

TO: MUSHROOM ENTHUSIASTS

Cultivated Mushrooms

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Of the few cultivated kinds of mushrooms only one is grown commonly in Europe and America - *Agaricus campestris*. Not any *Agaricus campestris* can be cultivated. The common one found on lawns and grassy places has four spores per basidium. A variety of it found almost only on compost heaps or manure piles has only two spores per basidium and only this two spored one can be cultivated - some call it *Agaricus bisporiger*.

It can be grown successfully and on a large scale only where the temperature is uniform and not too high, the relative humidity of the air uniform and not too low and there is a constant but gentle circulation of air.

The raw material is horse manure (a compost mainly of corn fodder has recently been developed but is not yet in general use). It makes some difference whether the manure comes from a cavalry horse, artillery horse, farm horse or purely decorative horse or race horse. This may sound ridiculous but it happens to be so. The amount of straw, shavings, or other material in the manure also makes some difference. It is essential that the manure be fresh.

The fresh manure is piled on the ground, and the size and shape of the pile affect the results. When fresh manure is properly piled it will heat, because of the growth of moulds and bacteria in it. It should attain a temperature of about 140°F and remain at this temperature for about ten days. Sometimes it does not get hot enough, sometimes it gets too hot, sometimes it is just right. After this preliminary heating the manure is repiled and allowed to heat again. This heating not only conditions the manure and makes it favourable for the growth of *Agaricus campestris*, but also kills off many insects, injurious or competing fungi, bacteria,

nematodes and other flora and fauna that might interfere with the mushrooms. Proper heating of the manure is absolutely essential for successful mushroom growing.

Once properly cured the manure has been transformed into a rather pleasant smelling compost of crumbly texture. It is then piled in beds. These may be only 6" deep, several feet wide, and as long as the cave or house or quantity of manure allows, or may be only 18" wide and 2' high. A more recent development is to place the compost in shallow wooden trays equipped with short legs so that they may be stacked on top of one another. Once in beds or trays, the compost is inoculated with the mycelium or spawn of the mushroom. This can be grown easily by anyone who knows how to culture fungi in the laboratory, but usually it is obtained from commercial spawn producers who grow it by a simple but patented process. A process by the way that, long before it was patented was generally used in plant pathology laboratories to grow a variety of fungi.

The spawn is scattered on the compost and after a couple of weeks mycelium of the fungus permeates the bed. Then the bed is cased, or covered with black soil. If the manure was of the right sort and properly composted, if the spawn was good and casing soil right and if conditions have been favourable, mushrooms begin to appear after from five to six weeks. Successive flushes or crops appear every week or for from six weeks to three months, by which time the compost is exhausted. It is then removed, replaced and the process repeated.

The growing of mushrooms is attended by many hazards. A grower may compost a few dozen cubic yards of manure, turn it, place it in beds, inoculate it with spawn, case it with soil, waits several weeks, and no mushrooms appear. So the beds must be discarded. Also they are subject to a variety of diseases and insect pests and these sometimes ruin promising crops. A sharp fluctuation in temperature or humidity during the small hours of the night may result in partial crop failure. Many have got the idea that they can go into the business in a shed or basement and make big, quick and easy profit. It isn't so simple as that like poultry, dairy or general agriculture.