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## **Synthetic or Artificial Manure**

Purdue University Cooperative Extension Service

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Higher Crop Yields From Improved Soils

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# HIGHER CROP YIELDS FROM IMPROVED SOILS

Purdue University  
Agricultural Extension Service

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## SYNTHETIC OR ARTIFICIAL MANURE

Any non-woody plant material such as straw, stalks, grass clippings and leaves can be made into synthetic manure by bacteria in the presence of moisture, nitrogen and some air. Coarse material, such as stalks, dries out too quickly and compacted fine material such as grass clippings and leaves excludes too much air. For this reason a mixture of the two breaks down more rapidly than either one alone. Nitrogen is used as a "food" by the bacteria and should be supplied in the form of ammonium sulphate. Lime and a small amount of superphosphate further hasten decomposition. No appreciable odor is given off in the process as long as only the stems and leaves of plants are used and it can be detected only when the mulch pile is started largely with green plant material.

For Large Amounts. Where a considerable quantity of material is to be made into synthetic manure the mulch pile should be 10 to 12 feet wide and built up to a height of 6 feet in thoroughly moistened and compacted six inch layers. Finely ground agricultural limestone should be distributed over the first layer at the rate of 15 pounds for each 10 feet in length and the same amount applied on each alternate layer there-after. Where agricultural limestone is not available, hydrated lime may be used at the rate of 9 pounds for the above area. Ammonium sulphate should be distributed over the second layer at the rate of 10 pounds for each 10 feet in length and the same amount applied on each alternate layer thereafter. Increase the amount of ammonium sulphate by twice the amount if tree leaves are used as the organic matter.

For Small Amounts. A pile 5 feet square at the base usually will more than take care of plant material from a home garden and leaves from shade trees around a residence. It should be built in the same manner as large piles using one-fourth the amount of lime and ammonium sulphate per layer. A shallow pit dug not over one foot in the ground is a good place for small amounts and an outside ash bin is an ideal place in which to construct a mulch pile.

Care of the Pile. The interior of the mulch pile should be kept moist; more sprinkling will be required during the fore part of the decomposition period than later. After the interior material has broken down, the entire pile should be forked over, turning the undecomposed outside material toward the center. In the care of small mulch piles, where fresh material is added from time to time through-

out the year, it is best to fork the undecomposed material to one side about twice a year and spread the decomposed portion. The undecomposed portion can then be used to start the base of a new pile.

Time Required. It requires three months under favorable conditions for the organic matter to break down. Bacterial action is greatly retarded during cold weather, and for this reason, a pile built in November will not be ready to spread on the ground before the following June.

Do's and Don'ts. Garbage, if any, thrown on the mulch pile should be limited to peelings, pods and tops of vegetables. Paper has very little fertility value and it breaks down slowly. The same is true with corncobs, it is better to burn them and spread the ashes. Either superphosphate or some complete fertilizer on hand may be applied at the same time and at the same rate as the ammonium sulphate. This will further promote bacterial action and greatly add to the fertility of the final product. The bacterial action that takes place in the mulch pile also takes place in the soil. Organic matter can be spread about 1/2 inch deep directly on the soil, covered with 10 pounds of ammonium sulphate per 1000 square feet and both worked into the ground.

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