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# Request For Adjusted Agronomic Rate of Municipally Collected Leaves For Farmland Application



Terrona Farms is an organic farm preparing to embark on a market garden production of organic fruits and vegetable using leaves to increase the soils organic matter and provide natural nutrients and soil conditioning.

Terrona Farms  
8452 West Joliet Road  
708-258-0058  
773-406-9814  
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9/20/2011



Terrona Farms 8452 W. Joliet Road, Peotone Il. 60468

Request for variance of existing agronomic rates for leaf application to farm land from a weight measurement to an objective height measurement

### **Abstract**

Terrona Farms an organic farm, proposes a community involved endeavor in sustainable agriculture which will minimize the disposal cost of municipal collected un-composted leaves. These leaves will be spread on designated farm fields and incorporated into the soil thus increasing soil organic matter percentage at the same time alleviating cost and disposal problems to the local communities thus providing higher organic matter percentages to grow and harvest organically raised vegetables and fruits for the local market.

### **Site:**

Terrona Farms  
Will County Illinois  
Joliet Road just West of I-57  
P.I.N.- 1720-11-300-003

**Overview:** The property consists of 12-15 acres of wooded land, just under two acres of greenhouse area, and approximately 60 acres of pasture. The pasture land has been certified Organic and is used for raising grass-fed beef and dairy animals. The farm has been extensively drain tiled with the water being collected and pumped into a 2 acre pond used for irrigation of our crops. Trees and shrubs have been planted along the property lines to create a hedge row, to act as a buffer zone from the surrounding conventional farming practices and hoping to eliminate spray drift of potentially damaging chemicals from neighboring farms. The soil survey shows 3 soil types located on the property. Ashkum Silty Clay Loam, Elliot Silt Loam, and Varna Silt Loam. The pasture area consists of two separate pasture blends. One is a perennial rye mixture and the other is a tall fescue mix. The wooded area consists of native Illinois trees and shrubs including Oaks, Catalpa, Redbud, Maples, White Pines, and Viburnums to mention but a few. The woods are the home to many species of animals. A few observed were fox, deer, owl, pheasant, quail and wild turkey.

**Mission:** To create a sustainable, bio-dynamic farm that produces organically grown vegetables and fruits for the local market.

**Target Problem:** The single most important item in an organic farm is the soil condition. The single most important factor in the soil of an organic farm is the "Organic matter" content. This is the life blood of the organic farm. The soils on the farm are low in organic matter and low in native fertility. Organically grown vegetables and fruits require a higher organic matter to sustain. The higher amount of organic matter will greatly increase available nutrients, water holding capacity, and friability of the soil. With the existing soil structure, attaining high marketable yields require costly conventional inputs and practices, yet remain unreliable. A conventional farming management path is not and never can be, sustainable or environmentally sound.

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We began a multiyear search for alternatives, knowing there must be a path based on practical soil husbandry solutions farmers have recognized for generations before the age of chemical practices.

We have come up with a viable solution that will benefit the farm, the community, and the land as a whole. We at Terrona Farms will work in concert with local communities and their Municipal Works Departments, utilizing field applications of un-composted municipal collected deciduous leaves, which communities would otherwise pay to landfill.

**Proposal:** Create a three year cycle of rotation using timing and practices modeled after the “Muth Farm” plan, in New Jersey that has been successfully proven and documented by Rutgers University for the past 20 years or more.

## **Methodology**

**Field Amendment Plan:** The cycle begins in late spring. A target area is selected based on soil health using soil tests and visual inspection of samples. The selected area, (anywhere from 5 to 7 acres) is then sown with a nitrogen fixing cover crop. That fall the area is covered in a layer of clean, shredded leaves approximately eight to twelve inches thick. The methods will vary due to the weather and access to the steady supply of leaves. The three year plan is as follows:

### **STEP ONE (Late Spring, Early Summer)**

Select the area to condition, the spring before leaf application. Lightly till ground and sow a nitrogen fixing cover crop. Plant species include red clover, hairy vetch, mustard, rye, buckwheat, spelt and beets depending on the time of the year it's planted. The best species will be planted for the season they do best in. This way the nitrogen content will rise throughout the summer and be a ready source to help in

### **STEP TWO (Late Fall)**

Option 1- (good weather conditions, low rainfall, steady supply)

Leaves are to be directly unloaded in the selected field with cover crops. Tractors will then spread them out to a, “to be determined” depth. Once dispersed, the field is walk and any extraneous material is removed and properly disposed of.

Option 2- (inclement weather, high rainfall, slow supply)

Leaves are to be stored on a all weather staging area. When conditions are acceptable leaves will be loaded into a manure spreader and dispersed on the field at the determined thickness. This may be delayed, weather depending. In the circumstances of a extremely precipitous fall season, leaves will be applied once the fields are frozen to avoid soil compaction and disturbance.

Once the leaves are spread on the field they are sprayed with a blend of Organically Certified, micro-organism liquids, to aid in the beneficial breakdown and mineralization of the leaves while avoiding tying up available nitrogen. The three formulations are:

Terrona Farms 8452 W. Joliet Road, Peotone Il. 60468

**“Residue L”** which is a diverse blend of naturally occurring nutrient-cycling microorganisms, along with food sources for those organisms.

**“SP-1”** which is a blend formulated to supply the greatest diversity of bacteria, fungi, algae, enzymes, carbon substrates, vitamins, and minerals to help support the growth of microbial life.

**“BioAid”** which is a diverse blend of naturally occurring nutrient-cycling microorganisms to help enhance and regenerate the biodiversity of the soil and root rhizosphere, improve the accumulation of RAS (root adhering soil) and aid in the storage and release of plant nutrients from the soil.

All of these products are available from AgriEnergy Resources, Princeton, Illinois.

### **STEP THREE (Late Fall or Following Spring)**

Incorporation- Ideally the best time to incorporate is the following spring. This way the field is protected from the harsh winter conditions and the leaf layer is broken down by the micro-organisms.

Incorporation in the fall is a definite option, weather depending. A disadvantage of a late fall incorporation does not leave time to establish a cover crop to protect the soil. Thus leaving the precious topsoil exposed to the realities of a harsh winter, wind and water erosion, and soil compaction.

The leaves are incorporated by a three step process. Primary incorporation is done with a chisel plow followed by a tiller device called a rotovator. Usually just one pass of each implement is sufficient to incorporate the leaves and the soil to a depth of 4-6 inches. The area is treated once more with a spray application of Residue, SP-1, and BioAid. The field is then finished off with a cultipacker which levels and smoothes the ground and readies it for step four.

### **STEP FOUR (Late Spring)**

Post incorporation cover crop- Since nitrogen immobilization is affected the first year a nitrogen fixing cover crop is planted. There are several choices listed above in step one. This crop is grown and either harvested for a hay crop or mowed to return nutrients to the soil.

### **STEP FIVE (Early Spring)**

Area is mowed down to a height of six inches. Soil Tests are taken of the field to determine any and all nutrient deficiencies. Nutrients are applied as recommended and cover crop is incorporated into the soil. Once again, a spray application of biologicals is performed to break down the cover crop. A two week rest period is observed and then vegetable crop is planted.

## **Municipal Leaf Collection Strategy**

*Community involvement is key to the successful implementation of this sustainability project. It will be advantageous for both the community and the farm. This win/win situation is abundant with self evident benefits for all parties concerned as well as this earth we live on.*

### **Farmer Benefits:**

- Long term savings on crop inputs and ability to remain "organic"
- Cropland improvements in soil tilth, moisture holding capacity, structure, nutrients and organic matter percentage
- Use of cropland, equipment and man-power that may be underutilized during the post harvest season
- Contributions to sustainable agriculture, organic farming and the "local food" movements
- The satisfaction of following good soil husbandry practices and helping the local community become integral part of their own food supply

### **Community Benefits**

- Low disposal costs
- Minimal hauling expense
- Eliminating the liability and expense associated with the operation, maintenance and management of a municipal or private compost facility
- Partnering with a local farm to produce food that will be on their dinner table
- The satisfaction of knowing that they are part of a project to improve the earth around them and changing the world and community a little piece at a time.
  
- **Environmental Benefits**
- Decreased soil erosion resulting from increased soil aggregation and surface residue from the practice of fall leaf application
- Improved soil nutrient holding capacity reducing any leachate and runoff concerns
- Decrease in potential environmental and nuisance problems sometimes associated with poorly operated municipal and private compost facilities
- Reducing farm applied chemicals that are threatening the communal drinking water
- Using a natural product to its potential instead of treating it as trash.

### **Municipality, Community and Farmer Cooperation**

I must stress, this is a partnership where both sides benefit and each side has their own responsibilities. Farmers and municipalities will work together to overcome the obstacles that could arise with the application and incorporation of leaves to the farm. The municipality must be responsive to the needs of the farmer and work with the haulers and the community to keep the leaves free of trash and other physical contaminants. This will be an ongoing concern for the farm. A small tipping fee may be assessed if the extraneous material is significant enough to incur extra labor for us to remove the material after it has been spread on the fields.

We will provide all-weather access to the field locations where the leaves will be applied. The field will have ample access to either directly apply the leaves, or enough area to temporarily stockpile the leaves prior to application. Modifications to crop rotations, field layouts, and access areas will be adjusted, modified, and coordinated to accommodate the arrival of leaves. The community and municipality will be educated on this project through literature and/or community education sessions or meetings. Educating the leaf collectors and haulers is also crucial to reduce extraneous materials when loading, vacuuming, and collecting leaves. They will be made aware that only clean leaves are acceptable and make a concerted effort to keep them as free from extraneous material as possible. As stated, loads that are contaminated with unwanted material of any kind are subject to tipping fees to offset the labor to manually remove the mentioned items at the site. This will be a process that will improve with each year as shown by the New Jersey project.

The public must be educated to recognize the importance of keeping trash and debris out of the leaf collection. When raking leaves to the curb for collection the public must be considerate of the farmer's needs and work to keep the contamination to a minimum. The haulers and collectors must be considerate of the farmer's needs. Communication between the participants is critical to achieve a mutually satisfying public/private partnership.

## AGRONOMICS

Terrona Farms wishes to apply these leaves for one main purpose. That is to increase the soils organic matter percentage which will benefit us with a healthy, living soil high in natural nutrients and minerals. Growing vegetables and fruits organically is a challenge that does not readily lend itself to conventional farming parameters and specifications.

Texas A&M University states:

Maintenance of good soil health is the foundation of organic production. One of the most highly touted means of achieving good soil health is through increasing soil organic matter . For instance, an acre of dry soil six inches deep weights approximately 2,000,000 pounds. To increase the soil organic matter content by 1% will require the application of 20,038 lbs/A (460 lbs/1000 2 feet). Unfortunately most organic matter sources contain 25% or more ash (inorganic matter). Consequently, to achieve a 1% increase of actual organic matter with a source comprised of 50% moisture and 25% ash, 80,000 lbs/A would need to be applied and incorporated into the soil profile. Applied organic matter has been shown to improve soil tilth, and improved plant growth . Much of the response to applied organic matter is in its ability to improve; water retention and infiltration rate, soil aggregate stability, cation-exchange capacity, soil biological activity, as well as, serve as a reservoir for organic acids and plant nutrients such as nitrogen. The end result is a more favorable soil microclimate for plant root development and function. This in turn results in improved plant growth and yield all without costly and environmentally unsound conventional inorganic inputs .

**Why focus on soil organic matter?**



Many soil properties impact soil quality, but organic matter deserves special attention. It affects several critical soil functions, can be manipulated by land management practices, and is important in most agricultural settings across the country. Because organic matter enhances water and nutrient holding capacity and improves soil structure, managing for soil carbon can enhance productivity and environmental quality, and can reduce the severity and costs of natural phenomena, such as drought, flood, and disease. In addition, increasing soil organic matter levels can reduce atmospheric CO<sub>2</sub> levels that contribute to climate change.

The following information contains the benefits and the overall attributes of leaf enhanced soil.

General agronomics: **Plant Nutrients in Municipal Leaves**

*20 ton/acre is a benchmark for this study.*

Application of collected municipal leaves to agricultural land improves soil quality and provides a solution to a disposal problem. Farmers are permitted (New Jersey Register, NJAC 7:26, 1.12. Nov. 7, 1988) to apply up to a 8-inch layer of leaves annually. Application at this rate, which is equivalent to approximately 800 cubic yards/acre or 20 tons/acre of dry matter. This will increase soil organic matter content, and improve soil tilth and water holding capacity.

A chemical analysis of 100 municipal leaf samples collected from across New Jersey shows that leaves are a valuable source of all crop nutrients (Table 1). Although nutrient concentration values vary considerably, the application of 20 ton/acre of leaves would add on average 400 pounds of nitrogen, 40 pounds of phosphorus, and 152 pounds of potassium. Assuming values of \$.30/pound N, \$.23/pound P, and \$.18/pound K, the nutrients from this example are worth \$156.56.

Application of leaves at 20 ton/acre would also add on average 656 pounds of calcium, 96 pounds of magnesium, 44 pounds of sulfur, 1.5 pounds of boron, 58 pounds of iron, 22 pounds of manganese, 50 pounds of chloride, 4 pounds of sodium, 0.3 pounds of copper, and 3 pounds of zinc. The actual amounts of nutrients applied can vary considerably as shown by the concentration ranges in Table 1.

Increased rates up to 60 ton/acre has shown significant increase in nutrients and organic matter percentages in a much smaller time frame. Though the area becomes unavailable for farm crops the next season, the increased percentages can outweigh the loss in productivity. Although leaves add agronomically significant amounts of nutrients, only a portion of the nutrients are available immediately after application for use by the crop. The increase in the soils total nutrient content will, however, contribute to the long term fertility of the soil as the nutrients are released over time.

Much of the nutrients in leaves are parts of the organic structure of the plant tissue and require microbial decomposition to release them. The carbon-nitrogen ratio of an organic material undergoing decomposition is an important indicator factor in the rate of release of its nitrogen in available form. The average carbon nitrogen ratio of leaf waste is 50 and it ranges from 27 to 72. For comparison, the carbon-nitrogen ratio of compost is generally about 25.

The abundant carbon (carbohydrates which provide energy) content of leaves leads to extensive development of fungi and bacteria in the soil which uses up the supply of available nitrogen for the production of microbial cell tissue. As decay proceeds, the carbon-nitrogen ratio decreases and some of the nitrogen becomes available to plants. Because of the high carbon content of raw leaves relative to their nitrogen content, there will likely be very little of the organic nitrogen in leaves available to crops for a period of time after application. Observations of crops (including

legumes) planted on soil to which leaves have been applied indicate that plants suffer from a temporary N deficiency unless additional N fertilizer is added.

Crops grown on soils the year after leaf application likely will need additional N fertilizer. Legume crops, such as soybean, may benefit from 20 to 30 pounds of starter N banded beside the row at planting. This will supply a readily available N source to be used by the legume until it forms nodules to supply N by fixation. An additional 50 to 100 lbs of N fertilizer is recommended for corn grown the first year after leaf application. The additional fertilizer that is required increases the cost of crop production on the soil the first year after an application of leaves.

The amounts of P, K, and other nutrients present in leaves are not easily translated into nutrient credits that may be used to reduce fertilizer application. These nutrients are relatively stable in soil and can be monitored simply through soil testing. As soil fertility levels increase as a result of leaf applications, take credit for these nutrients by fertilizing accordingly.

Of the three major nutrients, potassium is the most easily released from leaves and is the most readily available to crops in the first year after leaf waste application. A minimum nutrient credit of 50 lbs K<sub>2</sub>O per acre may be used for 20 tons of leaves.

Application of collected municipal leaves to soil should not significantly change its agricultural limestone requirement. Three years of municipal leaf application caused no decrease in the soil pH compared to unamended soils.

Nutrient	Minimum	Maximum	Average	Average
	Concentration %			Lb.ton
Carbon	36	52	47	940
Nitrogen	0.66	1.62	1.00	20.0
Phosphorous (P <sub>2</sub> O <sub>5</sub> )	0.02 (0.05)	0.29 (0.66)	0.1 (0.23)	2.0 (4.6)
Potassium (K <sub>2</sub> O)	0.09 (0.11)	0.88 (1.06)	0.38 (0.46)	7.6 (9.1)
Calcium	0.13	3.04	1.64	32.8
Magnesium	0.02	0.46	0.24	4.8
Sulfur	0.01	0.21	0.11	2.2

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### **Specific Agronomics for Terrona Farms:**

Soil Test taken on 8-24-2011 and analyzed by Midwest Laboratories from four separate fields show the organic matter percentage or OM%, to be from 2.1 to 3.2 respectively. Our target range required for the fruits and vegetables production is from 6 to 10 percent organic matter.

Field 2- Soil test is from a section that received the leaves in the fall of 2010. Its OM% is at 9.5%. This number will slowly drop over the next season as the organic matter continues to mineralize and break down. This will more than likely give us a OM% of around 5, for the next growing season.

The soil test shows excellent base saturation percentages in Potassium, Magnesium, and Calcium.

We are working in partnership with AgriEnergy Resources on this soil building project. Their agronomist Ken Mussleman is going over any and all amendments and microbials to be used in this process.

The following pages show labels of the ingredients we will be using to enhance and accelerate the breakdown of the applied leaves.

# RESIDUCE™

## L

NET WT \_\_\_\_\_#

\_\_\_\_\_ GALLONS

**RESIDUCE L** is a diverse blend of naturally occurring nutrient-cycling microorganisms, along with food sources for those organisms.

### RECOMMENDED RATE

Broadcast 2 gallons per acre on crop residue. Additional protein or nitrogen may be beneficial.

**RESIDUCE L** meets National Organic Program requirements for organic production.

**RESIDUCE L** contains NO Genetically Modified Organisms

*This product is intended for use according to an approved organic system plan.*

CAUTION: KEEP OUT OF REACH OF CHILDREN. This product is not intended for human consumption. Avoid contact with eyes and open wounds. Rinse contacted areas with water. If swallowed, drink water and consult a physician. Wash hands after use.

*It is each certified organic grower's responsibility to get approval from his/her certifying agency before using this product. Because of differences among the various certifying agencies, and differences between NOP/EU/JAS/COR ingredient lists, AgriEnergy Resources cannot guarantee that our products will be allowed by your certifier on your farm.*



**AgriEnergy Resources®**

21417 1950E Street • Princeton, IL 61336 • (815) 872-1190 • [info@agrienergy.net](mailto:info@agrienergy.net)

8.9 # / GAL

20100309 LD

# SP-1™

NET WT \_\_\_\_\_#

\_\_\_\_\_GALLONS

**SP-1** is a blend formulated to supply the greatest diversity of bacteria, fungi, algae, enzymes, carbon substrates, vitamins, and minerals to help support the growth of microbial life.

**SUGGESTED USES:** Beneficial to all crops

**RECOMMENDED RATES**

*Broadcast: 2-12 gallons per acre*  
*In-Furrow Application: 1 gallon per acre*  
*Foliar Application: 0.5-2 gallons per acre*

**Seed Piece or Bulb Treatment:** Mix 1:1 with water and spray the seed piece or bulb  
**Root Dip Application:** Mix 1:1 with water and thoroughly soak roots prior to transplant  
**Greenhouse Production:** 1 pint – 1 quart per 1,000 square feet after emergence

SP-1 should be stored in clean containers that are vented.

Do not mix with fertilizers until day of application.

**SP-1** meets National Organic Program requirements for organic production.

**SP-1** contains NO Genetically Modified Organisms.

*This product is intended for use according to an approved organic system plan.*

**CAUTION:** KEEP OUT OF REACH OF CHILDREN. This product is not intended for human consumption. Avoid contact with eyes and open wounds. Rinse contacted areas with water. If swallowed, drink water and consult a physician. Wash hands after use.

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8.4 # / GAL

201 00309 LD

# BIO AID

## Dry Microbial Soil Inoculant

LOT# \_\_\_\_\_

NET WT \_\_\_\_\_ #

**BIO AID** is a diverse blend of naturally occurring nutrient-cycling microorganisms to help enhance and regenerate the biodiversity of the soil and root rhizosphere, improve the accumulation of RAS (root adhering soil) and aid in the storage and release of plant nutrients from the soil.

**SUGGESTED USES:** Soil apply as a liquid suspension or coated on dry fertilizer granules.

### RECOMMENDED RATE

**Liquid Application:** 1 lb per 10 acres, blended with water and/or liquid fertilizer. Requires continual agitation with sufficient water to keep in suspension.

**Dry Application:** 1 lb per 10 acres applied as a coating on fertilizer granules.

**ONE HEAPING SOLO CUP (ENCLOSED) HOLDS 8 oz. – ENOUGH FOR 5 ACRES.**

BIO AID is a live microbial product and should be stored in a closed container out of direct sunlight.

BIO AID should be used within the intended growing season.

BIO AID meets National Organic Program requirements for organic production.

BIO AID contains NO Genetically Modified Organisms.

*This product is intended for use according to an approved organic system plan.*

*It is each certified organic grower's responsibility to get approval from his/her certifying agency before using this product. Because of differences among the various certifying agencies, and differences between NOP/EU/JAS/COR ingredient lists, AgriEnergy Resources cannot guarantee that our products will be allowed by your certifier on your farm.*

*Keep out of reach of children. This product is not intended for human consumption. Wear appropriate mask, goggles and gloves during use to avoid inhalation and contact with eyes and open wounds. Rinse contacted areas with water and wash hands after use. If swallowed, drink water and consult a physician.*



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20100422 LD



# CPR

**CPR is a liquid product with a wide array of microorganisms and a variety of potential uses.**

**DERIVED FROM:** Compost extract, plant and mined mineral extracts

**SUGGESTED USES:**

Compost inoculant  
Manure treatment  
Cleaning up biodegradable compounds

**RECOMMENDED RATES**

**Compost Piles:** Spray within first week of starting piles. Use 55 gallons CPR per 4' high x 100' long pile.  
**Pit Treatment:** Per 100,000-gallon manure pit, use 25 gallons CPR, 50 gallons molasses, 50# brewers yeast, and 4-5 gallons hydrogen peroxide.  
**Bio-Remediation:** Consult your sales representative for site-specific application rates and instructions.  
**Other Uses:** Consult your sales representative.

CPR should be stored in clean containers that are vented.

**Do not mix with fertilizers until day of application.**

CPR meets National Organic Program requirements for organic production.

CPR contains NO Genetically Modified Organisms.

*This product is intended for use according to an approved organic system plan.*

**CAUTION: KEEP OUT OF REACH OF CHILDREN** This product is not intended for human consumption. Avoid contact with eyes and open wounds. Rinse contacted areas with water. If swallowed, drink water and consult a physician. Wash hands after use.



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8.4 # / GAL

\_\_\_\_\_ GALLONS

20080408 MR

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Terrona Farms 8452 W. Joliet Road, Peotone Il. 60468

A letter from our Agronomist :



To Whom It May Concern:

Terrona Farms obviously has a very comprehensive and well thought out plan for the application of leaves for the purpose of soil building. I have personally witnessed the soil transformation that can take place with high rates of leaf applications. I think it is a tremendous approach to crop production from an agronomic and ecological view point.

Because Terrona Farms will be working with cover crops and microbial inoculations to help facilitate the breakdown of the leaves, I believe there is little if any risk of nutrient leaching from this practice. The nutrients will become part of the organic matter that is created from the decomposition process and will help to grow healthy crops in a very sustainable and environmentally friendly manner. This approach to crop fertility will allow crop production with extremely reduced inputs and nutrient loss compared to the more conventional methods currently used in conventional crop production.

I believe that Terrona Farms should be applauded for their approach to crop production and this practice should be encouraged on their farm and as many others as possible across the country.

Respectfully Submitted,

Ken Musselman, Certified Crop Advisor

**Terrona Farms** 8452 W. Joliet Road, Peotone Il. 60468

**Midwest Laboratories Inc.**

13611 "E" Street • Omaha, Nebraska 68144-3699 • (402) 334-7770 • FAX (402) 334-8171 TO 900110

11-234-0147 ACCOUNT # 28308

REPORT DATE: Aug 24, 2011 RECEIVED DATE: Aug 22, 2011

ROBERT DICOLA  
26857 S HARLEM AVE  
MONEE IL 60449

900110

TERRONA FARMS  
IDENTIFICATION

TERRONA FARMS  
JIM  
8452 W JOLIET RD  
PEOTONE IL 60468

**SOIL ANALYSIS REPORT**

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER (METHYLATED) (M) (M)	PHOSPHORUS			POTASSIUM			MAGNESIUM			CALCIUM			SODIUM			SOIL PH	PH BUFFER INDEX	CATION EXCHANGE CAPACITY (CEC) (meq/100g)	PERCENT BASE SATURATION (COMPUTED)				
			P (ppm)	P (ppm)	P (ppm)	K (ppm)	Mg (ppm)	Ca (ppm)	Na (ppm)	% K	% Mg	% Ca	% Na	% H	% Cc	% H	% Na								
07146	FIELD 1A	3.0 M	27 H	67 VH	479 VH	545 VH	2999 H											20.8	5.9	21.8	72.3	0.0			
07147	FIELD 1B	2.7 M	13 L	42 H	230 H	556 VH	3277 H											21.6	2.7	21.5	75.8	0.0			
07148	FIELD 1C	3.2 M	45 VH	70 VH	446 VH	602 VH	3297 H											21.8	5.2	19.2	75.6	0.0			
07149	FIELD 1D	2.1 L	2 VL	13 -	174 M	619 VH	3476 H											23.0	1.9	22.4	75.7	0.0			
07150	FIELD 2 CTR	9.5 VH	82 VH	133 VH	776 VH	666 VH	3459 H											24.8	8.0	22.4	89.8	0.0			
LAB NUMBER	SURFACE	NITRATE-N (NO3-N)			SULFUR			ZINC			MANGANESE			IRON			COPPER			BORON			SOLUBLE SALTS		
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
07143	0-8																								
07147	0-8																								
07148	0-8																								
07149	0-8																								
07150	0-8																								

8/27/2011

*The above analytical results apply only to the sample(s) submitted. Samples are retained a maximum of 30 days. Our results and letters are for the exclusive and confidential use of our clients and may not be reproduced or used in any way without our written authorization. To rework, the results, or the company in any advertising, news release, or other public announcements without obtaining our prior written authorization.*

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#### Final Thoughts:

The most important point in any soil health is organic matter. Every, and I stress this term, every web site on the internet that's has to do with organic or sustainable farming mentions that we must start with high organic matter, nature's building block for soils. This is where we at Terrona Farms wish to start. We need to increase our organic matter in an expeditious manner that will pay dividends for years to come. This method will bring up the farmlands organic matter in as little as two years compared to five to six years using green manure cropping. Thus making the cropland available for use in less than half the time. This will give us the tools to become a successful, viable farming operation that will be both sustainable and bio-dynamic.

We have the opportunity to create a truly unique farm that will be an example for the agricultural community as well as a proving ground for the organic and sustainable movements. We have the opportunity before us to grow healthy and safe vegetables and fruits for a market that is ever increasing. We have the opportunity to create local jobs that will bring people back to nature. We have the opportunity to help our local communities economically by creating a partnership that not only benefits them financially, but gives back to this earth which we all live on. We have the opportunity to create a community sponsored farm, so people know where and who their food will come from. We have the opportunity to make a real change in this world.

The "agronomic rates" allowed are somewhat dubious. The allowed rate at this time is 20 tons per acre. This would be dependent on the moisture content and the state of the leaves themselves. We have seen measurement rates of from 2 inch to 8 inch layers as recommendations. Barrel Shredded leaves would be on the 2 to 4 inch scale where full leaves could be anywhere from 6 to 10 inches. Then moisture content would change the weight scale once again. If we spread our leaves, for example, at 6 inches thick and that is the twenty tons per acre rate. That night it rains and to get 20 tons per acre the next day we can only put 4 inches on. This is a cause for confusion and frustration. The adherence to the allowed rates could only be subjective. A measured rate would be better for all concerned as that can be regulated objectively. That is why we are asking for a 12 inch measured allowance. The measured allowance would be a true benchmark that can be observed and adhered to without the weight influences that fluctuate on a weather dependant basis. This "measured rate" would allow any authorities to objectively inspect our facilities in a tried and true manner that shows adherence to a specifically allowed measurement.

Terrona Farms 8452 W. Joliet Road, Peotone Il. 60468

Our government has been behind "Green Movement" for years. They applaud sustainability and organic "local" food production. The EPA and the IPCB are advocates for just such a project where we can take something out of the waste stream and turn it into a beneficial amendment with only positive environmental impact. Where at one time the leaves were considered waste, they will become an integral part of our soil building efforts and a foundation for our farming and economic future. We are counting on your judgment to see that this small step will have an enormous impact on the future of our operation.

So in closing I ask you to consider allowing us to increase the "agronomic rates" which we are allowed to apply leaves to our fields. A 12 inch measured rate allowance would provide us the capabilities to adhere to any regulations and scrutiny. We can then become a fully functional and productive farm in just a few shorts years.

Respectfully submitted,

Jim Kerwin

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