

Pesticide Residues in Finished Mushroom Compost

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Should organic farmers be worried about pesticide contamination?

Compost, a nutrient rich mixture of decayed organic matter (plant residue, manure, wood chips, etc.) is generally used as a soil conditioner or fertilizer in gardens and on farms. Additionally, compost can be used as a mulch to keep plants moist during dry seasons, as a growing medium for specialty crop production such as mushrooms, and can aid in disease suppression. Compost is also relatively accessible as it is often fairly easy to make and is low cost.

But if organic farmers, are utilizing compost from non-organic farms, are they at risk of contaminating their soil or their crops? This is the question that Thurston County organic farmers are asking about the finished mushroom compost they buy at a local farm store. These farmers are most concerned about the chemicals that mushroom growers use in commercial mushroom production, and more importantly, whether those chemicals could remain in finished mushroom compost.

To address this question, we investigated potential pesticide contamination in finished mushroom compost, focusing specifically on the growing practices of the Ostrom Mushroom Farm in Olympia, Washington. Ostrom's is the largest mushroom grower in the area, producing most of the finished mushroom compost used by farmers in the Olympia area.

The results of this investigation have been compiled in a comprehensive 27-page research report. Of primary interest to organic farmers and gardeners in Thurston County, the report describes not only the chemical pesticides typically used in mushroom production, but also the substances in the initial mushroom growing substrate that are prohibited for use on organic farms.

The research report includes an outline of commercial mushroom production, including the types of mushrooms that are grown, local production statistics, and a step-by-step outline of how mushrooms are produced on a large scale. Also identified are the substances Ostrom Mushroom Farm includes in their compost mixture, and whether or not these materials are prohibited by Washington organic farming regulations. It then describes common mushroom pests and the chemicals that are generally used commercially to control them, a detailed list of the pesticides registered for use in Washington State, and, finally pesticides used at the Ostrom Mushroom Farm, with an in-depth discussion of chemicals such as Dimilin, Benomyl, and Permethrin, including findings from a 1992 chemical residue analysis on Ostrom's mushroom compost from the Thurston County Department of Health. What is the likelihood of these chemicals showing up in finished mushroom compost today? The answer to this and recommendations to organic farmers who use finished mushroom compost are addressed in the conclusion.

Several Appendices support the report, most interesting perhaps being a step-by-step explanation of how to take a composite compost sample for pesticide residue analysis. The most interesting discovery of this research did not concern the types of pesticides used in mushroom production, nor whether or not they might remain in finished compost. Rather, it was that

Ostrom's (like many other commercial mushroom growers) incorporates synthetic urea in their initial mushroom growing substrate, and that this use of synthetic urea prohibits the finished compost from being used on certified and non-certified organic farms.