Healthy Soil

By Brad Morgan, President of Morgan Composting, Inc.
Brad and Dale Morgan
Established in 1996
The Home Farm

From Then......(1996)  To Now......(2013)
MCI Employees

Beginning Employees

Current Employees
Our Facilities – Home Farm
Green Meadows - Methane Digester

In-vessel Composter
Healthy Soil Practices

From Large Scale Farms…

To Small Scale Urban Farms

Currently we have touched close to 30% of the potatoes grown in MI. This information is being converted into healthy versions of products which can be used safely in residential settings.
Healthy Soil Applications

Spreading Material In a Truck

Morgan Composting will influence over 150,000 acres in the state of Michigan this year alone.

Spreading Material At Home

MCI formulated this product based on feather meal, DAIRY DOO®, humates, organic sulfate of potash, and our own biological.
Products – How We Implement Ag Biosolids
Products – How We Implement Ag Biosolids

**Biological Fungicides**
Can compost teas provide disease suppression and nutritional value to fruit crops?

Annemiek Schilder¹, Donald Comer¹, Lisa Tiemann¹, John Biembaum², Brooke Comer², Emily Pochubay³ and Karen Powers³

Michigan State University, ¹Dept. Plant, Soil and Microbial Sciences, Dept. Horticulture, East Lansing, Michigan, ²Northwest Michigan Horticultural Research Center, Traverse City, Michigan

Introduction

Compost ‘teas’ are watery extracts of compost, aimed at obtaining soluble nutrients and beneficial microbes from the compost in an aqueous solution that can be applied to plants, either as a foliar spray or soil drench. There are two basic types of compost tea: non-aerated compost tea, which is made by steeping compost in water in an open container for a certain amount of time, and aerated compost tea, which is prepared by forcing air through water mixed with compost and optional additives (Ingham, 2003). Various studies have shown suppression of a range of fungal and bacterial plant pathogens (Scheuerei & Mahaffee, 2002; 2006). Composts contain millions of microorganisms that have the ability to suppress plant diseases when applied to plant surfaces or soil by competition for nutrients, secreting antibiotics or activating natural plant defense responses (Agris, 2005). Compost teas are notoriously variable due to differences in the compost and brewing conditions and research-based information on efficacy is limited. The goal of this project is to determine whether compost teas provide disease suppression and nutritional benefits, using grapes as a test crop.

Results

Compost teas applied as foliar sprays significantly reduced powdery mildew severity on the leaves and fruit at the end of the season, particularly in the case of the Lab aerated and Lab non-aerated teas. The sprayed vines also were greener at the end of the season than the untreated control, which was attributed to lower disease levels rather than a nutritional effect. The Lab compost teas were generally more effective than the Morgan’s Blend, which may be due to the higher compost to water ratio in the Lab teas (4 gal/20 gal water) compared to the Morgan’s Blend tea (4 gal/200 gal water), but possibly also to different microbes as evidenced by isolations. Some nutrients increased (Mg, C, Na, Mn) and some decreased (N, S, P, K, Ca, Zn, Fe, Cu, Al) in leaf petioles but this varied with compost tea and site. Powdery mildew could have also affected leaf nutrient status, emphasizing the need to investigate the nutritional effects in the absence of disease. In general, compost teas suppressed microbial extracellular enzyme activity compared to the untreated control, which was rather unexpected and indicates the need for further research into the effects of compost teas on soil biology and organic matter.

Figure 2. Effect of compost teas applied weekly as a spray or a soil drench on powdery mildew severity on cv. Riesling leaves (A) and fruit (B) in September after 12 applications.
Foliar Applications

Agriculture Foliar Applications & Biological Protection

Homeowner Foliar Applications & Biological Protection

Morgan’s currently influences 100,000 acres of sustainable agricultural foliar & biological applications.
Morgan Composting, Inc.’s
Liquid Carbon Manufacturing & Blending

Leonardite Ore Converted to Humic & Fulvic Acid

Aaron Maney
Manufacturing Engineer
Converting **Dry Humates** to **Liquid Carbons**
Customized Urban Grower Applications

Farmers make the decisions to be responsible and efficient with their farms, all the while being tied to economics and environmentally sound choices. The choices in agriculture are being made because layering of good practices is becoming beneficial. All of the products used in this farm application could & should be certified organic. Reducing chemicals sometimes has to be a choice, then elimination of them will follow as we educate ourselves.
Evaluation tool
establishing a starting point

DISCOVER SOIL BIOLOGICAL FERTILITY

The new gel-technology system accurately indicates microbial respiration over the range of 1 to 100 ppm CO2-C (about 5 to 65 lbs CO2-C/acre/day). This corresponds to 20 to 2500 ppm microbial biomass. Handle significantly more samples than with traditional base-trap or IR methods. The drying/re-wetting protocol gives a high degree of correlation to N-Mineralization.

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We Need to Keep This Natural Resource Beautiful like this…

Northern MI should be proud of their agricultural heritage. The responsible practices that are being used by a high percentage of our farmers should translate to homeowners.

Chateau Chantal Resort
We know the problems & have outlined some solutions.

• Agricultural Biosolids are a tool.
• Create the opportunity to use these tools in urban agricultural and small farm settings.
• Development of new products as well as testing can create this path of opportunity for recycling in many directions.
• We are currently failing to send the right messages on product development as well as food safety.