

## Top 10 Reasons to Use Mushroom Compost on Grass Hay Fields

- 1 Increase yields and lower costs. Reduce the need for inorganic fertilizers.
- 2 Decrease or eliminate the cost of liming.
- 3 Restore soil structure by improving soil quality, nutrient content and beneficial soil microbe population and activity.
- 4 Improve water retention during drought conditions and in poor soils. Improve water infiltration in clay soils.
- 5 Mushroom Compost's organic nutrient values are verifiably consistent and available year round.
- 6 It is sustainable agriculture and a good environmental stewardship practice, providing a nutrient rich soil amendment in a complete ecological recycling process.
- 7 Composting reverses soil organic matter depletion, providing improved crop production.
- 8 Composting stabilizes nitrogen and reduces nitrate leaching.
- 9 Significantly higher crop yields in droughts - studies indicate compost amended soil can produce yields higher than traditional fertilizer yields in drought years.
- 10 Mushroom Compost is a Pennsylvania Department of Agriculture (PDA) accepted fertilizer and PA Preferred product.  
([www.agriculture.state.pa.us/papREFERRED](http://www.agriculture.state.pa.us/papREFERRED))

*Support for this project was provided by a grant from The Pennsylvania Department of Agriculture*



### Relative Value of Fresh Mushroom Compost To Commercial Fertilizers

*Numbers are calculated from a wet volume basis.*

#### 1 ton MC

*(equivalent to 3.5 cubic yards)*

Nitrogen (N) = 22.27 lbs/ton

Phosphate (P<sub>2</sub>O<sub>5</sub>) = 13.29 lbs/ton

Potash (K<sub>2</sub>O) = 24.70 lbs/ton

Mushroom Compost should always be used in accordance with good farming practices and in conjunction with a Nutrient Management or Soil Conservation Plan.

Your local Conservation District can answer any questions as to the proper use of Mushroom Compost as they work with you in implementing Best Management Practices.

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## Applying Mushroom Compost to Grass Hay Fields



# WHAT IS MUSHROOM COMPOST?

Often referred to as Spent Mushroom Substrate (SMS), Mushroom Compost is the composted result of a rich growth medium for mushrooms. It is made from agricultural materials, such as hay, straw, straw horse bedding, poultry litter, cottonseed meal, cocoa shells and gypsum. Sphagnum peat moss adds to the organic nature of the substrate, providing a consistent, formulated and homogeneous product.

After mushrooms are harvested, Mushroom Compost is steam treated prior to removal to eliminate any pests, pathogens and weed seeds resulting in a PDA accepted fertilizer product.

Mushroom Compost has high water and nutrient holding capacity and exhibits no nitrogen draw down problems. As a fertilizer and soil amendment for farming, Mushroom Compost supports plant growth of mulch hays from orchard grass, timothy, reed canary grass, tall fescue and brome grass.

## Using Mushroom Compost On Hay Fields

Improve the quality and quantity of hay production by applying Mushroom Compost at a rate of 1/2 inch to 1 inch in depth (68 - 129 cubic yards per acre). Follow the "less is more" adage since a deeper application will smother the grass.

**Spring Application:** The soil is usually too wet to bring heavy equipment onto the field and once the soil warms up the grass is growing too rapidly and quickly becomes too tall for application.

**Summer Application:** Mushroom Compost can be applied after each cutting during the growing season. An application can be made up until the time that fieldwork damages the next stand of grass.

**Winter Application:** This time of year, when the soil is still frozen, can be an opportune time to make a Mushroom Compost application. It is not recommended to apply on top of snow. If making multiple applications of Mushroom Compost during the year, a yearly soil test is recommended.

*Always work with your Conservation District to implement Best Management Practices.*



## What Essential Plant Nutrients are in Mushroom Compost?

From 30 random samples of fresh Mushroom Compost, Dr. Michael Fidanza, Associate Professor of Horticulture, The Pennsylvania State University (Reading, PA), published these results.

## Mean of Parameters Measured/Calculated On a Wet Volume Basis:

bulk density	574.73 lbs/yd <sup>3</sup>	
pH	6.62	
C:N (carbon-to-nitrogen) ratio	12.79 : 1	
soluble salts (1:5 w:w)	13.27 mmhos/cm	
	lbs/yd <sup>3</sup>	%
solids	243.37	42.35
moisture	331.47	57.67
organic matter	146.73	25.53
carbon (C)	81.13	14.12
total nitrogen (N)	6.40	1.12
organic nitrogen (Organic-N)	6.19	1.08
ammonium nitrogen (NH <sub>4</sub> -N)	0.21	0.04
phosphorus as (P <sub>2</sub> O <sub>5</sub> )	3.82	0.67
potassium as (K <sub>2</sub> O)	7.10	1.24
calcium (Ca)	13.17	2.29
magnesium (Mg)	2.01	0.35
sulfur (S)	4.91	0.85
iron (Fe)	1.07	0.19
manganese (Mn)	0.12	0.02
copper (Cu)	0.04	0.01
sodium (Na)	0.67	0.12
aluminum (Al)	0.89	0.15
zinc (Zn)	0.05	0.01

## Generic Crop Applications

(Based on application of fresh Mushroom Compost with a mean bulk density of 574.73 lbs/yd<sup>3</sup>)

### 1" depth (65 to 130 yd<sup>3</sup>/acre)

Nitrogen (N)	1.12 %	6.4 lbs/yd <sup>3</sup>	832 lbs/acre
Phosphate (P <sub>2</sub> O <sub>5</sub> )	.67 %	3.8 lbs/yd <sup>3</sup>	494 lbs/acre
Potash (K <sub>2</sub> O)	1.24 %	7.1 lbs/yd <sup>3</sup>	923 lbs/acre
Organic Matter	25.53 %	146.7 lbs/yd <sup>3</sup>	19,071 lbs/acre

### 2" depth (260 yd<sup>3</sup>/acre)

Nitrogen (N)	1.12 %	6.4 lbs/yd <sup>3</sup>	1,664 lbs/acre
Phosphate (P <sub>2</sub> O <sub>5</sub> )	.67 %	3.8 lbs/yd <sup>3</sup>	988 lbs/acre
Potash (K <sub>2</sub> O)	1.25 %	7.1 lbs/yd <sup>3</sup>	1,846 lbs/acre
Organic Matter	25.53 %	146.7 lbs/yd <sup>3</sup>	38,142 lbs/acre

### 3" depth (390 yd<sup>3</sup>/acre)

Nitrogen (N)	1.12 %	6.4 lbs/yd <sup>3</sup>	2,496 lbs/acre
Phosphate (P <sub>2</sub> O <sub>5</sub> )	.67 %	3.8 lbs/yd <sup>3</sup>	1,482 lbs/acre
Potash (K <sub>2</sub> O)	1.25 %	7.1 lbs/yd <sup>3</sup>	2,769 lbs/acre
Organic Matter	25.53 %	146.7 lbs/yd <sup>3</sup>	57,213 lbs/acre

## Equipment:

For hay field application, use a manure spreader to provide as uniform an application as possible. If Mushroom Compost is applied too deep or piled too high in areas of the field, drag the field with a drag chain or similar equipment perpendicular to the direction in which the field was spread.

## The Results

Improved soil health; improved crop health; higher crop yields in drought than with commercial fertilizers; 24 percent residual value in second year, improving soil for 3-5 years; since mushrooms are grown year round, Mushroom Compost is available year round.

