



Compost and Mulch: Soil Health

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The Role of Organic Matter in Soil: Promote Soil Health

- Soil Structure
- Nutrient management
- Conservation of soil
- Soil moisture management
- Diversity of Microorganisms

Soil Structure

Can't change texture. What does soil structure do?

Increases water infiltration rate, enhances root penetration, optimizes soil aeration, stimulates microbial diversity



Soil Aggregation

Tilth, Friability, Soil Structure
Aggregation Formation
Aggregation Destruction
Soil Aeration
Root Penetration



Nutrient Management

Increase CEC

- Immobilize Water Soluable Nutrients
- Long Term
 Nutrient Release
- Nitrogen Fixing Micoorganisms



Soil Moisture Management

Increased Water Holding Capacity (Sandy)Increased Water Permeability (Clay)



Diversity of Soil Microorganisms



Diversity of Soil Microorganisms

A Tool in IPM
Increased Competition/Predation
Site Occupation
Nutrient Management
Fungal Presence for Aggregation

Feed the Soil Not the Dump

- 50-70K tons of food scraps landfilled per year
- Almost 100,000 TPY (300 TPD) of yard debris and wood turned into compost and mulches
- Over 1,500,000 tons converted into compost and mulch



Environmental Impacts

http://www.nrdc.org/food/files/wasted-food-IP.pdf Wasted: How America Is Losing Up To 40% Of Its Food From Farm To Fork To Landfill



25% of our agricultural water is used for food that is never consumed

Hierarchy of Organics Management

- Reduce: Lawn conversion, plant right, buy right
- Reuse: recycled lumber, reuse nursery
- Recycle: Compost/ Mulch
 - On-site
 - Centralized



Sonoma Compost Site Overview



The Composting Process

A biological process
Water 40-60 %
Oxygen/Porosity (Aerobic)
Food
Time





Temperature Monitoring

Evaluate the Health of the Pile
Evaluating the Temperature
Size of Pile
Food Composition
Moisture by Feel



THE PRESS DEMOCRAT . WEDNESDAY, NOVEMBER 24, 2010

LOS ANGELES Indoor compost pile ignites house

A 1,700-plant marijuana grow house in the San Gabriel area erupted in flames when a living room compost pile ignited Monday.

Detective David Mertens said a man was seen running from the home but there are no arrests. Mertens says gangs rent out homes to raise pot and investigators find a couple of similar marijuana grow houses each month.

Temperature/Turning Log

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Meeting Quality Standards

- Compost (and mulch) will be meeting these standards:
 - Will be kept at a temperature of at least 131 degrees Fahrenheit for at least 15 days during which time the piles will be turned at least 5 times.
 - Fecal coliform tested state certified shall be less than 1000 (3) MPN/dgr, and salmonella sp. shall be less than 4 dgr.
 - Metal Concentrations (stricter Demeter)
 - Pesticides

	LOW NITROGEN REQUIRING PLANTS	HIGH NITROGEN REQUIRING PLANTS
WELL DRAINED	SONOMA COMPOST	ORGANIC HI-TEST COMPOST
POORLY DRAINED	TERRA LITE	MALLARD PLUS

Biodynamic Compost

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WORKING WITH THE

RHYTHMS OF NATURE All plants evolve with an intimate connection to their environment, including the movement of the sun, the seasons and lunar cycles.

BIODYNAMIC PREPARATIONS

The eight preparations regulate and stimulate the life processes in plants and grapevines, connecting them to a site.

CLOSED NUTRIENT SYSTEM

All organic waste is recycled through composting, encouraging the growth of indigenous yeasts and bacteria that ultimately contribute to farm individuality.

SELF-REGULATING SYSTEMS

A healthy and diverse habitat of plants, animals and micro-organisms leads to a self-regulating system of predator/prey relationships, honoring the idea of reciprocal maintenance.

BIODIVERSITY AND ESTATE FARMING

Cultivation of a polyculture in and around the vineyards is as important as healthy grapevines. This diversity is reflected in the individuality of the wine.

PERSONAL CONNECTION TO THE LAND, OBSERVATION, ANTICIPATION

A deep, personal relationship with the land heightens our ability to anticipate and avoid problems in the vineyard while encouraging conditions that promote quality.

Image from: Benziger Family Winery

How Is It Different?

- Use On-Farm/Local Resources –Manure >25%
- Apply Preparations (Starter and Curing)
- Minimal Turnings For Pathogen Reduction
- Stricter Metals limits than EPA
- 6 Month Curing Time (On-Farm)



CERTIFIED biodynamic®

Preparation Placement

Dandelion (506)

Yarow (502)

Nettle (504)

Oak Bark (505)

Valerian (507)

Chamomile (503)

Comparison



Combined Foodweb Results

Sonoma Compost Co Will Bakk				(707) 664-1943 willbakx@sonomacompost.com					Submission Number: _01-019415			Sample Received 4/1/2009			Report Sent:			ber:	r:
550 Meach	um RD																		
Petaluma, (CA 94952	-9641 L	JS																
Customer Reference	ID	Dry Weight	Active Bacteria	Total Bacteria	Active Fungi	Total Fungi	Hyphal Diameter	Flagellates	Protozoa Amoeba	Ciliates	Nematod	VAM	TF/TB	AF/TF	AB/TB	AF/AB	Nitrogen	Actino Bacteria	
Soil Amendme	ent																		
BDCCSF Mar	01-107003	0.50	84.8	1007	13.6	466	2.85	11529	11529	567	3.69	N/A	0.46	0.03	0.08	0.16	100-150	6.61	
BDCSSF Mar	01-107004	0.460	133	775	28.1	492	2.9	59799	29899	299	7.31	N/A	0.64	0.06	0.17	0.21	100-150	17.8	
BDCPSF Mar	01-107005	0.430	117	913	13.5	992	2.85	13372	32217	3221	19.3	N/A	1.09	0.01	0.13	0.12	100-150	115	

Active Bacteria: 84 vs 133 Flagelates: 11K vs 32K Ciliates: 567 vs 3221 Actininomycetes: 6.6 vs 115 Active Fungi: 13 vs 28 Protozoa Amoeba: 11K vs 32K Nematodes: 3.6 vs 19.3

OMRI/CDFA Listed



Sonoma Compost

0.9-0.4-0.7

Guaranteed Analysis: Total Nitrogen (N) 0.9 % 0.05 % Water Soluble Nitrogen 0.85 % Water Insoluble Nitrogen Available Phosphate (P₂O₅) 0.4 % Soluble Potash (K2O) 0.7 %

Derived from: Compost (Yard Debris with Vegetative Food Scraps)

Directions for use: Incorporate into the soil

Company: Sonoma Compost Co. 550 Meacham Rd. Petaluma, CA 94952

Net Weight: ____







Organic Hi-Test Compost

1.2-0.3-0.6

Directions for use: Incorporate into the soil. Use as soil amendment to for vegetable production, lawns or other nitrogen loving plants.

Guaranteed Analysis: Total Nitrogen (N) 1.2 % 0.1 % Water Soluble Nitrogen 1.1 % Water Insoluble Nitrogen Available Phosphate (P2O5) 0.3 % Soluble Potash (K2O) 0.6 %

Derived from: Compost (Yard Debris with Vegetative Food Scraps, Chicken Feathers)

Company: Sonoma Compost Co. 550 Meacham Rd. Petaluma, CA 94952

Net Weight:





Parameters for finished compost

- Parent material not recognizable
- Humus formation (dark stain)
- C/N ratio <20
- Mature and stable: Seed Germination & CO₂
- pH <8

Mulches

- Aesthetics
- pH
- Coarse to last, resist blowing away
- High C for weed suppression, aggregation
- Water conservation
- Temperature moderation
- Slowly build soil
- Lazy soil preparation (fall)

Sustainable Seedling Mix

- Peat free
- Vermiculite free
 - Mallard Plus
 - Biodynamic Hi-test
 - Rice hulls
 - Biochar
 - Wormcastings
 - Oystershell
 - Miccorrhizae

Thank you Questions?







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