

FUMIGATING
STORED GRAIN
on the FARM

C. B. DIBBLE

MICHIGAN STATE COLLEGE
EXTENSION DIVISION
EAST LANSING

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Success in the fumigation of stored grain depends principally upon three factors: The bin must be tight, the temperature suitable, and a sufficient quantity of satisfactory fumigant must be used.

TIGHT BIN REQUIRED

Fumigants are effective only in tight containers. Few grain bins on Michigan farms are tight enough on all six sides to hold fumigating gases that flow in a manner similar to that of water.

Small quantities of seed or grain may be treated in barrels or oil drums with three layer, Blanket-Paper and Blanket Covers. Larger quantities usually are handled more easily in **lined grain bins**: The lining may be metal, plywood, or merely paper pasted in with the edges overlapped to make a tight seal. Sized or hard finished paper, such as kraft wrapping paper or red rosin building paper, insures a minimum of gas loss through the paper.

Bins may be lined before harvest and the grain stored in lined bins may be treated, if necessary, with very little trouble. When this has been neglected the removal and replacement of the grain makes extra work.

HOW TO LINE A GRAIN BIN

Cover the entire inside surface of the bin, including sidewalls, ends, ceiling, and floor. If the floor is absolutely tight it need not be covered.

Papering either around or up and down will be satisfactory, but if the paper is started around the bin at the floor it needs to be pasted only along the top edge and folded at the bottom to lap onto the floor about 4 inches. The second and successive strips of paper are hung above the first, with the top edge pasted to hold the paper in place to make a 4-inch lap onto the bottom or first strip.

This procedure may be continued to the ceiling and the ceiling treated in a similar manner if the bin is to be filled completely. The front opening in open-front bins may be papered as the bin boards are placed, and the grain will hold the paper in place. Be certain to lap all joints, also between strips and at corners if the paper is cut, at least 4 inches and do not permit the grain to get behind the paper. Decorators' masking tape will help to hold the paper in difficult places.

A simple but more expensive method of sealing bins is to cover very carefully all joints between the boards with the masking tape already mentioned. This may be found more convenient than papering on the front boards even when paper is used on the rest of the bin.

The cover for the bin often presents a difficult problem. When the bin is filled nearly to the top with grain, the ceiling, if there is one, may be sealed without adding wasteful space.

It is desirable to have the grain not more than 4 feet

deep if possible. This amount usually does not fill the bin and a cover should be built about one foot above the grain to reduce the space and save fumigating material. Such a cover may be readily built with poles or boards arranged to support a three-layer top, made of blankets or tarpaulins and paper. All joints must be well lapped and the outside edge should be tacked to the sides of the bin with lath strips. Tuck the cover into the corners and tack it if necessary.

TEMPERATURE

Use a thermometer. If the grain exceeds 65° F. in temperature it can be fumigated efficiently. If the temperature is below 60° F. do not attempt the job. The grain probably will not be damaged seriously as long as the temperature remains below 60° F.

If the temperature of the grain is cooler than 65° F., additional fumigant must be used.

WHAT TO USE

There are many fumigants but only a few are safe and satisfactory for general farm use in Michigan. These are the propylene dichloride and ethylene dichloride mixtures, which are sold under several trade names and should be used according to the manufacturers' directions. The recommendation will usually be about 2 pounds for each 100 cubic feet of space between the floor and the cover above the grain at 65° F.

In using fumigants, **measure** the bin and **weigh** out the necessary material on any scales you have handy. To apply, lift one edge of the cover and **throw** the liquid back over the grain, distributing it well over the surface.

When the grain is **more than 4 feet deep**, about one-third of the material should be placed near the bottom of the bin through pipes or hose. These can be inserted as the bin is filled or later, if plugged with a rod to prevent clogging with grain. The rod can then be removed after the pipe is placed so the fumigating liquid can be poured in.

After treating, tack down the opening mentioned and close the granary for 48 hours. A shorter period, 24 hours, may be satisfactory when using barrels, but for large bins the longer period is more satisfactory.

When the time has elapsed, open the granary, remove the covers and permit the grain to air.

REMEMBER:

Successful fumigation is assured **only with**:

1. A tight bin.
2. A temperature above 65° F.
3. Sufficient, good material.

More than one treatment may be necessary if grain is held long in warm weather, has a high moisture content (exceeding 14%), or is exposed to reinfestation from untreated grain or other sources.

