble Nitrogen	
Soluble Potash (K_2O)	4.0%
Calcium (Ca)	1.0%
Sulfur (S)	2.0%
Combined Sulfur (S)	2.0%

Derived from: hydrolyzed feather meal, blood meal, leaf mulch compost, composted cow manure and carbon sources**, sunflower ash, sulfate of potash, zeolite, and leonardite ore.
*This product contains 8.25% slow release nitrogen from feather meal, composted cow manure and carbon sources**.
Composted cow manure and carbon sources are ingredients of **DAIRY DOO®.

Net weight: 40 lbs

HEALTHY GARDEN 7-6-5

(Can certify organic)

HEALTHY GARDEN is designed to be an all around fertilizer that balances your NPK, calcium, and sulfur. It is formulated with **DAIRY DOO** and poultry compost to be organic, sustainable and ready to use. **HEALTHY GARDEN** is a perfect fertilizer for use in your hoop house, greenhouse, field vegetable production, or as a great starter fertilizer for grains or soybeans.

Available in: 4lb bags, 25lb bags, 1 ton super sack, and bulk.

HEALTHY GARDEN
7-6-5

Guaranteed Analysis

Total Nitrogen (N)	7.0%
0.10% Ammoniacal Nitrogen	
6.08% Water Insoluble Nitrogen*	
0.82% Other Water Soluble Nitrogen	
Available Phosphate (P_2O_5)	6.0%
Soluble Potash (K_2O)	5.0%
Calcium (Ca)	5.0%
Combined Sulfur (S)	2.0%

Derived from: hydrolyzed feather meal, meat and bone meal, composted cow manure**, blood meal, sulfate of potash, zeolite, sunflower ash, poultry compost, and leonardite ore.
*This product contains 6.08% slow release nitrogen from feather meal, meat meal, and composted cow manure.
****DAIRY DOO®** is made of composted cow manure and carbon sources.

Net weight: 25 lbs

We DOO Happy Customers ...

Alfalfa Treated with **DAIRY DOO**
Liquids vs. No Treatment

"Yesterday we took delivery of 70 yards of 'black gold' from Morgan Composting. Their DAIRY DOO premium compost has been powering our farm since Day 1. This year we wisened up and scheduled delivery for the end of the season instead of spring. The thing is, we don't live on a Class A road, so spring Frost Laws can really restrict when we can receive large trucks of important materials. Now we can rest easy knowing that our DAIRY DOO is on the premises and spring planting can commence as soon as we need to! Obviously we've got a long ways to go before spring... A pile of perfect compost is like having money in the bank. The best Christmas gift for the plants and the soil! And peace of mind for the Farmers!"
– Bear Creek Organic Farm

DAIRY DOO *products at work at Coveyou Scenic Farm*

What are Your Plants Telling You About Your Soil?

Your plants are only as healthy as the soil they grow in. Lacking fertility and poor soil health directly results in unhealthy plants and low yields. Soil health should be very important to everyone- from small backyard gardeners to the multi-thousand-acre farmers. To obtain healthy, high yielding plants with the best flavor or highest forage quality, you need to make sure your plants have the fertility and nutrition they require.

Pay Attention to Your Plants

Plants are directly impacted by the health of your soil, making them good indicators of what is going on beneath the surface. Here are a couple of telltale signs that your soil has an issue you need to deal with.

Pay Attention to Your Plants	
Stunted growth and yellowing leaves	possible nitrogen deficiency
Reddish/ purple on the tips of the leaves that spreads backwards	possible phosphorous deficiency
Tips and edges of leaves turning yellow/ brown, starting at the bottom of the plant and moving upwards	possible potassium deficiency
Blossom End Rot in tomatoes, Bitter Pit in apples, and/or low-quality yields that aren't marketable	possible calcium deficiency
Discolored upper leaves and new growth	possible micronutrient deficiency, such as manganese or zinc
Symptoms of deficiencies when nutrients are known to be present	possible lack of nutrient availability, often resulting from a low-quality biological community in the soil to feed present nutrients to the plants
If you notice any of these issues with your crops it is time to address your soil health!	

Get a Soil Test

While plants can be a good indicator of fertility and soil health problems, it is best to be proactive and take a soil test before planting. Soil tests can be taken in the spring or fall. These test results will take out all the guess work and help you discern exactly what is missing from your soil. The recommendations will also tell you what is required for the specific plants you are growing. Not only is soil health important, but the optimal conditions for one plant can kill other plants (for example, the optimal pH for alfalfa will kill blueberries). By getting a soil test with plant specific recommendations, you are better able to pick the right product to get your soil health where it needs to be.

When working with a **DAIRY DOO** Custom Compost Blend you can dial in on exactly what your soil needs and compile it into one blend. There are immense benefits to this, including ease of spreading, saved trips across the field, and even distribution of fertility.

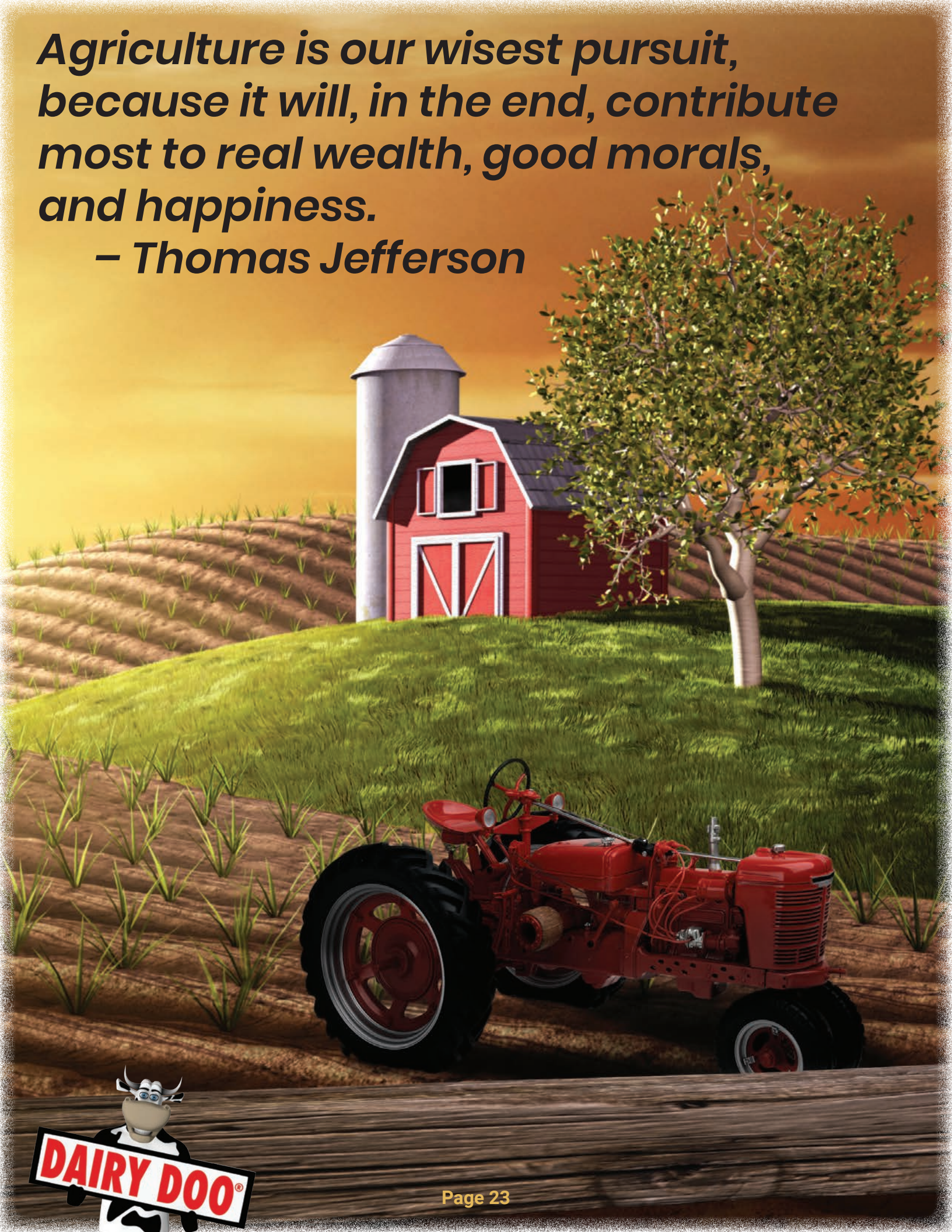
Fill in the Missing Pieces – But Only If You Need To

Once you know what your soil needs, it is time to add it back in. Adding fertilizer without caution can cause a whole host of new problems, including deficiencies of other nutrients, yield reduction, and plant burn from excess nutrients. Putting too much nitrogen, calcium, or phosphorus into your soil can cause other issues like plant burn, high pH which limits the uptake of other nutrients, or even environmental issues like Algae Blooms in surrounding lakes and streams. The best way to be sure you are putting just the right amount on your soil is, again, with a soil test and then building the perfect **DAIRY DOO** Custom Compost Blend.

You can submit your soil test to **Morgan Composting** *at any time of the year to get your recommendations for a* **DAIRY DOO** *blend. Talk to our Soil Health Experts today at 231-734-2451!*

Agriculture is our wisest pursuit, because it will, in the end, contribute most to real wealth, good morals, and happiness.

– Thomas Jefferson



DAIRY DOO®

Take a Look at the Liquid Line from DAIRY DOO

When you are into the middle of the growing season using soils with deficiencies or your plants are in stress, what can you do?

A liquid **DAIRY DOO** product can help. By combining one of our liquid products with other foliar applications you already plan to do, such as irrigation, herbicides, or pesticides, you can get the short-term fix you need to get your crop through until harvest with very little additional cost. Made with humic and fulvic acids and kelp, our products, such as **HumiKelp** and **KelpFul**, will get you the carbon you need, increase plant resistance to stress, and produce a better crop at the end of the season.

"Any plant in Michigan right now, at some point and time, they're always going to be looking at either drought stress, insect stress,

over-water stress, but there's always going to be a stress. These products can make a big difference [and] anytime that sprayer or that planter or anything can go that I can apply carbon within that system, I look at that as a free ride. The cost of the material becomes very, very minimal," says Brad Morgan. "Our company has always been very strong in soil health and making certain that we have good economic sense of the products that we're putting together. So as we walk into the liquid market we want to make sure people understand what we are trying to achieve. Understand liquids are not necessarily a whole soil management plan but they sure can be a nice boost when you see that there's some sort of deficit within your system."

The liquid barn at Morgan Composting's Sears location where fulvic and humic acids are manufactured.

Humic Acid

Builds microbial life

Repairs soil structure

Larger molecule size, works better in the soil

Fulvic Acid

Increases nutrient uptake

Increases fertilizer efficiency

Smaller molecule size, works better used as a foliar

Kelp

Like a vitamin C for your plants- improves resistance to stress and provides greater immunity to diseases

Ag Product Catalog

Organic!

AgroThrive Organic Liquid Fish 3-3-2

This is a premium organic fertilizer that is pathogen-free, meeting all food safety standards. With a guaranteed analysis of 3-3-2, it increases nutrient supplies in the soil and stimulates existing microbes.

AgroThrive 3-3-2 available in quarts, 1 gal and 2.5 gal jugs.

AgroThrive 2-2-1 available in 55 gal and 250 gal sizes.

Organic!

AgroThrive Organic Fruit & Flower 3-3-5

This is a premium organic bio-fertilizer formulated to meet the needs of fruit and flower bearing plants. It enhances soil microbial activity helping release nutrients from the soil, increasing availability to plants for faster growth, and higher yields.

AgroThrive Fruit & Flower available in quarts, 1 gal and 2.5 gal jugs, 55 gal drum and 250 gallon totes.

CalBlaster w/Mg

This liquid fertilizer for foliar feeding will reduce plant stress, aide plant growth and development, and correct nutrient deficiencies in plants that require more abundant supplies of calcium and magnesium. CalBlaster w/Mg is especially great for tomatoes, peppers, hops, hemp, and cannabis.

Available in 1 gal and 2.5 gal jugs, 55 gal drum and 250 gal totes.

KelpFul

KelpFul effectively combines the benefits of both fulvic acid and sea kelp extract. Kelp contains many plant hormone promoters that stimulate desired responses within your crop. The unique ability of kelp to relieve stresses is further aided by the action of fulvic acid to draw these effective compounds into the cells of the plant. It can also reduce transplant shock or chemical burn from over application of fertilizers. Many of the other benefits of this combined product are improved quality attributes, such as firmness, color, size and crop uniformity. **KelpFul** is an excellent vehicle for other fertilizers, chemicals, or natural minerals to get into the plant and translocated with its structure. It will combine well with most compounds, making it easy to use in the field. Because it can improve the efficiency of whatever it is combined with, many farmers and they can use less fertilizer while still being effective.

Foliar Application:
Apply 1 to 4 gallons (4 to 15 liters) per acre of **KelpFul** with 10 to 50 gallons (40 to 190 liters) of spray solution (rate dependent on frequency of application).

For use with field crops, vegetables, fruit and nut trees, vines, brambles, turf grass, flowers and ornamentals, etc. etc. etc.

Fertigation:
Use 1:100 dilution or 1 to 4 gallons (4 to 15 liters) per acre. Repeat application every 7 to 14 days.

Benefits at a Glance

Mixing Instructions:
Can be used by itself or in combination with some fertilizers, herbicides, and fungicides.

•Fill tank halfway with required water

•Start agitation and continue with it during filling and application

•Begin to add **KelpFul** making sure it is thoroughly mixed

•Add in complimentary nutrient fertilizers or chemicals until you achieve the desired concentration

Available in 1 gallon and 2.5 gal jugs, 55 gal drum and 250 gallon totes.

HumiKelp

HumiKelp combines the qualities of humic acid and sea kelp extract including retaining nutrients, increasing cation exchange capacity, and feeding soil biology root growth, improved nutrient uptake, and water retention. This cutting-edge technology also aids your crop in resisting and buffering against biotic and abiotic stresses. Do to the synergistic effects of humic acid and sea kelp extract your plants will be healthier and more productive. In combination with nitrogen, it is particularly effective on grasses and cereal grasses. For fruits and vegetables, it has been shown to improve the quality of the crop, including better color, enhanced flavor, longer shelf life and improved storage.

In-furrow Application:
Apply 1 to 2 quarts (1 to 2 liters) per acre of **HumiKelp** with 2 to 5 gallons (12 to 20 liters) of fertilizer solution.

2 x 2 Starter Application:
Apply 2 to 4 quarts (2 to 4 liters) per acre of **HumiKelp** with 5 to 20 gallons (20 to 75 liters) of fertilizer solution.

Side Dress Application:
Apply 1 to 4 gallons (4 to 15 liters) per acre of **HumiKelp** with 5 to 20 gallons (20 to 75 liters) of fertilizer solution.

Foliar Application:
Apply 1 to 2 gallons (4 to 8 liters) per acre of **HumiKelp** with 10 to 50 gallons (40 to 190 liters) of water (rate dependent on frequency of application).
For use with field crops, vegetables, fruit and nut trees, vines, brambles, turf grass, flowers and ornamentals, etc.

Fertigation:
Use 1:100 dilution or 1 to 2 gallons (4 to 8 liters) per acre. Repeat application every 7 to 14 days.

Mixing Instructions:
Can be used by itself or in combination with most fertilizers, herbicides, and fungicides.

Benefits at a Glance

- Fill tank halfway with required water
- Start agitation and continue with it during filling and application
- Begin to add Fulvic Acid making sure it is thoroughly mixed
- Add in complimentary nutrient fertilizers or chemicals until you achieve the desired concentration

Available in 1 gallon and 2.5 gal jugs, 55 gal drum and 250 gallon totes.

FulvicBlaster (2.6 pH)

FulvicBlaster is a highly concentrated, liquid carbon product designed for foliar application. It is a natural source of carbon that binds to and carries a wide range of trace minerals and elements, drawing them in between the cells of the plant. Once in the plant, it helps stimulate plant metabolism by translocating nutrients throughout the plant. It also improves nutrient efficiency and increases enzyme activity and cell division, increasing growth. In soil-less greenhouse mediums, it is a valuable addition to the environment, creating stability by buffering and reducing stress to the young, emerging seedlings.

Foliar Application:
Apply 1 to 2 quarts (1 to 2 liters) per acre of **FulvicBlaster** with 10 to 20 gallons (38 to 75 liters) of spray solution (rate depending on frequency of application).

Fertigation or Transplant Water:
Use at 1:100 dilution or 1 to 4 quarts (1 to 4 liters) per acre. Repeat application every 7 to 14 days.

In-furrow Application:
Apply 1 to 2 quarts (1 to 2 liters) per acre of **FulvicBlaster** with 3 to 5 gallons (12 to 20 liters) of fertilizer solution.

2 x 2 Starter Application:
Apply 2 to 4 quarts (2 to 4 liters) per acre of **FulvicBlaster** with 5 to 20 gallons (20 to 75 liters) of fertilizer solution.

Mixing Instructions:
Can be used by itself or in combination with most fertilizers, herbicides, and fungicides.

- Fill tank halfway with required water.
- Start agitation and continue with it during filling and application.
- Begin to add **FulvicBlaster** making sure it is thoroughly mixed.
- Add in complimentary nutrient fertilizers or chemicals until you achieve the desired concentration.

Benefits at a Glance

Available in 1 gal and 2.5 gal jugs, 55 gal drum and 250 gallon totes.

HumicBlaster

HumicBlaster is a ready to use liquid soil conditioner designed for soil application. It is a natural source of carbon to help increase the soil organic matter. This improvement allows the soil to better hold on to both nutrients and water by, improving the efficiency of any product. The organic acids and sugars contained in it work to stimulate and support a strong microbial population, and are essential to plant health. Humic acid is very good at tying up salts in the soil, preventing some of the negative effects of high salt. The alkalinity of this product makes it non-corrosive and easy to work with in regards to blending with other products. Its low viscosity makes it easy to use in sprayers, nozzles, and various irrigation systems.

In-furrow Application:
Apply 1 to 2 quarts (1 to 2 liters) per acre of **HumicBlaster** with 3 to 5 gallons (12 to 20 liters) of fertilizer solution.

2 x 2 Starter Application:
Apply 2 to 4 quarts (1 to 2 liters) per acre of **HumicBlaster** with 5 to 20 gallons (20 to 75 liters) of fertilizer solution.

Side Dress Application:
Apply 2 to 4 quarts (2 to 4 liters) per acre of **HumicBlaster** with 5 to 20 gallons (20 to 75 liters) of fertilizer solution.

Foliar Application:
Apply 1 to 4 quarts (1 to 4 liters) per acre of **HumicBlaster** with 10 to 20 gallons (38 to 75 liters) of water (rate depending on frequency of application).

Fertigation or Transplant Water:
Use at 1:100 dilution or 1 to 4 quarts (1 to 4 liters) per acre. Repeat application every 7 to 14 days.

Mixing Instructions:
Can be used by itself or in combination with most fertilizers, herbicides, and fungicides.

Benefits at a Glance

- Fill tank halfway with required water
- Start agitation and continue with it during filling and application
- Begin to add **HumicBlaster** making sure it is thoroughly mixed
- Add in complimentary nutrient fertilizers or chemicals until you achieve the desired concentration

Available in 1 gallon and 2.5 gal jugs, 55 gal drum and 250 gallon totes.

Ag Product Catalog

Morgan's 4-18-4

Immediate phosphorus availability, a necessary component in beautiful and vibrant blooms

Morgan's 4-18-4 is made from high-quality fertilizers, micronutrients, fulvic acids, and seaweed extracts. Its high orthophosphate concentration offers immediate phosphorus availability. It is blended with boron, magnesium, copper, iron, manganese, and zinc for excellent plant growth.

For use with: Any blooming plant, crops experiencing low phosphorous, or as a starter fertilizer.

Application*: Foliar, soil, in furrow, and 2x2. See label or contact Morgan Composting for specific application rates.*

Morgan's 1-5-13

Offers high levels of potassium for improved flavor and quality fruit

Increase plant metabolism, nutrient efficiency and uptake, and improve pollination, with **Morgan's 1-5-13**. This liquid fertilizer contains additional boron and is made with fulvic acids and seaweed extracts. It has high potassium concentration derived from potassium acetate and also contains boron.

For use with: All fruiting and potassium demanding crops, including grapes, vegetable crops, legumes, hay, and more.

Application*: Foliar and soil applications. See label or contact Morgan Composting for specific application rates.*

Morgan's 8-1-8 3%S

Improve the nutrient efficiency and uptake in your vegetable plants

Morgan's 8-1-8 3%S stimulates plant growth and increases enzyme activity to promote nutrient-dense veggie growth and lush foliage. This liquid fertilizer contains multiple micronutrients, including boron, magnesium, iron, copper, manganese, and zinc. It is made with fulvic acids and seaweed extract and has high potassium concentration derived from potassium acetate.

For use with: Vegetable plants.

Application*: Foliar and soil applications. See label or contact Morgan Composting for specific application rates.*

Morgan's 11-0-5 4%S

Improve the color of your crops and their ability to utilize fertilizers

This liquid improves plant vigor, reduces the effects of stress, improves color, and helps plants to better utilize fertilizers. It includes iron, manganese, a high nitrogen concentration, fulvic acid (a liquid carbon), and seaweed extract. It is very compatible with other fertilizers and pesticides.

For use with: Wheat, corn, and other forage crops.

Application*: Foliar and soil applications. See label or contact Morgan Composting for specific application rates.*

ResidueBlaster 5-0-2 2%S

Give your soil biology a boost

ResidueBlaster 5-0-2 2%S feeds the biology already in your soil, helping it to break down crop residue and make the nutrients held within that residue available for your plants. It uses a mix of high-quality nitrogen fertilizer, cane molasses, fulvic acids, and seaweed extract to improve nutrient cycling, increase nutrient uptake, promote plant vigor, and reduce stress on the plants.

For use with: Fruits, berries, vegetables, and row crops.

Application: *Soil applications. See label or contact Morgan Composting for specific application rates.*

MicroBlaster 5-2-4

Stimulate plant growth while reducing stress and improving soil health

This blend of boron, magnesium, copper, iron, manganese, zinc, fulvic acids, and seaweed extract stimulates plant metabolism, reduces plant stress, and promotes plant vigor. Seaweed extract has also been shown to increase fruit size and yield while improving shelf life.

For use with: Any plant low in micronutrients. Certain crops may be sensitive to individual micronutrients, consult Morgan Composting or an agronomist for crop-specific recommendations.

Application: *Foliar, soil, in furrow, and 2x2. See label or contact Morgan Composting for specific application rates.*

One Product, Triple Control

Fungicide • Insecticide • Miticide

NEW & IT WORKS!

Benefits

- Superior Emulsion & Stability Properties
- Excellent Mixing & Handling Qualities
- Protects a Wide Variety of Crops
- Zero-day Pre-harvest Interval
- 4-hour Re-entry Interval
- Essential Integrated Pest Management (IPM) Tool




RANGO™ is effective on a wide range of pests and diseases.

Effective against many pests and diseases including but not limited to:

Aphids:
- Cotton aphid
- Green peach aphid

Caterpillars & Moths:
- Armyworms
- Budworms
- Diamondback moth
- Leafrollers
- Loopers

Maggots:
- Onion maggot

Mealybugs:
- Citrus mealy bug

Mites:
- Red spider mites
- Two spotted spider mite

Thrips:
- Onion thrips
- Western flower thrips

Whiteflies:
- Cotton whitefly
- Greenhouse whitefly
- Silverleaf whitefly

Fungal Diseases:

Foliar:
- Alternaria
- Blight (early, late, leaf)
- Botrytis
- Downy mildew
- Powdery mildew

Soil:
- Fusarium oxysporum
- Rhizoctonia solani

RANGO™ is registered for use on a wide range of crops including but not limited to:

Fruits & Vegetables
- Apples
- Broccoli
- Lettuce
- Oranges
- Potato
- Spinach
- Squash
- Strawberries
- Tomato

Field & Forage Crops
- Alfalfa
- Canola
- Clover
- Corn
- Cotton
- Peanuts
- Rice
- Soybeans
- Wheat

Tree Nuts
- Almond
- Pecan
- Pistachio

Greenhouses

Herbs & Spices

Ornamentals

Terramera

Want To Know More? Contact Us:
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+1.360.988.3850 (Call or Text)
www.TerrameraAgriculture.com

Study shows using DAIRY DOO with fruit trees results in 3X the yield!

Dr. George Bird, of the Department of Entomology at Michigan State University, has been doing a study for the last five years on the impact of compost and mulch on the establishment of cherry trees. For his study, he used **DAIRY DOO** products. On some trees he tried adding **Seed Starter 101**, an organic potting soil that includes **DAIRY DOO** compost but is gentle enough for bare-root planting, at the bottom of the planting hole and **DAIRY DOO** compost as a topdress. In others, he added mulch and/or omitted the **Seed Starter 101**. His control group did not receive any compost or mulch.

The conclusion of the study was impressive! Dr. Bird found that cherry trees that were given **Seed Starter 101** at the bottom of their planting hole in addition to **DAIRY DOO** compost as a topdress had a yield increase of over 236% versus the control trees that did not receive any compost!

Interested in more than 3x your current fruit yields? It is time to think about what **DAIRY DOO** products can **DOO** for you!

Impact of at-planting compost and mulch on 2019 mechanically harvested sweet cherry yields.

Treatment	Yield (lbs)
Seed Starter 101, Dairy Doo and Mulch	42.5
Seed Starter and Mulch	47.3
Seed Starter and Dairy Doo	52.5
Dairy Doo and Mulch	38.8
Non-Treated Control	15.6

From Impact of Compost and Mulch on the Establishment of Sweet Cherry Trees by George Bird, Nikki Rothwell, Karen Powers, and Bill Klein, Department of Entomology, Michigan State University (Lansing, MI) and Northwest Horticultural Research Center (Traverse City, MI).

Fruit Orchard Program

Powered by DAIRY DOO®

Pome Fruit and Stone Fruit Nutrient Requirements
Nitrogen: 40 - 60 #/acre (0.22 – 0.27 #/tree)
Phosphate: 30-70 #/acre (0.15 – 0.32 #/tree)
Potash: 80-120 #/acre (0.4 – 0.5 #/tree)

Prior to Planting:
The best time to fix soils and make major adjustments to the fertility is before planting while the field is still bare. Compost, or even raw manure, can be applied at heavy amounts at this time, and worked into the top 5 – 6 inches. Be aware of phosphorus loads already present.

Late Fall or Early Spring:

A) Applying compost in the late fall or early spring to established orchards is often the easiest time because it shouldn't conflict with other field chores.

B) Apply according to the phosphorus needs for the year and meet the difference in potash and nitrogen needs with other products.

C) Apply 2 – 5 yards of **DAIRY DOO®** or **PoultryDoo** in row under the canopy.

- **i.** If applied before transplanting, shallow till into the top 4 inches of soil.
- **ii.** If applying to mature trees, spread on the surface prior to mulch.

D) If your equipment doesn't allow for the spreading of compost, use **All Purpose 8-4-4** or organic **Healthy Garden 7-6-5** as a granular fertilizer at a rate of 800 lbs. per acre or 2 - 10 lbs per tree, depending on planting density.

- i. If your phosphorus levels are already too high, then use a zero-phosphorus fertilizer like **Organic NKDoo 10-0-4**.

DI) You will likely need additional potash. If using muriate of potash (KCl), limit to 100 lbs./acre to prevent chloride toxicity. If using sulfate of potash or wood ashes, this doesn't need to be a concern. Consider a custom blend to address specific nutrient needs based on the soil test. This is an excellent time to combine application with lime or gypsum. Use lime to raise soil pH and use gypsum for soils that need extra calcium without making pH adjustments.

Liquid Program: Foliar

A) The first application of foliar nutrient should start just prior to bloom and continue for at least two months through bloom and early fruit development.

- i. Spray 2 gallons per acre of **FruitBlaster 1-5-13** every five days during bloom, and every ten days after that. If organic, use **AgroThrive Organic Liquid Fish 3-3-2** at 4 gallons per acre instead.

Liquid Program: Fertigation

A) If you have an irrigation system that can dose fertilizer at the same rates of 2 – 4 gallons per acre per week, Morgan's **ResidueBlaster 5-0-2 2S** is an excellent choice for both supplying nutrients and feeding the soil biology.

i. Apply fertilizer in the last 30 to 60 minutes of your irrigation run, leaving enough time to flush any residues from lines before shutting off the pump.

ii. Whenever possible, try to fertilize a day or two after a rain or normal irrigation while the soil is still moist to get the best chance of soil adsorption.

Micronutrients:

A liquid application of secondary nutrients (like calcium and magnesium), and trace elements (such as boron, copper, and zinc) are often the best way of knowing that you are getting an adequate amount of these nutrients into the plant. Even if there isn't a deficiency showing in the soil, some of these elements have a difficult time getting to the upper crown of the tree.

A) Morgan's **MicroBlaster 5-2-4** contains all the essential micronutrients. Calcium is an important nutrient for high quality fruit.

B) Honeycrisp Apples and Sweet Cherries use an especially high amount of calcium, so use a calcium product to ensure high quality.

Post-Harvest:

Immediately after harvest is usually the best time for taking soil tests because there are fewer labor demands on the farm, and, typically, a lower workload at the lab; making sample turn-around much more timelie, giving you time to design next year's fertility plan.

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®

Corn Program – Seed, Field, & Sweet Corn

Powered by DAIRY DOO®

Pre-Planting:

1. **Start with a current soil test, or pull one.**
   - A) To establish nutrient baseline.
   - B) A recommendation of product and/or blend will be made.
   - C) Personalized crop program development
2. **Application of Material - Options Below**

   We have multiple products to be as specialized, or as broad as you would like.

   A) Custom Blend

   This can be as elaborate, or as efficient, as budget allows.

   B) Manure - Approximate analysis of 4-3-2, 8% Ca

   The rate of application is 1-3 ton per acre and is derived from laying hens intended for egg production.

   C) Gypsum Plus - Approximate analysis 1-1-1, 16% Ca, 8% S

   The rate of application is up to 2 ton per acre and is a blend of laying hen manure, **DAIRY DOO®** compost, and gypsum.

   D) K2 Blend - Approximate analysis 2-2-1, 10% Ca, 4% S

   The rate of application is up to 2 ton per acre and is a blend of laying hen manure, at a higher rate than Gypsum Plus, **DAIRY DOO®** compost, and gypsum.

   E) LayerAsh Blend (with & w/out Gypsum) Approximate analysis 2-2-2 to 2-2-1

   The rate of application is 1-3 ton per acre, and consists of laying hen manure, **DAIRY DOO®** compost, and wood ash.
3. **Terminate Cover Crop/Planting - Start right with starter fertilizer**

   A) <u>In-Furrow</u>

   • Morgan's 4-18-4 - The rate of application is CEC dependent, but is between 3-6 gallons per acre.

   • Agrothrive LFN 3-3-2 - The rate of application is up to 8 gallons per acre. This fish is superior in its quality and ease of use. It is screened down to 100 mesh to insure no clogs in equipment.

   • Another Option - Morgan's can custom blend a low-salt based blend.

   • If strip tilled-knived in, use 8-15 gallons per acre. We recommend 2-4 quarts of Morgan's HumicBlaster in solution here.

   B) <u>2x2 Planter Box</u>

   • All Purpose Fertilizer 8-4-4 - The rate of application is 200-400 lbs. per acre and is a blend of poultry crumbles, potash, ammonium sulfate, humates, and monoammonium phosphate.

- **4-3-2 Poultry Pellets** - The rate of application is 200-400 lbs. per acre.
- **10-0-4 Pellets** - The rate of application is 100-300 lbs. per acre and is a blend of nitrogen great for a boost.
- **Custom Dry or Liquid Fertilizer** - The rate of application would be dependent upon a soil test and customized program.

4. At Sidedress - Stage V5-VT

A) **UAN 28%, Ammonium Thiosulfate, Anhydrous Ammonia, and Urea** - A liquid carbon such as **Morgan's HumicBlaster** or **FulvicBlaster** should be used with your nitrogen application in order to stabilize nitrogen and increase efficiency of nitrogen uptake.

B) **Agrothrive LFN - 3-3-2 analysis** - An application of fish can lend a hand to diversification of biological profiles, aiding in protein conversion for plant uptake.

B) **13-0-0 Pellets** - Apply 600-800 lbs. per acre to get 80-100 lbs. of nitrogen per acre down.

5. Foliar Program - In Season Stress relief, Disease and pest treatment, nutrient deficiency correction

A) At Early Foliar - Macro and Micro Nutrient at V4-V6 Stage

- Are you noticing signs in the fields indicating defiencies? It's not too late, we can formulate custom liquid blends for nutrient deficiency correction. We have multiple options, such as **Morgan's 4-18-4, Morgan's 11-0-5**, and CornGrow® for micros.
- **FulvicBlaster** - Any time you can incorporate carbon into an application, it's always of benefit. Use in conjunction with pesticides (fungicides, herbicides, etc.). A jar test is recommended to check compatibility. The rate of application is 1-2 quarts per acre.
- **Kelp Extract** - Stress reducer against moisture, drought, and high temperatures. Help your plants bounce back from stress quicker by applying kelp. The rate of application is 1-2 pints per acre.

B) At Late Foliar - Late Season Nitrogen Boost at VT - R1 Stage

- **Morgan's 11-0-5** - Use at a rate of 1-3 gallons per acre.
- **FulvicBlaster** - Increase the efficiency of your nutrient and add carbon to your program within touches for maximum effect. Very compatible with other products. Always do a jar test to confirm compatibility.
- **Kelp Extract** - Stress reducer against moisture, drought, and high temperatures. Help your plants bounce back from stress quicker by applying kelp. The rate of application is 1-2 pints per acre.

C) Post-Harvest

- **HumicBlaster** - Break down your stalk residue and increase the nutrient release with a post-harvest application of nitrogen, use 1 gallon with 3-5 gallons of 28% per acre.

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®

Wheat Program

Powered by DAIRY DOO®

Fall Planting:

Start with a current soil test, or pull one.

A) Test to establish nutrient baseline.
B) A recommendation of product and/or blend will be made.
C) Personalized crop program development

1. **Application of Material - Options Below**

   We have multiple products to be as specialized as you would like, or as broad as you would like.

   A) Custom Blend

      This can be as elaborate, or as efficient, as budget allows.

   B) Manure - Approximate analysis of 4-3-2, 8% Ca

      The rate of application is 1-3 ton per acre and is derived from laying hens intended for egg production.

   B) Gypsum Plus - Approximate analysis 1-1-1, 16% Ca, 8% S

      The rate of application is up to 2 ton per acre and is a blend of laying hen manure, **DAIRY DOO®** compost, and gypsum. Calcium considerations, 1000 lbs. of gypsum per acre @ 1 ton

   C) K2 Blend - Approximate analysis 2-2-1, 10% Ca, 4% S

      The rate of application is up to 2 ton per acre and is a blend of laying hen manure, at a higher rate than Gypsum Plus, **DAIRY DOO®** compost, and gypsum. 600-1200 lbs. of gyp per acre will be applied

   D) LayerAsh Blend (with & w/out Gypsum) Approximate analysis 2-2-2 to 2-2-1

      The rate of application is 1-3 ton per acre, and consists of laying hen manure, **DAIRY DOO®** compost, and wood ash.

2. **Terminate Cover Crop/Planting - Start right with starter fertilizer**

   A) Inoculating for nodulation of seed

      Powder or gel - Follow product label sprecifications

   B) In-Furrow (Terminate Cover Crop - "Terminator" Need to develop an Organic desiccant)

      • Morgan's 4-18-4 - The rate of application is CEC dependent, but is between 3-10 gallons per acre, population dependent and budget dependent

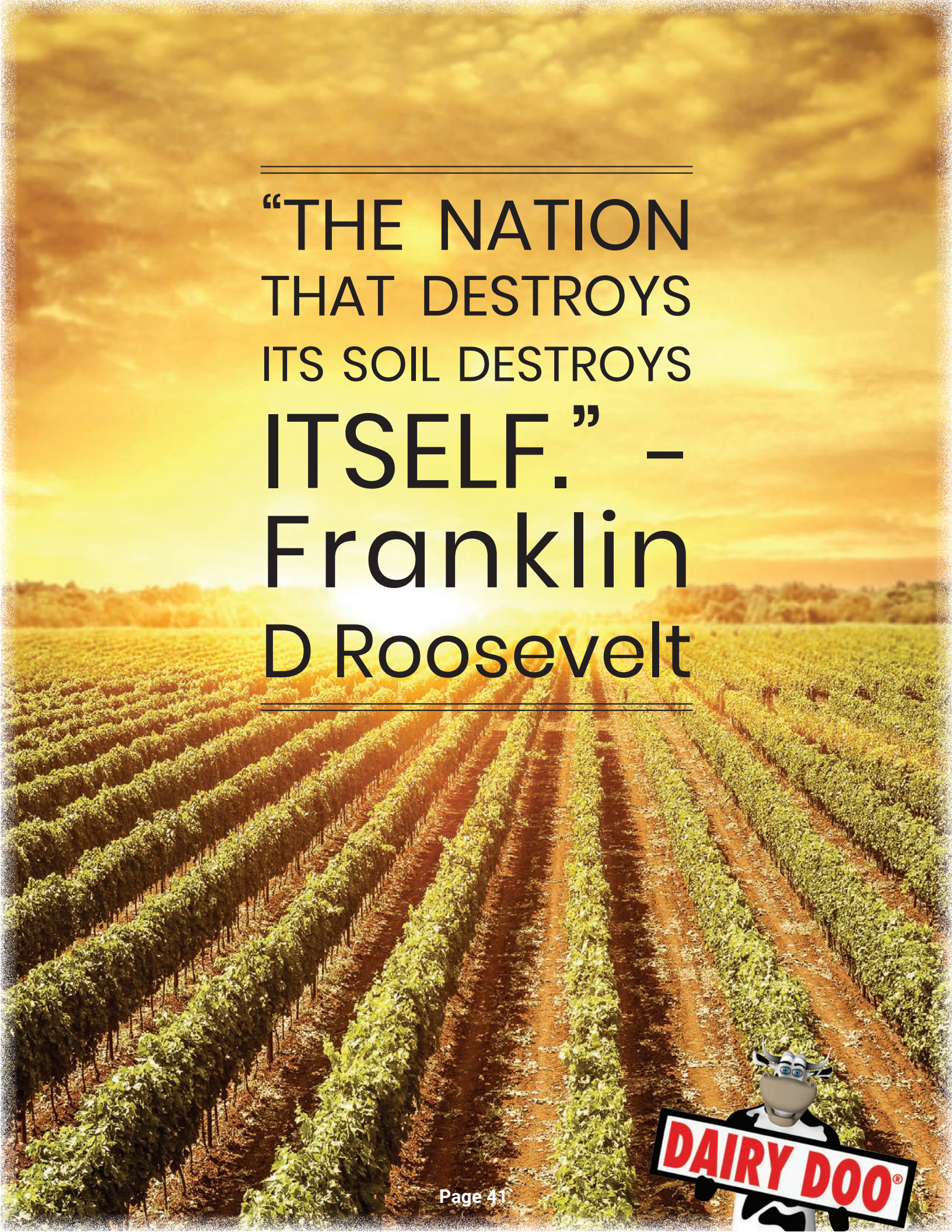
      • Agrothrive LFN 3-3-2 - The rate of application is up to 8 gallons per acre. This fish is superior in its quality and ease of use. It is screened down to 100 mesh to insure no clogs in equipment.

      • Nachurs 6-24-6 - The rate of application is 3-10 gallons per acre. (Mention orthophosphate & soil health here.) Population dependent and budget dependent

Morgan Composting inc.

3. **Top dress application – On Frost or Prior to Greenup**
   - **A) UAN (28%)/Urea –** Rate of application is dependent on your yield goal; 60-120 lbs. of nitrogen How many gallons do I need to get 60 lbs. of nitrogen? You can use a formula according to your planned program, but a typical application is aroud 20-40 gallons. If you're using dry urea, about 130-260 lbs.
   - **B) Formulate Ammonium Thiosulfate or Ammonium Sulfate -** You should consider your sulfur needs, but a general application is 10-20 lbs. of sulfur per acre (dependent on yield goal and previous fall application).
   - **C) Morgan's 11-0-5 4S** - Apply 3-8 gallons per acre for a quick green up effect.
   - **D) HumiKelp** - Works great with 28%, urea, or ammonium thiosulfate at a rate of ½-2 gallons per acre.
   - **E) 10-0-4 Crumbles** - The rate of application is grogram dependent, but a typical application is 200-400 lbs. per acre.
4. **Liquid Foliar – Stress relief, disease and pest treatment, nutrient deficiency correction**
   - **A) KelpFul** - Apply 2-4 quarts per acre along with nutrient.

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®


“THE NATION
THAT DESTROYS
ITS SOIL DESTROYS
ITSELF.” –
Franklin
D Roosevelt
DAIRY DOO®

Soybean Program

Powered by DAIRY DOO®

Pre-Planting:

1. **Start with a current soil test, or pull one.**
   A) Test to establish nutrient baseline.
   B) A recommendation of product and/or blend will be made.
   C) Personalized crop program development
2. **Application of Material - Options Below**
   We have multiple products to be as specialized, or as broad as you would like.
   A) Custom Blend - This can be as elaborate, or as efficient, as budget allows.
   B) Gypsum Plus - Approximate analysis 1-1-1, 16% Ca, 8% S - The rate of application is up to 2 ton per acre and is a blend of laying hen manure, **DAIRY DOO®** compost, and gypsum.
   C) K2 Blend - Approximate analysis 2-2-1, 10% Ca, 4% S - The rate of application is up to 2 ton per acre and is a blend of laying hen manure, at a higher rate than Gypsum Plus, **DAIRY DOO®** compost, and gypsum.
   D) LayerAsh Blend (with & w/out Gypsum) Approximate analysis 2-2-2 to 2-2-1 - The rate of application is 1-2 ton per acre, and consists of laying hen manure, **DAIRY DOO®** compost, and wood ash.
   E) Manure - Approximate analysis of 4-3-2, 8% Ca - The rate of application is 1-1.5 ton per acre and is derived from laying hens intended for egg production.
3. **Terminate Cover Crop/Planting - Start right with starter fertilizer**
   A) Inoculating for nodulation of seed
      Powder or gel - Follow product label sprecifications
   B) <u>In-Furrow</u>
      • Morgan's 4-18-4 - The rate of application is CEC dependent, but is between 2-4 gallons per acre.
      • Agrothrive LFN 3-3-2 - The rate of application is up to 8 gallons per acre. This fish is superior in its quality and ease of use. It is screened down to 100 mesh to insure no clogs in equipment.
      • Nachurs 6-24-6 - The rate of application is 2-4 gallons per acre.
4. **Foliar Program – Stress relief, disease and pest treatment, nutrient deficiency correction**
   A) At Early Foliar - Macro and Micro Nutrient
      • Agrothrive LFN 3-3-2 - Are you noticing signs in the fields indicating defiencies? It's not too late to address this with an application of fish at 3-6 gallons per acre.
      • FulvicBlaster - Any time you can incorporate carbon into an application, it's always of benefit. Use in conjunction with pesticides (fungicides, herbicides, etc.). A jar test is recommended to check compatibility. The rate of application is 1-2 quarts per acre.

- **Kelp Extract** - Stress reducer against moisture, drought, and high temperatures. Help your plants bounce back from stress quicker by applying kelp. The rate of application is 1-2 pints per acre.
- **MicroBlaster** - This product has a list of micros such as boron, magnesium copper, iron, manganese, and zinc. Use at a rate of 1-2 quarts per acre blended into solution or applied alone. Always perform a jar test for compatibility.
- **Custom Liquid Blend** - Morgan Composting is always happy to develop just the right blend specific for what your crop and soils need.

B) Stage V2-V3

- **Morgan's 1-5-13** - Use at a rate of 2-4 gallons per acre, with adequate water at the 5th trifoliate. Repeat at the R3 stage.
- **Morgan's 4-18-4** - Use at a rate of 1-3 gallons per acre at 4th-6th trifoliate, and again at 80-85% pod set.

C) Pre-Bloom - Boron application

- 1-2 pints per acre with a minimum of 10 gal of water, or with an aerial application use with a minimum of 5 gallons of water.

D) Stage R2-R3 (Pods are forming – during bloom)

- **Morgan's 11-0-4 with sulfur** - Apply 1-2 gallons per acre, depending on root nodulation and weather.

E) **Desiccant** - Follow product specifications

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®

Mixed Veggies Program
Powered by DAIRY DOO®

Nutrient Requirements:

Nitrogen: 130 - 160 lb/acre (3 – 4 lbs/1,000 sq. ft.)
Phosphorus: 50-60 lb/acre (1.2 – 1.4 lbs/1,000 sq. ft.)
Potassium: 110-150 lb/acre (2.5 – 3.5 lbs/1,000 sq. ft.)

Pre-season:

A) Start with a current soil test, or pull one, in the fall after the field has been cleared.
B) If starting transplants from seed, use **Seed Starter 101** as your germination medium.

Early Spring:

A) For raised beds or containers, fill the upper 4 inches with **VeggieDoo 301**. Soak the soil with water thoroughly, to near saturation levels, before moving transplants or direct planting of seeds. This will ensure adequate moisture is available for the seedling.
B) In the field, apply 5 – 8 yards per acre of **DAIRY DOO**, **PoultryDoo**, or **VeganDoo** in the early spring ahead of planting. Consider a custom blend in place of compost alone.
C) Add lime at this time according to the guidelines of your soil test.
D) Use **All Purpose 8-4-4** or organic **Healthy Garden 7-6-5** as a granular starter fertilizer at planting at a rate of 14 lbs per 1,000 sq. ft. or 600 lbs. per acre.
E) If using a water wheel transplanter, or a root dip before transplanting, use **Morgan's 4-18-4** or **AgroThrive Organic Liquid Fish 3-3-2** in the transplant water at a rate of 16 oz. per gallon of water.

1. To enrich the soil ever further, add 8 oz. of **Humikelp**, **ResidueBlaster**, **TerraFed**, or Cane Molasses to the solution. This combination can also be used as a soil drench.

Summer:

F) For liquid feeding during the season, you can use **Veggie Blaster 8-1-8** or **AgroThrive Organic Liquid Fish 3-3-2** through drip irrigation, or as a foliar application on a weekly basis or as a continuous feed. Add them at a rate of 0.5 – 2 oz per gallon of water.
G) Apply **MicroBlaster** during the season to prevent or alleviate micronutrient deficiencies in the leaf.
H) A second application of **All Purpose 8-4-4** or **Healthy Garden** granular may be needed for heavy feeding vegetables as they are setting flowers, developing fruit, or gaining size.

Misc.:

If planting multiple crops in a relay within the same bed, apply an extra yard or two of **DAIRY DOO®** before planting the next crop to keep the nutrients high and provide a fresh carbon source for soil biology.

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®

Christmas Tree Farms & Choose'N Cut
Powered by DAIRY DOO®

(This is a simple outline and we understand there are no cookie-cutter farms, please let us help you develop a plan for your farm.)

Prior to Planting:

- Late summer/fall prior to:
  - Take soil sample, review results, and formulate an amendment plan
  - Determine what varieties of conifer you want to plant and review their specific nutrient needs
  - Apply **DAIRY DOO** Custom Compost Blend with NPK to carry the trees for the next 2-3 years
  - Complete weed control
  - Plant cover crop

Spring Planting:

- Lay out your planting grid (5ft x 5ft or 8ft x 8ft, ect.)
- Or determine the quantity of seedlings needed to fill the harvested gaps.
- Pick up seedlings and plant trees

Growing Year 1 & 2 - (May 15 through Oct 15)

- Weed control, whether chemical, mechanical or physical, must be done to eliminate nutrient and water competition. It also eliminates a micro environment for insects and diseases.
- Monitor for insects and disease. Take advantage of MSU's Enviroweather website to monitor for weather-based pests. If needed, consider an organic insecticide like TerraNeem EC.
- Replace seedlings that have died.
- By year 3, we want to have a well established field.

Growing Year 3 through Harvest

Conifers have 2 primary nutrient uptake cycles that have a direct effect on development and growth. This first uptake cycle is roughly from May 15th to June 15th and directly affects new bud growth. The second uptake cycle ranges from Sep 15th to Oct 15th. This cycle increases the root stores for successful over-wintering and can also help give the needles a deep green color, for trees that are ready to be harvested.

- Spring applied fertilizer, MCI Tree Blend 8-1-7, or a well balanced granular blend of NPK and sulfur, and micros, should be broadcast by May 15th to get rained into the soil profile and into the root zone.
- Enviroweather should be your friend by now. Monitor the growing degree units for your area and scout for insects and disease patterns.
- Early weed control should be completed as the buds swell and the caps are pushed off.

• The new growth needs to be protected from both insect and disease...get an insecticide and fungicide plan ready to implement.
• During the summer months, keep weeds knocked down from under the tree out to the drip line, at a minimum.
• Fall fertilizing, MCI Tree Blend 8-1-7, or other custom granular fertilizer blend, should be done in early September.

Post Harvest:

• For Choose-n-Cut farms: clean up debris left from harvest, grind stumps and get open gaps ready for spring planting.
• For plantations: begin field clean up, stump grinding, etc. so the field is ready for a cover crop (fall or spring planted). In some cases, applying manure and planted to corn a couple years before returning to trees is advised.

FARM FOR YOUR FUTURE GENERATIONS AND POWER YOUR SOIL WITH DAIRY DOO®

DAIRY DOO®

Retail Line **Morgan Composting** inc.

~~Ag~~ Product Catalog

You've tried DAIRY DOO on your fields with great results. Now it is time to bring it home!

Popular National Brand vs Seed Starter 101

Habitat for Humanity Home

"What a great result for this Habitat for Humanity lawn. Morgans gave us the perfect recipe for overcoming the sandy and acid soil that existed beneath the red pine forest in Tustin. Can't recommend Morgan Composting enough for those having troubles establishing a lawn or a turf in any environment."

– Will G.

WormDoo is an all-natural soil amendment produced by the millions of worms on our worm farm that are fed an organic, balanced diet of protein and minerals. These high-quality worm castings add beneficial biology and fungal properties to the soil, improves water retention, and can improve root development. All of this creates healthier plants and increases the plant's natural ability to resist disease.

how to use WormDoo

A little goes a long way! Mix **WormDoo** into the soil at a 1:10 ratio before planting. For established plants, work a small amount into the soil around the plant, being careful not to disturb the roots. Water well.
Do NOT use for direct planting.

Compost Tea is an all-natural, organic amendment that boosts soil microbes. It comes in a dry form that you brew into a liquid and apply as a foliar feed or soil drench. It is formulated with **DAIRY DOO**, **WormDoo**, kelp and fish to encourage soil health and microbiology in your garden. When used regularly, **Compost Tea** aids in disease resistance. A little goes a long way!

how to use Compost Tea

Gently mix your dry **Compost Tea** with water at a rate of 1/2 gallon of **Compost Tea** to 5 gallons of water. Brew for 48 hours using an air pump for aeration **OR** let the mixture steep for 5 days. For best results, **Compost Tea** should be used immediately after brew or steep times are complete. You can use your liquid **Compost Tea** as a foliar feed or by soil drenching plants weekly or as needed. This is ideal for transplants to reduce stress.
Do NOT use dry Compost Tea for direct planting.

Organic!

SEED STARTER 101

Start your seeds out right! This germination mix has a fine, soft texture, making it ideal for delicate seeds. It's also great as a blocking mix! This blend is very diverse with 14 specially picked ingredients and is **POWERED BY DAIRY DOO**.

For best results, saturate the potting soil before planting. Plants should not need to be fertilized for up to 4 weeks after planting.

Available in 1 cubic foot bag, 8 quart bags and bulk by the cubic yard. This soil is weed free.

Organic!

FlowerDoo 201

Grow the most beautiful blooms in your flower bed or indoor/outdoor container with **FlowerDoo 201**. High in phosphorous, it promotes healthy, vibrant blooms. It contains 18 organic ingredients, including **WormDoo**, and is **POWERED BY DAIRY DOO**.

For best results, wet soil well before use. Available in 1 cubic foot bag and bulk by the yard. Pairs well with **HEALTHY GARDEN** and **BloomBlaster** fertilizers. This soil is weed free.

Organic!

VeggieDoo 301

For use with outdoor containers, raised beds, or vegetable transplants. **VeggieDoo 301** has over 77 different minerals to grow nutrient-dense plants. Nutrient-dense plants produce fruits and veggies with better flavor- perfect for garden-to-table meals. Crafted with 15 organic ingredients, and **POWERED BY DAIRY DOO**, **VeggieDoo 301** provides just what your plants need!

For best results, wet soil well before use. Available in 1 cubic foot bag and bulk by the yard. Works well with **HEALTHY GARDEN** and **Veggie-Blaster** fertilizers. This soil is weed free.

Organic!

Tree'nShrub

Tree'nShrub, **POWERED BY DAIRY DOO**, is handcrafted for lush, green growth and provides the nutrients necessary for vibrant, colorful foliage. This recipe jump-starts trees and shrubs with the added kick of triple ground bark. This soil has great water holding capacity, perfect for your trees and shrubs, and has proven to have healing qualities.

Mix equal parts **Tree'nShrub** mix with existing soil and fill around plant. For seedlings and bare root plantings we recommend using **Seed Starter 101**. Works well with **FruitBlaster** and **HEALTHY GARDEN** fertilizers. This soil is weed free.

TOPSOIL BLEND

Our **TOPSOIL BLEND** is **POWERED BY DAIRY DOO** and has the perfect mix of peat and topsoil, making it an affordable, quality soil for growing grass or other plants. **TOPSOIL BLEND** is screened and comes ready-to-use for all your landscaping projects and gardens.

To use in a raised bed, add **TOPSOIL BLEND** and then cover with two layers of newspaper. Top the newspaper with 8 inches of **FlowerDoo 201** or **VeggieDoo 301** and plant. Available in 1 cubic foot bags and bulk by the cubic yard.

Organic!

SAFE GREEN LAWN 10-0-4 0.5%Ca

The best lawn on the block is **POWERED BY DAIRY DOO** and humates! Achieve a lush, green lawn that is fortified with solid biology, without the use of phosphorus or chemicals! This granulated fertilizer works with new or existing lawns and is safe for use around kids, pets, lakes, rivers, and streams.

Apply **SAFE GREEN LAWN** every 4-6 weeks using a broadcast spreader. 25 lb covers 2500 sq ft.
Available in 25lb bags and 1 ton super sacks.

How to Use and Apply SAFE GREEN LAWN	
Established Lawns	**New Lawns**
Apply 5 - 10 lbs per 1,000 sq ft in the spring.	Apply 10 lbs per 1,000 sq ft before seeding or sodding.
Application intervals can range from 30 - 90 days depending on response.	Mix into the top inch of soil. Keep seed or sod bed moist to ensure establishment.
For established lawns, 1 bag covers 5,000 sq ft.	For new lawns, 1 bag covers 2,500 sq ft.

Professional
LAWN CARE
Guide

Go Pro Level Lawn Care with DAIRY DOO!

Get a beautiful lawn without harmful chemicals with our 5-step program

1. Early spring, before the green up:
Liquid Option: Apply 3 oz of **Humic-Blaster** and 3 oz of **TurfBlaster 11-0-5** per every 1,000 sq ft of lawn.

OR

Organic Option: Spread **DAIRY DOO** at 1/8-1/4 inch across your lawn. For every 1,000 sq ft of lawn plant to use 11 cubic ft of **DAIRY DOO**. Aerate your lawn with hollow tines to drive the compost into the lawn.

Essential step!

2. Later spring:
Apply **SAFE GREEN LAWN** with a broadcast spreader. For established lawns use 5-10 lbs per 1,000 sq ft. For new lawns use 10 lbs per 1,000 sq ft.

Essential step!

3. Mid-summer:
Organic: Apply **SAFE GREEN LAWN** with a broadcast spreader. For established lawns use 5-10 lbs per 1,000 sq ft. For new lawns use 10 lbs per 1,000 sq ft.

IF YOU ARE NOT GOING ORGANIC ALSO: Apply 3 oz of **StressBlaster 0-0-1** and 3 oz of **TurfBlaster 11-0-5** per every 1,000 sq ft of lawn.

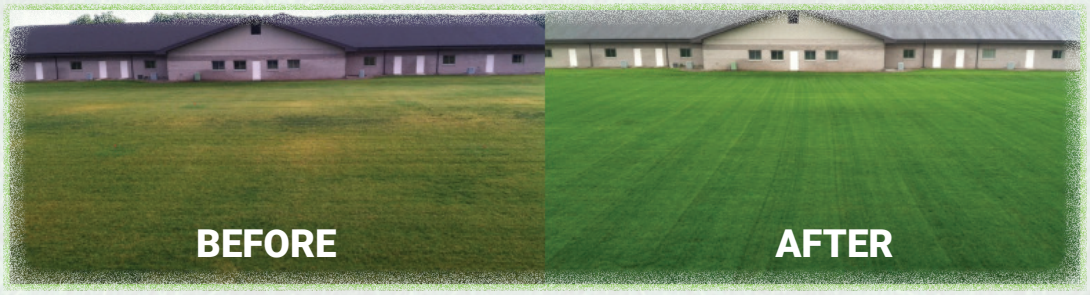
Essential step!

4. End of summer: Apply **SAFE GREEN LAWN** with a broadcast spreader. For established lawns use 5-10 lbs per 1,000 sq ft. For new lawns use 10 lbs per 1,000 sq ft.

5. Early fall:
Liquid Option: Apply 3 oz of **Fruit-Blaster 1-5-13** (Yes, this works on more than just fruit!) and 3 oz of **HumiKelp** per every 1,000 sq ft of lawn.

OR

Organic Option: Spread **DAIRY DOO** at 1/8-1/4 inch across your lawn. For every 1,000 sq ft of lawn plant to use 11 cubic ft of **DAIRY DOO**. Aerate your lawn with hollow tines to drive the compost into the lawn.



Professional LAWN CARE Guide

Extra Tips We DOO Recommend!

The holidays are the best way to help you remember the essential steps! Apply Safe Green Lawn around every summer holiday: **Memorial Day, 4th of July, and Labor Day**.

The best defense against weeds is to crowd them out! Reseed your lawn every 6 weeks in the spring and summer months.

Weeds love short grass so only mow once a week, raising your mower deck to cut the grass at 3 inches. Longer grass also has deeper root systems- a good defense against grubs!

When aerating your lawn use small hollow tines. Roll the plugs back in or topdress with **DAIRY DOO**.

Products like crabgrass killer will also prevent your grass seeds from growing. Instead, use the combination of reseeding and letting your grass remain at 3 inches to crowd the weeds out.

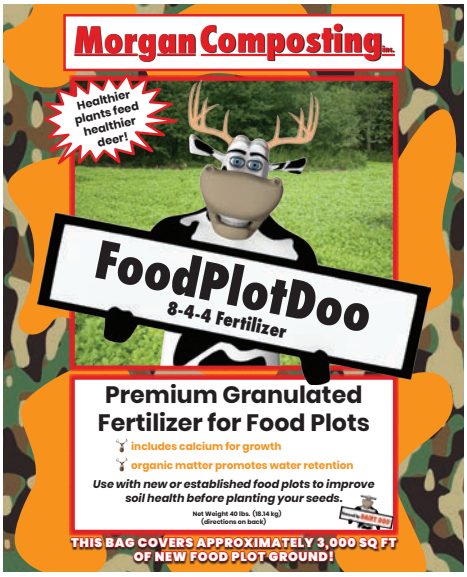
Leave grass clippings and chopped up leaves on your lawn to break down into the soil naturally. This returns nutrients to your soil!

TESTIMONIAL: Habitat for Humanity Home

"What a great result for this Habitat for Humanity lawn. Morgans gave us the perfect recipe for overcoming the sandy and acid soil that existed beneath the red pine forest in Tustin. Can't recommend Morgan Composting enough for those having troubles establishing a lawn or a turf in any environment."

– Will G.

FOOD PLOTS



FoodPlotDoo 8-4-4 4%Ca

Powered by **DAIRY DOO** *& Humates to Build Organic Matter*

FoodPlotDoo is a quality fertilizer that uses a poultry compost base with extra calcium to promote growth and nutrients in plants It also improves organic matter in the soil, creating better water retention.

FoodPlotDoo is granulated for easy spreading with push, pull, bag, or cone spreaders. Use 600-800lbs per acre for new food plots. For established plots, use 200-400lbs per acre.

Available in 40lb bags, 1 ton super sacks, and bulk.

ForageDoo 3-3-10 is a granulated fertilizer that prepares the soil for any legume-type crop like clover and alfalfa or any other crop requiring large amounts of potassium. Help Mother Nature out by adding organic matter and beneficial nutrients back into the earth with **ForageDoo 3-3-10**. This improves water retention, increases nutrients available for crops, and grows healthier plants to feed that big buck.

Remember, it doesn't matter how great your seeds are if your soil can't support them! Start your successful food plot from the ground up!

How to Use ForageDoo 3-3-10: Mow and then till your food plot. Use a push, pull, bag, or cone spreader to spread this fertilizer at the rates below. This can be applied the same day as lime and seeds. For best results, prepare your food plot right before forecasted rain.

Application Rates:		
	New Plots	Existing Plots
Per Acre:	600-800lbs	400-600lbs
Per 1000 sq ft	14-19lbs	9-14lbs

FOOD PLOTS

Dale Morgan 2019
Shot at a food plot of Triple Threat & Morgan's Big Buck.

Here are the Morgan Family Favorites!

For more seed mixes see our Food Plot Catalog.

- **Grazing Brassica:**
  Bonar Rape, Barkant Turnip, Appin Turnip, Pasja Hybrid
- **Morgan's Big Buck:**
  Berseem Clover, Ladino Clover, Medium Red Clover, Vernal Alfalfa, White Dutch Clover
- **Salad Bar:**
  Kale, Red Clover, White Clover, Ecotill Radish
- **Top Shelf:**
  Winfred Rape, AberLasting White Clover, Daikon Tillage Radish, Jumbo Ladino Clover
- **Triple Threat:**
  Purple Top Turnip, Dwarf Essex, Rape, Ecotill Radish

AlfaBlaster 1-5-13 (Liquid)

This liquid carbon helps with water retention and is packed full of minerals to help growth. Works great on alfalfa, clover, peas, and soybeans.

Use 2.5 gallons per acre with 15 - 25 gallons of water every 4 weeks.

Available in 2.5 gallon jugs, 55 gallon drums, 250 gallon totes, and bulk.

ForageBlaster 11-0-5 (Liquid)

The ability to improve your rye, forage oats, radishes, turnips, and more will be at the tip of your fingers with this liquid fertilizer. With micro-nutrients and carbon, this is a well-rounded, sustainable fertilizer.

Use 2.5 gallons per acre with 15-25 gallons of water every 4 weeks.

Available in 2.5 gallon jugs, 55 gallon drums, 250 gallon totes and bulk.

Knowing Your Soil Starts With a Soil Test

If you are serious about your soil health, get started with a soil test. We can help! Send your soil sample to us and we will complete the testing. After testing, we will review the results with you and help you make a plan to **work with the soil you have to get the results you want.**

Standard Soil Test – $35
Get a basic overview of the nutrients in your soil.

Advanced Soil/Media Test – $75
Includes standard test, plus water soluble nutrient test.

Haney Test – $75
Includes a basic nutrient test (ammonium acetate/DTPA), H3A extraction, and CO2 respiration test. Uses chemical and biological soil test data to mimic and estimate the soil biology's effects on nutrient availability.

How to Gather Your Soil Sample

Sampling Instructions:

1. Begin with a clean plastic pail and either a soil probe, spade, or trowel.

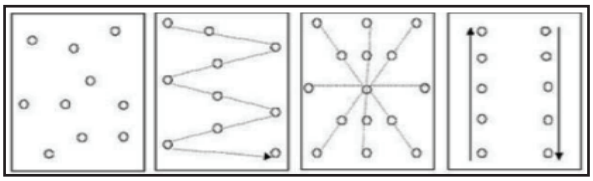
a) If using a probe, push it down to the recommended depth and empty the core into the pail.

b) If using a shovel, dig a hole to the recommended depth. From that hole, take a slice off the side of the hole to ensure you get an even amount of soil from the surface down to the recommended depth. Add the slice to the clean plastic pail.

Recommended Depths:

Default: 6 inches | Row Crops: 8 inches | Mixed Vegetables: 6 inches | No-Till/Pasture: 4 inches | Vineyards/Orchards: 8-10 inches

2. Using the method described above, take 15-20 subsamples throughout the sampling area using one of the patterns shown in the figure at right. Combine the 15-20 subsamples into the single clean plastic pail and mix thoroughly.



3. From the well-mixed pail of subsamples, take between a pint and a quart of soil and fill the sample bag.

4. Complete the submission form at *dairydoo.com/soil-testing-services* and then send your sample(s) along with the form and a check payable to **Morgan Composting**. Soil testing results are available in 7-14 days, depending on the time of year.

HEALTHY PLANTS COME FROM HEALTHY SOIL, HEALTHY SOIL COMES FROM DAIRY DOO!

Take advantage of our expertise in soil health and call us today. The DOO Crew is ready to help you grow!

231-734-2451 • dairydoo.com • 4353 US 10, Sears, MI 49679

Morgan Composting inc.

Ag Product Catalog

POWERED BY DAIRY DOO

Morgan's products are compost based with a focus on safe and organic options. These products provide ample amounts of nutrient, organic matter, carbon, and diverse biology to help your soils restore and reserve nutrients that are natural and essential to plant growth.

How We Began

Morgan Composting is a family business that was started in 1996, by Brad Morgan and his father Dale. The Morgan's began composting as a solution to a manure management problem on their 200 head dairy operation. Now, the cows have been sold and just a composting operation remains.

Our Philosophy

We believe that there is no silver bullet, but if we can build layers of good practices, we can achieve healthy soils and healthy plants. This equals a healthy YOU! Our goal is your goal, so when a grower asks us "how do I get there?" We start at the beginning and ask where you're starting from. With a well trained staff, along with an agronomist, to help recommend and implement a good, efficient plant specific program, we'll get you THERE.

Our Mission

Morgan Composting strives to be a driving force in Agribusiness that promotes sustainable practices, and to be an innovated provider of economical & healthy soil products. Our mission, what MCI is about ... is to strive for excellence in our service to customers, our community, and the environment.

- **M**orality, ethics, and goodwill
- **O**rganic integrity and promotion
- **R**espect, reliability, and recognition
- **G**rowing, growing, and growing!
- **A**bility to be diverse in all growing sectors
- **N**ew opportunities are constantly sought out
- **S**ustainable and sound economical products

Family Owned and Operated ~ Established 1996

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