number of years of use out of it. You can't leave it freeze, that would ruin the boiler.

PETE VERMEULEN: We have been using a house very similar to this for 8 years with very good results. We did, however, experience 8-10° difference in the temperature of the flats. This was a contact problem since at that time our pipes were set in gravel. We applied pebbles over this and it corrected the problem. You could get rid of the condensation by using double poly, this would also save heat.

DICK BOSLEY: Ours is double plastic.

DAVE BAKKER: In Canada we spray the insides of the house with a material called "Clear"; it reduces the surface tension and the condensate simply runs down the sides of the walls and does not drip on the foliage of your plants. The material is relatively inexpensive, I guess it would cost $4 to $5 to do a house such as yours.

LEAF MOLD FOR CONTAINER CULTURE

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Using leaf mold for growing container plants on a commercial scale? It sounds like a return to the era of monastery gardening, or at least a capitulation to the organic gardening extremists — mumbling incantations about compost! However, the use of composted leaf mold is none of the above, but a very practical and inexpensive source of humus in certain parts of this country. In carrying out "clean air" programs, a number of the densely populated eastern states have enacted rigid no open burning regulations, which include among other things a total prohibition of leaf burning. This has posed a real problem for suburban municipalities with abundant shade trees. As the fallen leaves are collected each autumn they have perforce been dumped in large piles in vacant lots as they cannot be incinerated as was the practice in earlier times. These huges piles of decayed leaves can be a valuable source for nuseries and at the same time their removal can be of great benefit to the municipalities which have often faced inundation under an ever growing surplus of them.

Our firm has worked out a mutually satisfactory arrangement with several nearby towns which satisfies both our needs. The municipalities collect and pile the leaves on vacant prop-

erty owned by the towns. The leaves lie in piles for the following summer season. Soaked by winter rains, they decay and compact, reducing their volume to 1/4 that of the fall when they were collected. The following winter we send over a large loading tractor and dump trucks and load and haul all the previous year's leaves to our own composting yard. This can be done in even the coldest weather. The leaf piles decompose even in winter and the heat given off by the process is enough to prevent the piles from freezing. Fertilizer is added and the leaves are piled again for further decay.

After a second year of decomposition, the resulting composted humus is ready for use. Cost is far below any other humus source in our area and comparable to the cost of composted bark for those container nurseries located within trucking distance of big lumber or paper mills. Loading and hauling the leaves to our yard costs approximately $1.00 per yard, and fertilizing and repiling costs approximately an additional $1.25 per yard. The resulting humus has an analysis of Mg - 400 ppm, P - 200 ppm, K - 250 ppm and a pH of 6.0. The compost is minerally far richer than bark or sawdust. The leaves contain much of the fertilizer which the homeowners spread upon their lawns and gardens, and plants grown in the humus made from them seem to require less fertilizing than the same species grown in bark or sawdust mixes.

The compost is used in several different ways. Our standard mix is made up with a front end loader in the following proportions — two bucket loads of humus, one of soil, and one of coarse sand. The ingredients are piled together in a large heap, as a sort of pre-mixing device. The tractor bucket loads of the mix are run through a large Lindig shredder and discharged on a long rectangular concrete sterilizing pad. The shredder is moved back away from the accumulating pile repeatedly to produce a long narrow pile of shredded mix. This pile is then leveled off to about 18 inches in depth, covered with a heavy sheet of polyethylene, and sterilized with methyl bromide gas. The manufacturer's directions suggest aerating the pile after 24 hours, but we find we get far better weed kill by leaving the pile under the plastic cover for 3 days. The hotter the weather, the more effective is the gas sterilant. In August weather tremendous heat builds up beneath the plastic and this not only enhances the effect of the gas, but it also causes the hard seed coats of usually resistant species like annual morning glory to soften and become permeable. A much better weed kill results. Gas treatment for weed control is virtually worthless in the spring when the soil and humus are cold and soggy, and the efficacy gradually increases throughout the summer until September, when the nights begin to cool and soil temperatures

also start to decline. Our other basic mix is 2 parts of humus to one part of coarse sand. This is made up in two forms, one which we call "low-lime" mix which is used for ericaceous plants (10 lb of ground limestone per cubic yard of mix), and one which we call "high lime" mix for other plants which grow well in a high organic mix but prefer a higher pH (20 lbs/cu yd). In both of these mixes, we would prefer larger particles of humus; the Lindig shredder grinds the humus too fine. A P.T.O. manure spreader does not mix the humus and sand thoroughly enough, and we frankly have not yet found the ideal machine for mixing to our specifications.

In late summer we treat all the mix which will be needed for the following spring's canning. Sterilized mix is stored under cover in a fibreglass-covered building and is ready to use whenever needed throughout the winter and following spring. Having mix, containers, and liners ready for instant use enables us to get much of our canning done at times when the field crews are forced inside by inclement weather. At such periods, what used to be costly "down time" is now converted to useful accomplishment.

Obviously, composted leaves are not available in the quantities required by really large-scale container firms such as those found in California and the southern states. However, there are quantities available and going to waste which are more than adequate for the smaller grower. They are a supply of humus with greater than normal nutrient content. And, in this era of rapidly escalating costs for every kind of supply and material, it is a pleasant surprise to encounter one which is far cheaper today than the conventional organic materials like peat were even a decade ago.

A SOLAR GREENHOUSE FOR PROPAGATION[1]

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In the last few years much interest and emphasis has been placed on the development of solar heated greenhouses. Nearly all that have been reported to date use a separate solar collector system, then transfer the heat to the greenhouse by some type of heat exchanger. Thus the heat and heat distribution is similar to a conventional greenhouse. By contrast, the self contained, solar heated greenhouse at Oklahoma State University was constructed using the heat collection capacity of the greenhouse as

[1] Patent applied for.