



## Dead poultry composting project **Bill Wallace 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.

Bill Wallace, of Exeter, MO, representing Hudson Foods, agreed to participate in the demonstration project. Wallace's concerns about environmental considerations, future regulations pertaining to dead bird disposal and economical management of dead birds

were factors in his decision to participate in the project. This guidesheet describes the composting project relating to Wallace's poultry operation.

### Production facilities

The Wallace broiler operation consists of two buildings in which 5 flocks per year are grown to a market weight of 4.5 pounds. Table 1 outlines the characteristics of the buildings.

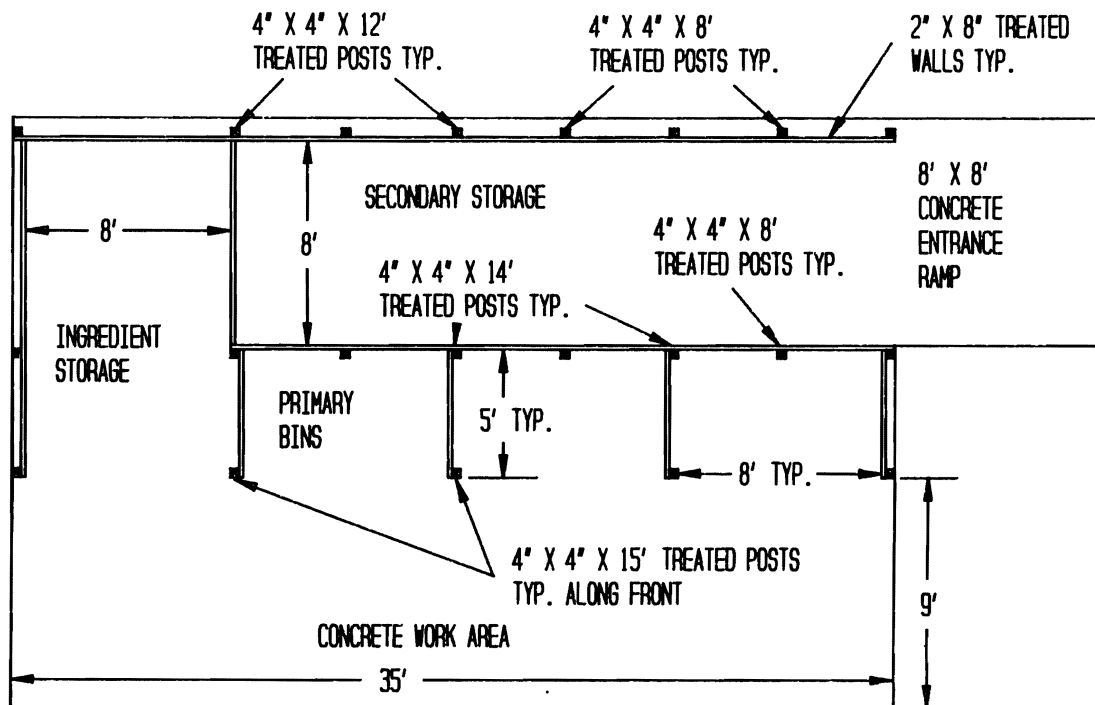
Table 1.

Building Type and Bird Capacity in the Wallace Operation

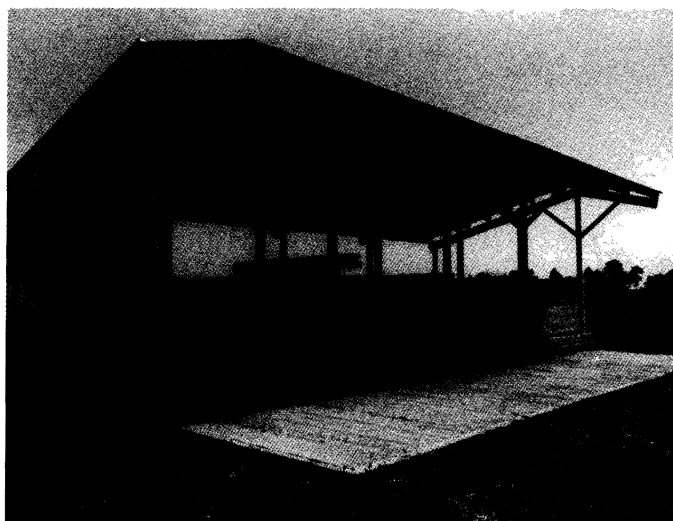
Building type	Number of birds	Weight in (lbs.)	Weight out (lbs.)	Time in bldgs (wks.)
growout	20,000	0	4.5	7



The Wallace broiler production facility with composter. Composters should be positioned close to the buildings for ease of accessibility



**Figure 1.** Plan view of the Wallace composter



**The Wallace composter is a pole-type structure with monoslope, rafter-type roof construction and a short overhang.**

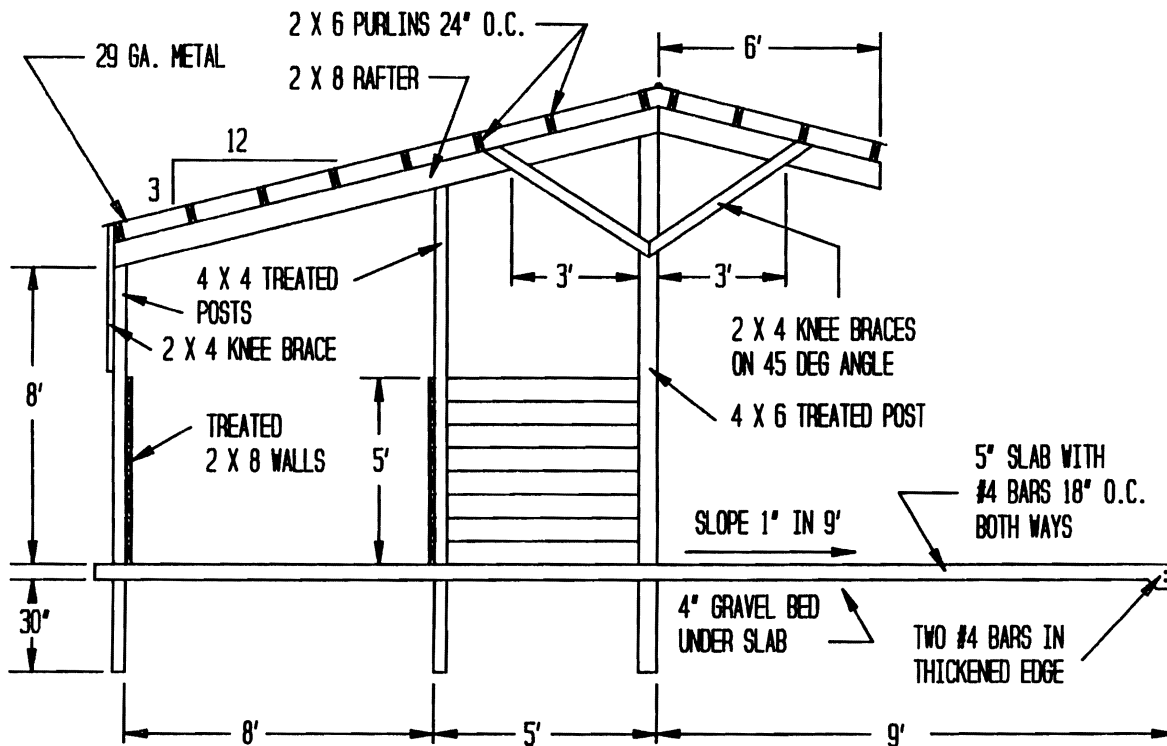
An aerial view of the building layout with composter for the Wallace production facilities is shown on the cover. Average mortality rate in these facilities is about 4 percent, with peak rates at 10 percent.

## 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 structure, with secondary compost storage along the back of the building.

An ingredient or litter storage area with sides enclosed with metal for rain protection is included in one end of the building as shown in Figure 1. A concrete work area, partially covered by a roof overhang, is provided in front of the composter.

The three primary compost bins are 8 feet wide, 5



**Figure 2.** Cross section of the Wallace composter

feet deep and 5 feet high, and are made with treated lumber. The secondary compost bin is 24 feet long, 8 feet wide and 5 feet high. Total composting volume is 600 cubic feet in the primary bins and 960 cubic feet in the secondary bin. The ingredient storage bin is 8 feet wide, 13 feet long and 5 feet high and provides a volume of 520 cubic feet. Figures 1 and 2 show dimensional and structural characteristics of the Wallace composter.

### Operational characteristics

Wallace estimates an average of 30 minutes per day is spent layering dead birds and ingredients in the composter. Wallace says he prefers the composter method of dead bird disposal over his former method of pit burial. Wallace estimates 20 tons of finished compost will be generated each year in his composter.

He uses a 25 hp tractor with a four foot bucket on

a front end loader to move and load compost. Finished compost is spread by a hired contractor. He noticed that compost containing excessive straw is difficult to handle with his loader. Table 2 shows a laboratory analysis of the finished compost fertilizer value from the Wallace composter.

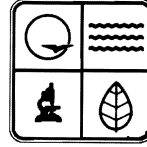
**Table 2.**

#### Analyses of litter and finished compost in the Wallace operation

Fertilizer nutrient	Litter	Finished compost
Dry matter, %	81.5	65.4
Nitrogen, lb/ton	72.0	62.8
Crude protein, %	22.5	19.6
P <sub>2</sub> O <sub>5</sub> , lbs/ton	35.0	49.5
K <sub>2</sub> O, lbs/ton	44.9	25.0

## Cost

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



This guide 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 1-800-334-7046.

**Table 3.**  
**Cost associated with the Wallace composter**  
**(November 1990)**

Item	Cost (\$)
materials	3,120
labor	1,460
total	4,580