

*Facilities for Handling*

# Eggs

**FOR COMMERCIAL PRODUCERS  
OR SMALL DEALERS**

**BY E. M. FUNK AND Q. B. KINDER**

**B-766      MARCH, 1961  
UNIVERSITY OF MISSOURI  
AGRICULTURAL EXPERIMENT STATION**

# *Facilities for Handling Eggs*

for Commercial Producers or Small Dealers

E. M. Funk and Q. B. Kinder

Most commercial producers of eggs have found refrigeration necessary for handling and holding eggs on the farm. The University of Missouri Poultry De-

partment recently reorganized their egg handling and sales, combining all these operations in one building (Fig. 1). This arrangement has been found to be

## *The University of Missouri Egg Building.*

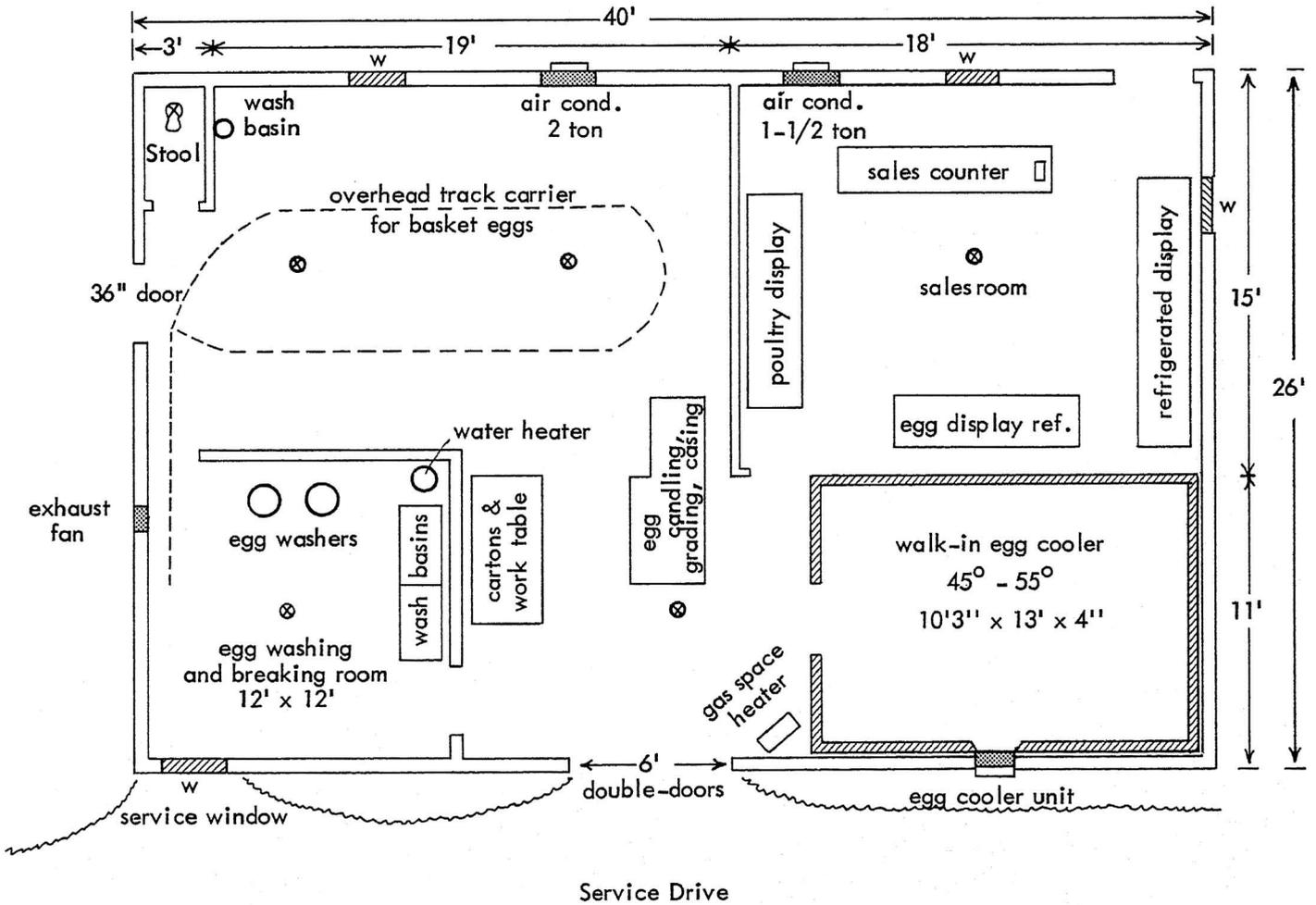


**Fig. 1—Egg building in use at the University of Missouri for handling eggs from the University poultry farm to the consumer. Entire building cooled by refrigeration.**

very useful for handling eggs from a flock of 5,000 to 6,000 hens, kept on the University Poultry Farm. The floor plan of this building is shown in Fig. 2.

### EGG PROCESSING AND SALES BUILDING

University of Missouri - Poultry Dept.



The producer with 5,000 or more layers will find such a building convenient for handling eggs, especially if he sells eggs at retail. If eggs are not sold at retail, the sales room could be omitted or this space could be used for storage of supplies. Dealers handling 200-400 cases per week may also find this arrangement useful. Existing buildings may be remodeled to include the essential features of the building and equipment shown here.

**Refrigeration.** Eggs are perishable food that must be refrigerated to retain quality. The entire building, except the wash room, is air conditioned. Thus, the eggs are handled under proper temperatures as soon as they come from the farm. The egg cooler (kept at 50°F. to 55°F.) is used to hold the temporary backlog of eggs. Figure 3 shows the inside of a cooler made from a Smith incubator that had been discarded. Its excellent insulation, however, makes a good cooler. This cooler is 12' x 9' x 7' (inside dimensions) and holds 200 cases of eggs. It has a hardwood floor and is ceiled inside with asbestos board.

### *Gathering and handling shell eggs.*

Eggs should be gathered three or more times daily to keep them clean and fresh. Some of the better methods for gathering eggs are to use the egg trays or filler flats as shown in Fig. 4. Wire baskets are generally used for gathering eggs. The round baskets have a tendency to break eggs if the baskets are more than half full with eggs. Egg trays minimize breakage and also soilage of clean eggs by the broken eggs. There are plastic egg trays on the market that can carry the eggs through the washing process. Eggs should be cased or cartoned small end down to avoid lowering the grade by breaking down the air cell. Figure 5 shows a track system for handling eggs in wire baskets.

**Cleaning soiled eggs.** Soiled or dirty eggs should not reach the consumer and thereby decrease the demand for quality eggs. Eggs only slightly soiled may be dry-cleaned by scraping and rubbing with abrasive material. There are a number of hand buffers on the market that use strips of sandpaper as buffing material. The sandpaper can be replaced



**Fig. 3—Cool room (45° F. to 50° F.) made from a used Smith incubator. Capacity is 200 thirty-dozen cases. Note dolly used for stacking and moving eggs.**



**Fig. 4—Egg trays or filler-flats reduce breakage in gathering and handling eggs.**



**Fig. 5—Egg room using a track system of moving baskets of eggs from the wash room to the grader. Note 30-lb. egg cans in background used for freezing liquid egg produced by breaking cracked eggs and other undergrades.**

when worn out. A cloth buffing wheel made especially for buffing eggs can also be purchased for use on an electric motor. There are dry-cleaning machines on the market.

Eggs that are very dirty can be cleaned with less labor by washing. Marketing agencies are gen-

erally opposed to washing because of their experience with improperly washed eggs. However, research at the University of Missouri Poultry Department show that eggs properly washed will keep well through market channels.

Follow these rules carefully:

1. Use warm water (between 110° to 125°F.). Use a thermometer. Check temperature to see that it is being maintained. Some egg washers have built-in heating unit with thermostat.
2. Use a detergent made especially for washing eggs. Recommended dosage is generally 1 to 2 table-spoons per gallon of water. (See Missouri Deter-gent below).
3. Change water frequently. A good rule is to avoid washing more than 5 dozen eggs in each gallon of solution.
4. Wash eggs soon after gathering. They will be easier to clean and you will have less trouble with spoilage.
5. Limit washing time to 5 to 7 minutes.
6. Rinse eggs in warm water after removing from the washer. It is best to spray water over the eggs. A large can or tub for dipping eggs into warm water can be used. Eggs should be thoroughly dry before casing.

### *Missouri detergent for egg washing.*

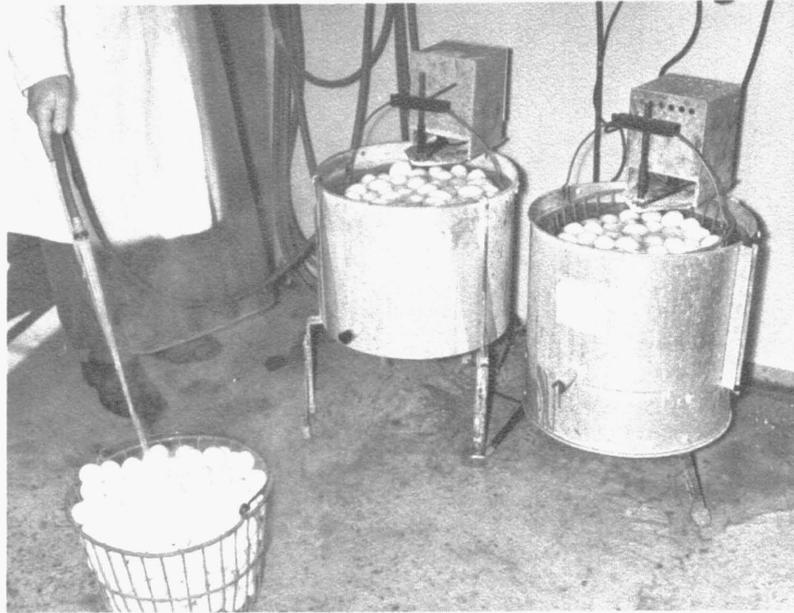
The formula for this detergent was developed at the University of Missouri. It does a good job of cleaning eggs and costs only 20 to 30 cents per pound. Ingredients may be ordered from any chemi-

cal supply house in your area. The formula follows:

Tetra Sodium Pyro-phosphate	40%
Sodium Poly-phosphate	10%
Sodium Meta-silicate	45%
Sodium Perborate	5%

Many producers find it more convenient to wash all eggs in the manner shown in Fig. 6. This washer

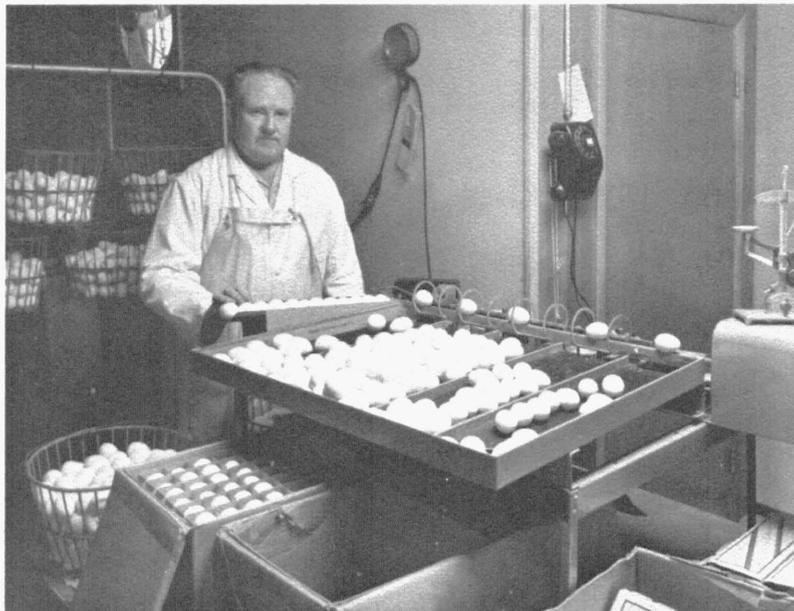
breaks few eggs and reduces to a minimum the labor in handling the eggs.



**Fig. 6—Cleaning eggs by washing them in baskets used for gathering and holding eggs until graded.**

*Grading and packing eggs.* A combined candling and sizing (grading by weight) machine will reduce labor and improve accuracy in grading eggs. Where strictly fresh eggs are graded flash can-

dling over a machine (Fig. 7) will detect most of the meat and blood spots. This machine makes five weight classes; extra large, large, medium, small, and peewee.



**Fig. 7—Candling and grading eggs in the University egg building. Note 5 sizes of eggs being sorted on the grader.**

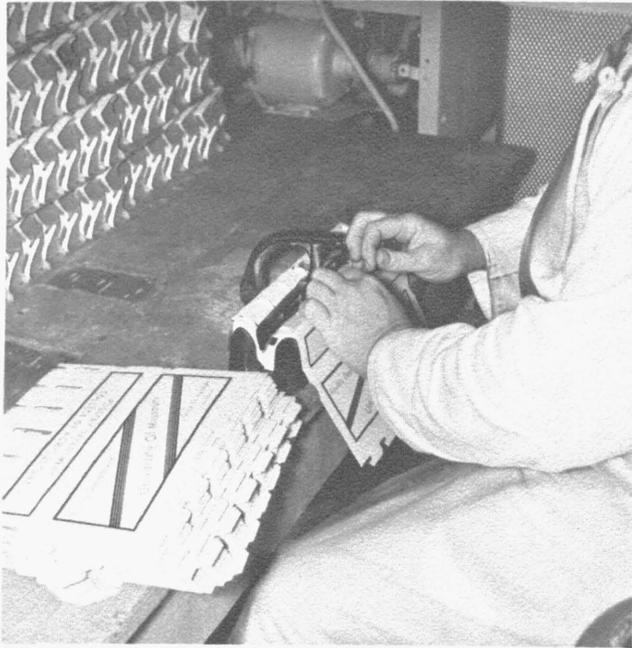


Fig. 9—Machine for making cartons, 80 per minute.

**Containers for eggs.** The 30 dozen or 15 dozen fiberboard case is most generally used for handling in bulk. Most eggs now are sold in cartons. These cartons cost between two and three cents knocked down. They may be set up with a hand cartoning tool, which requires considerable labor (Fig. 8), or they may be set up with a machine as shown in Fig. 9. Such a machine will make about 80 cartons per minute, thereby saving much labor. It is not justified on a small operation of less than 2,000 hens.

**Sales room.** Where there is an opportunity to retail a number of eggs at the farm or at a store, an egg room with display cases (Fig. 10) is desirable. Each producer will have to decide whether his retail sales at the farm justify such a sales room.

The poultry industry needs to promote the use of refrigerated display cases in retail stores for the exclusive use of eggs. A small refrigerated display

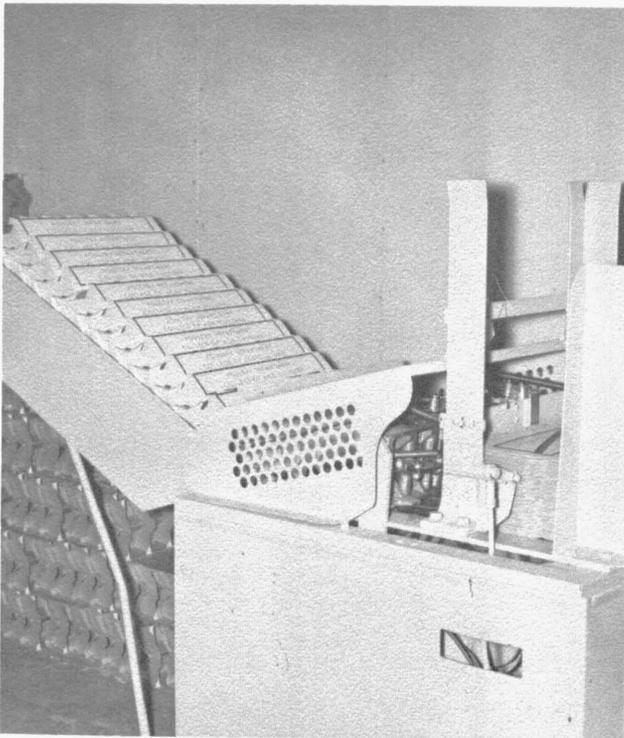


Fig. 8—Using hand tool for making dozen-egg cartons.



Fig. 10—Interior of the egg sales room at the University of Missouri. Note two types of egg display cabinets.

egg case (Fig. 11) could be used in smaller food stores.

This bulletin was prepared for commercial egg producers or dealers with a relatively small volume of business.

*Producers selling eggs at retail.* Producers located on highways or near cities may find it profitable to sell eggs at retail both at their farm or by door to door delivery. They may also find an outlet for their eggs by grading and cartoning eggs

for other distributors, such as grocery stores, milk routes, etc.

When he sells eggs by retail, the producer should receive prices comparable to those received by other retailers. When he delivers eggs on a route, he can sell above the store prices because he usually has a higher quality product and he is delivering the eggs to the consumer. Some producers arrive at a year-round price. Consumers are willing to pay for quality eggs and service.

Anyone interested in more information on the University Egg Building is invited to inspect the building or write for any information desired.



**Fig. 11—University staff member making purchase of strictly fresh eggs at the University sales room.**