

GROWING TIPS

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The Re-Use of Spent Compost For Casing Soil

INTERVIEW WITH C. J. YEATMAN

Many innovations in mushroom growing, machinery, or other techniques are introduced to the mushroom industry by the growers themselves. In today's advanced technique and tight economy, the margin of profit plays the decisive role to succeed in business. A modern tray plant growing eight crops a year will produce more mushrooms than a conventional shelf operation, but the cost of production will still be the main factor.

During previous years when the margin of profit was acceptable, the judgment of using peat instead of soil for casing, or to re-use spent compost as casing, was based more on convenience than productivity.

There are still many growers growing in the range of 3 - 4 lbs./sq. ft. with regular soil; other growers will produce the same quantity and quality with either peat or re-using the spent compost as casing soil.

The casing material and its proper treatment are very important to obtain a good crop. While visiting different growers that are using various casing materials under the same growing conditions, I did not see any evidence showing that the use of peat instead of regular soil or spent compost will increase production. However, there is a big difference in cost between peat and spent compost.

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A guest from Hungary, Eniko Tamas, visits a U.S. grower who is proud of his good summer crop of large mushrooms.

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I sincerely believe that the time is near when more and more growers will use spent compost more than any other casing material. This project will take time and will not solve the problem of the small grower who does not have the equipment nor the land to process the spent compost into casing material. Some growers have good results using peat; others even better while using regular soil or spent compost. Because of this, there is no easy way to make recommendations on what kind of soil mineral, organic or mixed, is the best for casing.

It seems to me that in our present situation, the economical factor should be decisive. For those wishing to learn more about the re-use of spent compost as casing, this article will serve this purpose.



C. JAMES YEATMAN

In the center of the Chester County mushroom industry is the location of C. P. Yeatman and Sons Mushroom Farm; a successful growing operation with the personalized touch. Three Yeatman brothers, known to most of the growers as Art, Bob and Jim, are managing this mushroom farm, and for many years successfully re-using spent compost as casing soil. Jim Yeatman, past AMI President, is working hard to unite the mushroom industry. He is presently serving as President of THE MUSHROOM INDUSTRY ACTION TEAM, who's main goal is to bring back the image and pride of the grower and canner who suffered so much from the bad publicity given because of the botulism scare.

When I brought to Jim's attention that many growers are interested in re-using spent compost, and I suggested arranging an interview on the re-using of spent compost into casing soil, Jim was very willing to share his experience for the industry's benefit, and describe these procedures in detail.

Q. Jim, in your experience could you quote the number of acres needed per one double 8000 sq. ft. for re-processing spent compost into casing soil?

A. We figure that it takes about 15/100 of an acre for each crop of 8000 sq. ft. cleaned out. This means that for each 7 doubles (8000 ft²) we expect to case per year, we need one acre of land on which to re-cycle the spent compost into casing. In time, this amount of land will not be sufficient because it appears to us that for each sq. ft. of bed space cleaned out, at least 2 sq. ft. of bed can be cased. In other words, if we empty beds of 6" depth, in three years it shrinks to 2 inches which will case 1 - 2 sq. ft. We found, therefore, that we had to expand our acreage for re-cycling and either sell off the excess soil or put it back into crop land.

Q. What is the required time that spent compost should be in the field until it is ready for use?

A. About 3 years.

Q. Why is this length of time needed?

A. I am not sure of all the reasons, but from our experience at least 1½ to 2 years is necessary for the structure of the soil to become suitable. Apparently another year or 1½ years is necessary for the soluble salts to reach acceptable levels.

Q. What is the preferable field for selection?

A. Any field accessible and convenient for hauling spent compost into.

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and casing soil from it would be desirable. I think it should have enough slope to drain well and enough area between the field and any stream to prevent leechate from reaching the stream.

Q. How soon should the compost be dumped and spread on the field?

A. It should be dumped and spread as soon as possible so it does not become anaerobic and develop odors. Also, it becomes so wet and sticky, even without rain, that it is very difficult to level if left too long in piles.

Q. What is the minimum, the maximum, and the most preferable depth of compost that should be spread on the field?

A. We feel that it shouldn't be less than 12" to 14" or more than 20". If it is leveled too shallow after it has been out for 2 to 3 years, it will be too shallow to plow properly and also takes up too much space. If it is leveled too deep, it is nearly impossible to get through it with a tractor to plow and also the plow cannot go deep enough to bring it all up and aerate it. We prefer a depth of 16" to 18" when initially leveled.

Q. How often do you recommend to plow the spent compost?

A. As often as necessary to keep weeds under control.

Q. Do you recommend to pick up a certain amount of soil with the plow, and how much?

A. No. We prefer not to get any virgin soil from below it, however, when plowing, it is difficult if it wasn't leveled very accurately, not to get some. We don't feel there is anything wrong with mixing in sub-soil or soil underneath. We just don't think it's necessary.

Q. After proper plowing and disking, do you seed the field?

A. No. However, it could be seeded with a type of grass which has a high tolerance for soluble salts.

Q. Would you recommend seeding with Reed Canary Grass which has a high tolerance for soluble fertilizers?

A. As I mentioned before, we do not seed our fields. Some growers do, but one reason we don't is that until the soil is ready to use, the grass grows so heavy and the soil is still so loose and spongy it is nearly impossible to get the haying equipment through it.

Q. In your experience, could the seeding help to improve the physical and chemical structure of the soil?

A. So far, we haven't felt we needed to improve either by seeding. However, I suppose it is possible that seeding might help.

Q. According to your experience, what are the recommended levels of soluble salts when the spent compost is ready?

A. We haven't been able to establish a maximum salt test level. There seems to be quite a variation. We know that we haven't experienced any trouble by letting it age for 3 years as previously described, then using it regardless of the soluble salt level.

Q. While re-cycling spent compost into casing soil you probably evaluated the advantages and disadvantages of using peat, or regular soil. What are your reasons for deciding to re-use spent compost as casing soil?

A. There are several reasons. First we tried it and it worked equally as well as our mineral soil. Other benefits are: (1) good use of spent compost, (2) our field could be located conveniently to our storage shed and the mushroom houses, (3) a very economical casing soil.

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Q. What are the watering characteristics?

A. We find it is easier to handle when wet, which is desirable because we find the texture is much better when wet than too dry. We tested our soil a few years ago and found the water holding capacity of spent compost casing was nearly double that of our mineral soil.

Q. Could you elaborate on the economical aspect?

A. Yes. Let's take the cost of peat needed to case a standard 60 ft. double or 8000 sq. ft. growing area. The average price per 6 cubic ft. bale is now over \$5.00 a bale. If 60 bales are needed to case one house and, in addition, 60 bags of agricultural limestone @ \$.90 are needed to adjust the pH, we have over \$350.00, not counting the cost of preparation and other expenses involved. The cost of processing spent compost until it is suitable as casing soil is considerably less. We figure it costs us about \$150.00 per 60' double for the spent compost treated and ready to case.

Q. Did you notice susceptibility to certain diseases from using spent compost for casing?

A. No.

Q. While discussing the use of casing soil, it will be important to learn from your experience the method you are using for casing soil treatment.

A. The only way we have ever treated it is steam. At first we steamed it in a truck, then built a steamroom and trays. We steam the room to 145° for about 24 hours, cool over a period of 3 or 4 days just by leaving the room closed, then case. Of course, this could be done in less time, but this suits our schedule of casing once per week.

REFERENCES:

The following articles on casing soil have been published previously in "Mushroom News".

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Pushbutton Mushrooms . . .