



Dead poultry composter project

Tom Swaffer Composter

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A grant of EPA funds was made available by the Missouri Department of Natural Resources in October 1990 to selected southwest Missouri poultry producers representing each of the five major poultry processing companies. The purpose of the grant is to demonstrate the feasibility of composting dead birds in an environmentally sound manner. The grant is administered by Southwest Missouri Resource Conservation and Development, Inc., with technical assistance provided by the Soil Conservation Service and educational activities provided by University of Missouri Cooperative Extension.

Tom Swaffer, of Stella, MO, representing Simmons Industries, agreed to participate in the demonstration project. Swaffer's concerns about future regulations pertaining to dead bird disposal, environmental considerations and economical management of dead birds were factors in his decision to participate in the project. This guidesheet describes the composting project relating to Swaffer's poultry operation.

Production facilities

The Swaffer broiler operation consists of four buildings in which 6 flocks per year are grown to a market weight of 4 pounds. Table 1 outlines the characteristics of each building.

An aerial view of the building layout with composter for the Swaffer production facilities is shown below. Average mortality rate in these facilities is about 5 percent.

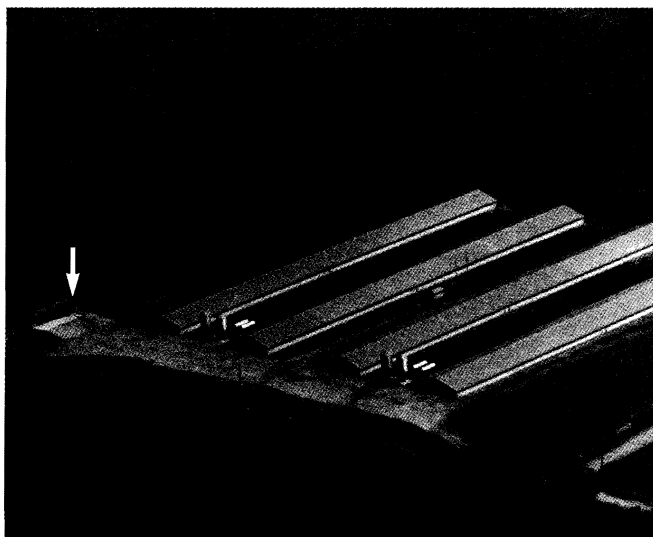
Table 1.
Building Type and Bird Capacity in the Swaffer Operation

Building type	Number of birds	Weight in (lbs.)	Weight out (lbs.)	Time in bldgs (days)
growout	20,000	0	4	46

Composter

The composter serving this operation is a pole-type structure with monoslope, rafter-type roof construction and a short overhang to partially cover the work area. Primary composting bins are located along the front of the building, with secondary compost storage along the back. At one end of the building, an ingredient or litter storage area is enclosed with metal for rain protection. A concrete work area, partially covered by the roof overhang, is provided in front of the composter.

The four primary bins are 8 feet wide, 6 feet deep and 5 feet high, and are made with treated lumber. The secondary compost bin is 32 feet long, 8 feet wide and 5 feet high. Total composting volume is 960 cubic feet in the primary bins and 1,280 cubic feet in the secondary bin. The ingredient storage bin is 12 foot wide, 14 foot long and 5 feet high, and provides a volume of 840 cubic feet. Figures 1 and 2 show dimensional and structural characteristics of the Swaffer composter.



The Swaffer production facility and composter.

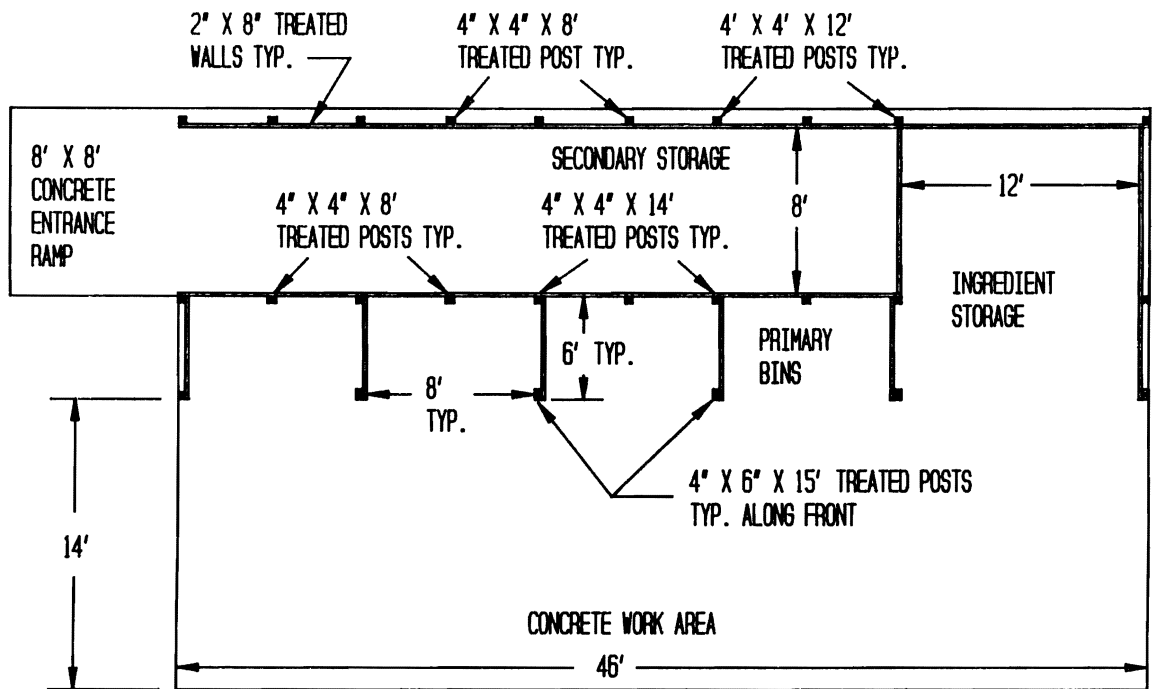


Figure 1. Plan view of the Swaffer composter

Operational characteristics

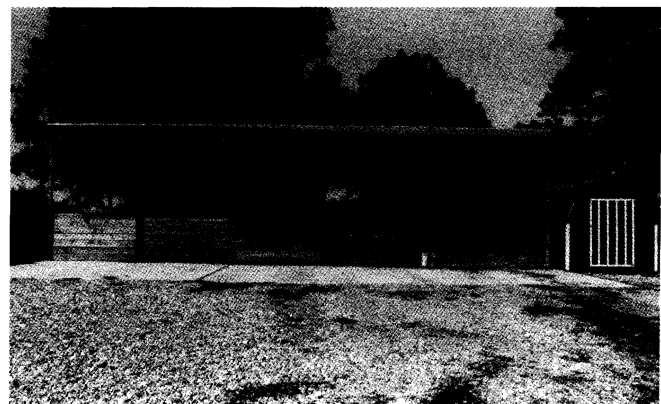
Swaffer estimates twenty minutes per day are spent layering dead birds and ingredients in the composter. One hour per day is required to pick up dead

birds in the four buildings. An additional hour per month is spent moving compost from primary to secondary bins and bringing litter to the composter.

Swaffer uses a 65 hp tractor with a front-end loader to handle litter, move compost and load



The Swaffer composter is a pole-type structure with monsope, rafter-type roof and a short overhang.



The ingredient/storage bin is located at one end and enclosed in metal for rain protection.

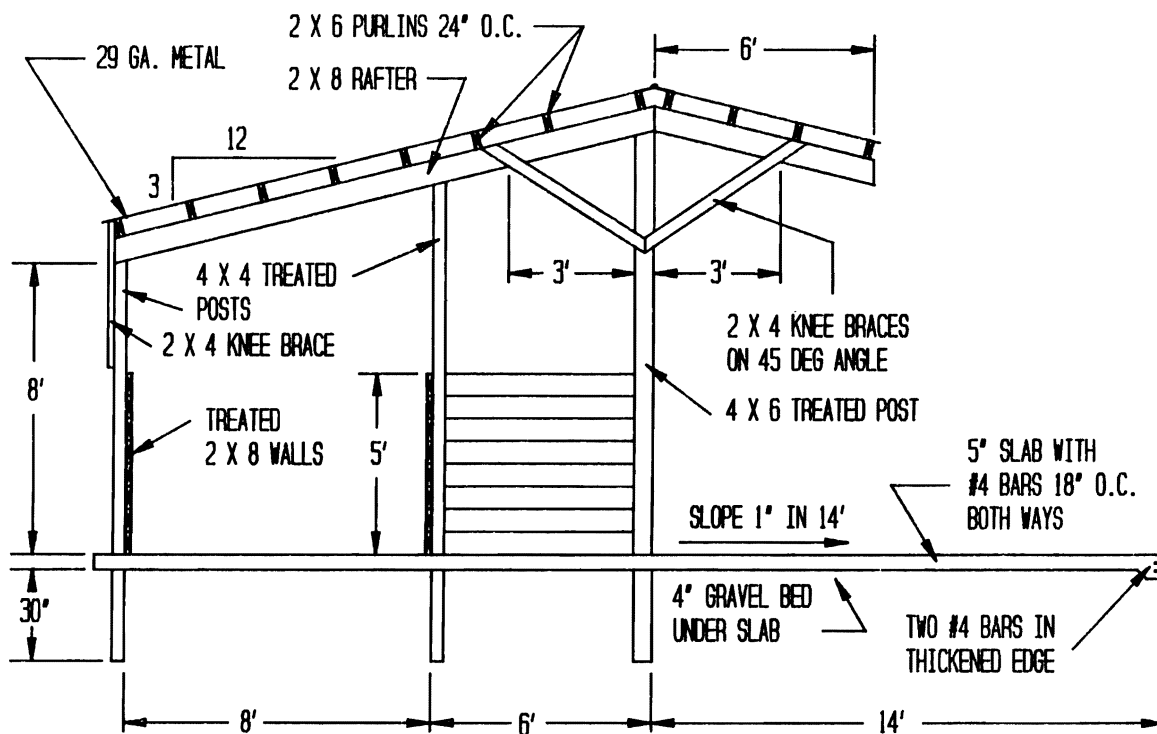


Figure 2. Cross section of the Swaffer composter

spreading equipment. A spreading truck is hired to spread the finished compost. Table 2 shows a laboratory analysis of the finished compost fertilizer value from the Swaffer composter.

Based on experience, Swaffer would prefer a composter with greater litter/ingredient storage area. Since broiler building cleanout is done once a year, a year's supply of stored litter would be ideal. Presently, storage capacity is a 3 - 4 month supply. Swaffer estimates 40 tons of finished compost are pro-

duced annually in his composter and 10 percent of the litter produced in the broiler houses will be used in the composter.

Cost

Composter costs depend upon many factors such as site, composter design, size, etc. Table 3 shows costs incurred for the Swaffer composter as constructed in November 1990.

Table 2.

**Analyses of litter and finished compost
in the Swaffer operation**

Fertilizer nutrient	Litter	Finished compost
Dry matter, %	79.2	71.7
Nitrogen, lb/ton	75.0	60.8
Crude protein, %	23.4	19.0
P ₂ O ₅ , lb/ton	80.4	58.1
K ₂ O, lb/ton	37.2	24.7

Table 3.

**Cost associated with the Swaffer composter
(November 1990)**

Item	Cost (\$)
materials	4,350
labor	2,180
total	6,530



This guide was published with funds provided to the Missouri Department of Natural Resources from the Environmental Protection Agency, Region VII. To learn more about water quality and other natural resources, contact the Missouri Department of Natural Resources, P. O. Box 176, Jefferson City, MO 65102. Toll free 1-800-334-6946.



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