

## Garbage Converted To Grow Mushrooms

Converting municipal garbage into mushroom compost can solve a critical waste disposal problem and reduce costs in growing mushrooms, scientists of The Pennsylvania State University have determined. They're carrying out studies to help Commonwealth mushroom growers increase efficiency and cut production costs in a highly competitive industry.

Dr. Lee C. Schisler and associates obtained a substantial increase in mushroom yields from a compost containing 70 percent horse manure and 30 percent processed garbage mixture—compared with yields from 100 percent horse manure compost. Dr. Schisler figures this was probably due to the increased dry weight of compost in the trays containing the mixture.

"The processed municipal garbage compost was fine-textured with particles easily occupying air spaces between coarse-textured straw horse manure compost. This provides more dry weight in a given depth for areas of bed surface without additional compost compaction," Dr. Schisler stated.

Scarcity of basic mushroom compost ingredients—horse manure on straw or corn cobs used in synthetic composts—contributes greatly to costs, he said. Satisfactory substitute materials could reduce production costs significantly, he added.

The experiments first determined acceptable conditions for converting processed municipal garbage into compost. This research included new formulations and new mechanical digestion procedures for converting the garbage.

Prime factors in the research included refuse digestion and compost

formulation, mushroom mycelium growth in various composts, and mushroom yield. Once these factors were worked out, a full-scale pilot study was undertaken, using the processed municipal garbage alone and mixed in varying proportions with horse manure compost.

Refuse digestion and compost formulation studies were carried out at the Hercules - Allegheny Ballistics Laboratory, Cumberland, Maryland. The Fairfield Engineering Company's refuse processing plant in Altoona provided humus. Mushroom mycelium growth studies and yield trials were performed at the Mushroom Research Center operated by the Agricultural Experiment Station at Penn State.

After composting for 7 days, the finished compost was discharged from the digester directly into a pre-sanitized truck and delivered to the University within 2 hours of discharge from the digester. The compost was filled into trays placed in rooms under controlled atmospheric conditions of oxygen, air movement, and temperature - standard procedures for growing commercial mushrooms.

Yields from the 100 percent processed municipal garbage compost were the poorest. There was no significant difference in yields from the 100 percent horse manure compost and the 30 percent manure-70 percent processed municipal garbage mixture.

It may be possible, Dr. Schisler believes, to increase the percentage of incorporation of humus with a standard mushroom compost to at least a 50-50 mixture. Further research to

## Simmental Breeders To Hold 5th Sale

One hundred and thirty-three Simmentals, all 3/4-blood and better, have been individually selected for American Simmental Association's 5th annual national sale, scheduled to be held in the Astrohall, February 23, 1975, during the Houston Stock Show and Rodeo.

Chester Martin, Henderson, Texas rancher and sale manager, said the sale selection includes seven purebred bulls and fifty purebred females. The sale will start at 3 p.m. Sunday, February 23, with auctioneering by Reyes, Reyes and Elder of San Antonio.

Noting that last year's annual sale, at Louisville, Kentucky, set a record when 86 head brought \$1,223,000, Martin said the 1975 event could gross even more. "Despite the depressed prices in our industry, quality Simmental cattle continue to set new records. The minimum requirement for cattle nominated in this sale demands weaning weight ratios of 100 or better, automatically disqualifying the lower half in any herd. And we had 268 nominations to select from, so we took only the best. We're optimistic," Martin said.

Purebred females include three that are safe-in-calf, 45 that are open, and two three-in-one packages consisting of safe-in-calf purebred cows with purebred calves at side. Also offered are 35 safe-in-calf 3/4-blood Simmentals, 40 open 3/4-bloods, and a 3/4-

blood cow with purebred heifer calf at side.

ASA sale ethics require a veterinarians' certificate of pregnancy for all females selling as "safe-in-calf." Another rule allows only two lots in the sale from any one consignor.

Fred Hartman, Wood River, Nebraska cattleman, was retained by Texas Simmental Association to inspect herds nominating cattle for the sale.

Sale cattle will arrive in Houston by February 18 and will be on display in the Astrohall. An independent sifting committee will examine all consignments after they arrive at Houston. A parade of sale cattle will be presented in the Astrohall's main judging arena at 10 a.m., Sunday, February 23.

Texas Simmental Association is hosting the annual national convention and national sale for American Simmental. Information is available from TSA at 101 North St. Mary's Street, San Antonio, Texas 78205.

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## from HISTORY'S SCRAPBOOK

**DATES AND EVENTS FROM YESTERYEARS**

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January 4, 1896—Utah is admitted as the Union's 45th state.

January 5, 1925—Mrs. Nellie Taylor Ross is sworn in as the nation's first woman governor. She was elected to fill the unexpired term of her deceased husband by the people of Wyoming.

January 6, 1759—George Washington marries Virginia widow Martha Danridge Custis.

January 7, 1953—President Truman announces the development of the hydrogen bomb by the United States.

January 8, 1815—General Andrew Jackson is victorious over the British at the Battle of New Orleans.

January 9, 1945—General MacArthur fulfills his promise as he and 68,000 American troops return to the Philippine Islands.

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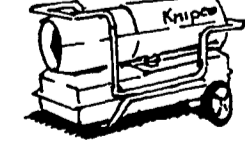
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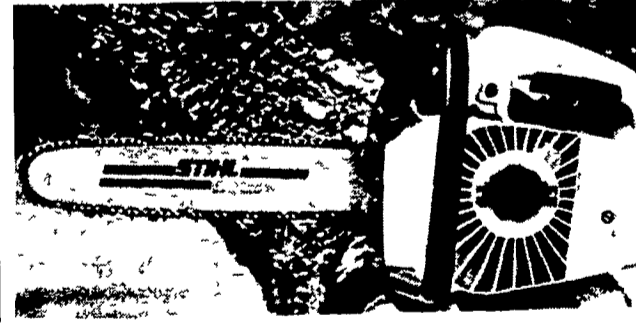
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