

**COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OKLAHOMA**

ERNEST E. SCHOLL, Director

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**HOME DRYING
OF
FRUITS AND VEGETABLES**

MARTHA M. McPHETERS

Extension Specialist in Foods and Nutrition

HOME DRYING OF FRUITS AND VEGETABLES

DRYING is one of the two methods used for preserving perishable foods. Canning is the other method and is more generally used in this section of the country. This year many families will be interested in the preservation of food by drying, particularly those families who do not have and will not be able to secure sufficient jars for taking care of their surplus garden and orchard products.

The drying of certain fruits and vegetables is practical at any time.

METHODS AND EQUIPMENT FOR DRYING

Sun drying is the least expensive method, and is quite satisfactory in most instances if climatic conditions are satisfactory. Bright sunshine and high temperature for a continuous period of time are necessary for success. A roof sloping to the south offers a good place for sun drying. Sun drying is a slow process which leaves the drying material exposed to the visits of insects which deposit their eggs. Insects may be excluded by covering the foods with tightly stretched mosquito netting, or better still, with pieces of glass. The glass will exclude the dust as well as insects.

A suggestive plan for the construction of a homemade tray for the sun drying of fruit is shown in Figure 1. This type of tray can be placed on a south sloping roof or in any other convenient place away from dust and small ants. When the tray is used any other place than on the sloping roof, it is necessary to have one end raised approximately one foot in order to get the best advantage of the sun rays. The tray is 3 feet long and 2 feet wide, and is made of lumber 2 inches wide. After placing the screen

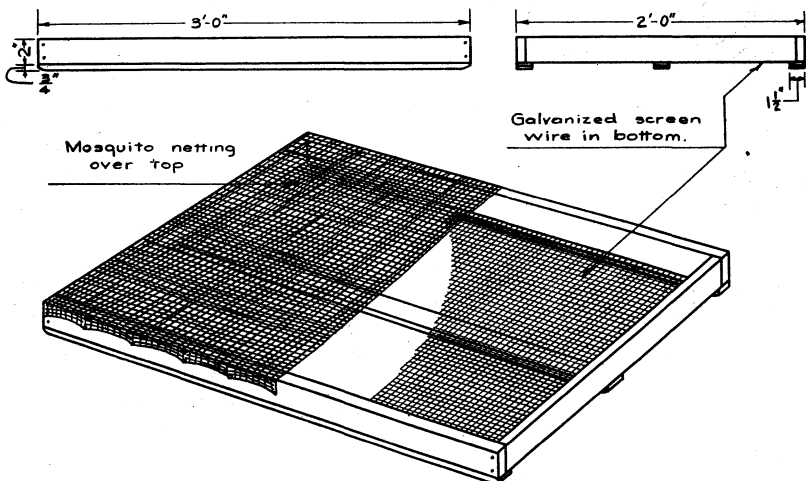


Figure 1.—Homemade Tray for Sun Drying of Fruit

wire on the bottom of the tray, three 1½-inch by ⅜-inch strips are nailed lengthwise across the bottom. The strips strengthen the tray and at the same time hold the tray off the roof and allow a better circulation of air. The tightly stretched mosquito netting excludes flies and other insects.

By using old box material or other waste lumber about the place, these trays can be made for the cost of the screen, nails, and tacks; which would be around 20 cents for each tray.

Drying by the use of artificial heat may be accomplished by the use of a cook stove drier. This method has the disadvantage of requiring close supervision in order to prevent overheating, but if the work is properly done the products will retain their natural appearance and flavor to a greater degree than by the sun drying. This is due to the rapid drying. There are two types of cook stove driers. Both are described in this circular.

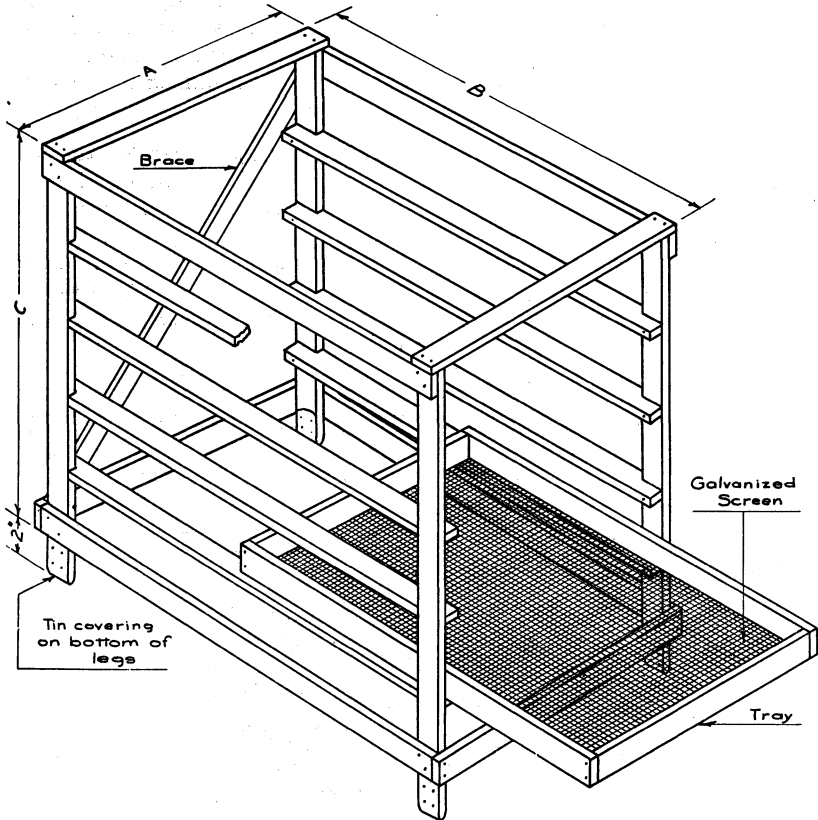


Figure 2.—Homemade Drier Constructed of 1½-inch Lath and Galvanized Screen

Properly constructed, homemade driers are quite as efficient as the similar driers sold on the market. The cookstove drier shown in Figure 2 is very inexpensive, being constructed of 1½-inch lath and galvanized screen. The all-over dimensions of the drier will be determined by the size of the stove and the number of trays to be used. For the ordinary drier the width (A) might be 14 inches, length (B) 24 inches, and height (C) with four trays 20 inches.

It is an excellent plan to make the trays about 3 inches less in length than the length of the drier, and to push the lower tray to the back as far as it will go, thus leaving a space in front. Then place the second in the front, leaving a space at the back. The third tray is pushed back even with the first, and so on as the drier is filled. This alternate arrangement permits movement of the air over the surface of the trays as well as through them, and adds materially in keeping up the circulation.

Heavy canvas material is used around the sides of the drier. It should be tacked securely, allowing a two-inch clearance around the bottom for the entrance of air. The canvas in front should be tacked at the top and hooked down the sides so that it may be opened for placing and removing trays. The brace in the back of the drier gives rigidity to the construction. Tin coverings are placed over the bottom of the legs to keep them from burning on the stove. The top of the drier is left open for the exit of moist air.

A modification of the above plan of stove drier is sometimes provided by suspending the trays above the stove. This is done by attaching the

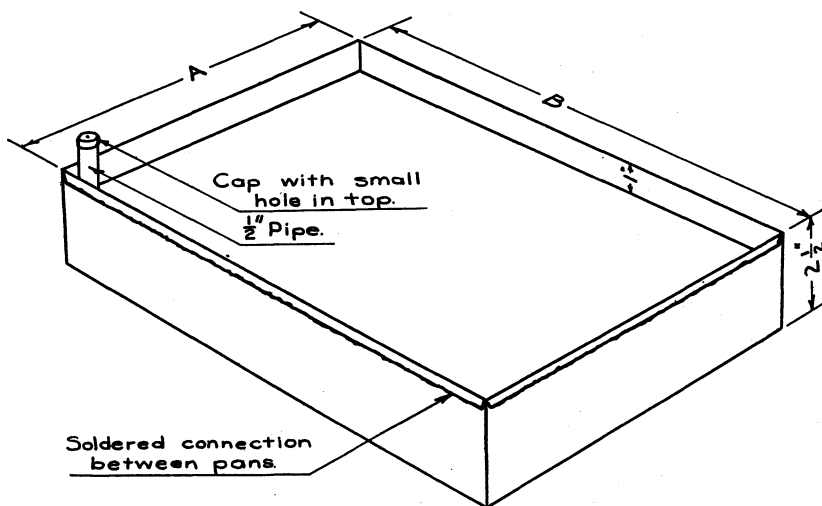


Figure 3.—Fruit and Vegetable Drier Made From Galvanized Boiler Pan

corners of the trays to four wires hung from the ceiling. A more rigid structure could be made by using lath instead of wire. Canvas is placed around the trays as described above.

Another common method of drying fruits and vegetables is found in the use of the galvanized boiler pan, which in reality is two pans soldered together. The material to be dried is placed in the upper pan and water is placed in the lower pan. Figure 3 shows the method of constructing the drier. The width (A) and length (B) will be determined by the size of the stove. Twelve by twenty-four inches is perhaps an average size. The top pan should be 1 inch deep and bottom pan 2½ inches deep. The top pan is made slightly smaller than the bottom pan, so that it slips inside with a close fit. A width of about ⅜-inch is allowed around the edge of the top pan which is turned out and hammered closely over the edges of the bottom pan. Solder is then used to make a watertight connection.

Water is poured into the lower pan through the ½-inch pipe connection which is made at one corner. A cap with a small nail hole in the top furnishes escape for steam. Fill pan about half to two-thirds with water. Do not allow it to boil dry.

PREPARING AND DRYING FRUITS

Apples, pears, peaches and apricots are the best adapted to drying. However, other fruits such as berries, cherries and plums may be dried.

The material to be dried is placed on the top surface of the pan. Turn occasionally to insure uniform drying.

The fruit intended for drying should be reasonably mature, but not soft. It should be free from bruised spots. Fruits for drying should not be blanched with hot water or steam. This would cause too great a loss of sugars.

Discoloration may be prevented by sulphuring the fruit. This should be done as soon as the fruit is cut. Sulphur fumes do not bleach the fruit but merely prevent darkening after the treatment. When properly done there is neither gain or loss in palatability or food value and it is not believed to be injurious to those consuming it.

An ordinary packing box or wooden frame covered with canvas sufficiently large to enclose a stack of trays may be used for a sulphuring box. Place trays filled with the fruit (1 to 1½ inches deep) on blocks of wood large enough to keep it several inches from the ground. Place sulphur in an old pan. Place under the trays. Trays may be stacked. Ignite sulphur and cover the box. Allow the fruit to be subjected to the fumes for 20 or 30 minutes. Then place in drier for drying.

If you do not care to sulphur apples, they may be immersed in water as soon as prepared. If the fruit must stand in water for some time before the drying is started, add three to five teaspoons of salt to each gallon of water.

Apples are peeled and may be sliced or quartered for drying. **Pears** are usually halved or quartered and are not peeled. **Peaches** and **apricots** are halved.

Different varieties of fruits give various results in finished products. Start drying as soon after cutting as possible.

When using artificial heat or cook stove driers the drying is begun at 130° F., and the temperature gradually increased to 160° F. or 175° F. If you do not have a thermometer, start the drying when the air circulating through the drier is just warm to the hand and increase gradually until it is quite warm to the hand. Try to hold it at this temperature until drying is done. Turn the drying material occasionally to hasten the process.

PREPARING AND DRYING VEGETABLES

Drying is satisfactory for a limited number of vegetables only, although most vegetables may be dried.

Lima Beans and Field Peas

Lima beans and field peas in most instances should be allowed to ripen and dry on the vines. However, lima beans and field peas may be artificially dried if gathered when full grown, but before pods begin to dry.

Shell them and dip in boiling water for five minutes, stirring occasionally. Drain well and spread out to dry, not more than one inch thick. Dry as suggested above for fruit, stirring frequently during the first hours of drying.

Beets and Carrots

Wash, peel or scrape. Slice into $\frac{1}{8}$ - or $\frac{1}{2}$ -inch slices. Dip into boiling water as rapidly as sliced for three or four minutes. A wire basket may be used for this purpose. Drain well and spread out to dry.

String Beans and Garden Peas

Rapidly growing or immature vegetables, such as string beans, green peas, cauliflower, okra, spinach, and a few other vegetables give satisfactory results only when used shortly after drying. If stored for several months, they gradually lose flavor, palatability and are some times even disagreeable as food.

Prepare these vegetables as for canning. Dip string beans into boiling water for five minutes and garden peas, cauliflower, okra and spinach for one to three minutes. Drain and spread into trays to dry.

Corn

Use freshly gathered corn in the milk stage for drying. Prepare as for canning. Dip ears into boiling water for five to ten minutes, depending on age of corn. Young corn requires a longer blanching period. Drain, cool and cut from the cob with a sharp knife. Spread to dry not deeper than one inch thick. Stir frequently.

TREATMENT AFTER DRYING

After products seem dry and are removed from the trays, it is possible that they are not uniformly dry throughout. They should be piled loosely upon a clean surface and allowed to dry further for 10 to 15 days before storing. This process is called "curing." This will prevent molding and deterioration after being stored. During this time they may be covered with cheese cloth to protect against bugs.

STORAGE OF DRIED PRODUCTS

There are a variety of containers in which the products may be stored. Some of those that are usually available are strong paper bags, syrup pails, lard cans, heavy pasteboard boxes, and flour sacks dipped into melted paraffin a number of times. The containers may be covered with reasonably close fitting slip covers made of about two thicknesses of muslin.

Beans and peas which have been dried or have been allowed to dry on the vine should be heated in the drier or oven before being stored. Spread to the depth of one-half inch to three-fourths inch in trays and place in drier or oven for 15 to 30 minutes at 150° F. to 165° F. This treatment will destroy insect eggs and bean weevils, thus reducing the possibilities of loss in storage, but it also destroys the vitality of the material treated, which renders it useless for seed purposes.

If the beans are stored in lard or molasses pails, again heat them for a few minutes and close the pail tightly. If stored, the beans must be thoroughly dry before being placed in the tightly closed pails.

All dried products should be kept in rooms that are airy and dry. Dryness is a factor of much importance.

APPROXIMATE YIELDS OF DRY PRODUCTS PER 100 POUNDS OF FRESH MATERIAL

	Pounds
Apples, late autumn and winter varieties	12 to 15
Apples, summer varieties	10 to 12
Apricots	16 to 18
Corn, sweet	26 to 33
Peaches	13 to 16
Pears	18 to 22
Peas, garden (mature)	22 to 25

NOTE: The drawings and explanations of types of driers were prepared by Mr. C. V. Phagan, formerly Assistant Agricultural Engineer of the Extension Division of the Oklahoma A. and M. College.