

Mushroom Industry in the CBW

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Introduction

Pennsylvania- DelMarVa Mushroom Industry

56

Farms

10

Farms that Compost On Site

6

Compost Suppliers

2,200

Mushroom Houses

50

Percent of mushroom compost produced in ChesCo each year is field composted

2/3

or more of the country's mushrooms produced

85
whites

percent *Agaricus* mushrooms – browns and

Spent Mushroom Substrate

- **Pre-Growing:**
 - Mushroom compost: Wheat straw, horse manure, hay, corn cobs, poultry manure, brewer's grain, gypsum, and more/other.
 - Substrate mixture: Mushroom compost, spawn
- **Growing:**
 - Bedding material made of mushroom compost, spawn, peat casing
- **Post Harvest:**
 - *Spent mushroom substrate* (SMS) is the used growing medium from mushroom farming
 - Acts as a soil amendment and mulch, adding organic matter and improving soil structure for farms, soil companies, gardening companies, turf companies

Nutrient Management

- To apply evenly one-inch thick fresh mushroom compost to one acre of land requires 40 tons of fresh mushroom compost as calculated from an average bulk density of 575 lbs/yd³.
- This calculation shows a total nitrogen amount of 891 lbs, of which 29 lbs is quickly available nitrogen (ammonium-nitrogen) used immediately by a crop in the same growing season when this compost is applied. A remaining amount of 862 lbs of organic nitrogen represents nitrogen that is slowly released over time.
- Rule of thumb: 10 to 20 percent (86 to 192 lbs) of nitrogen could potentially become available during the growing season from this organic nitrogen pool.

Dave Beyer, PhD, Penn State University

Soil Health and Erosion Control

- **Improving Soil Structure:** SMS helps improve soil texture, increasing water retention and aeration.
- **Erosion Control:** SMS acts as a protective layer on newly seeded lawns, reducing soil erosion and preventing sediment runoff into rivers and the Bay. It is permitted for roadwork runoff mitigation and berms in multiple states.
- **Agricultural Benefits:** Promotes healthier soil, which can reduce the need for synthetic fertilizers and prevent erosion.
- **Mitigation:** Used by EPA for oil spill clean up, in acid mine drainage cleanup and revegetation, research on PFAS mitigation and more.

Environmental Compliance

- PA DEP Mushroom Farm Environmental Management Practices
 - Techniques include optimizing composting processes, odor control measures, and careful stormwater management to prevent contamination of natural resources.
 - Following BMPs outlined in the MFEMP reduces regulatory burdens, supports pollution control, and demonstrates commitment to environmental stewardship
- EPA
 - Pesticide applicator training English/Spanish for workforce
 - Residue testing
 - Organic practices

Improvements

- NRCS Mushroom Compost Project in process for passive and active composting
- Peat-free casing trials successful, scaling in progress
- Compost supplier engagement