SPROUT INHIBITION OF BULK STORED POTATOES

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Fluctuations of the potato market and variability of marketing conditions make it desirable to hold some lots of potatoes beyond the normal storage period. Sprouting then becomes a problem. Advance planning permit applications of maleic hydrazide (2) during the growing season, but this destroys the seed value of “B” size potatoes. Recommended dusts or dips (4, 5) before the tubers enter storage are quite satisfactory, but few growers desire to add an extra operation when machinery and labor are taxed to capacity. Such treatments depend upon vaporization of the applied material for absorption to inhibit sprouting (1, 3). A practical method of vaporizing the sprout inhibitor would simplify treatment and enhance the value of potatoes late in the storage period. The opportunity to attempt such a procedure on a commercial scale presented itself in April of 1957.

Figure 1—Plastic partition used to confine the vapor of methyl ester of naphthaleneacetic acid

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A potato grower had contracted to supply sound, sprout-free potatoes through the month of June and requested assistance in the application of a sprout inhibitor. The potatoes were stored in an insulated storage dependent upon cool outside air to maintain the desired temperatures. At this time of year outside air temperatures were not low enough to maintain storage temperatures that prohibit sprouting. The storage temperature had risen to 48°F and the potatoes had commenced to sprout.

The storage was 50' x 200' and contained no divisions. The air circulation system forced air through a walk-in tunnel the full length of one side of the building. Lateral outlets and ducts at floor level crossed the storage to distribute air through the potatoes.

Ten thousand bushels of Katahdin potatoes were stored in one end of the storage. Plastic sheets were used to partition the storage and the air tunnel so that the vaporized inhibitor would be concentrated in the air surrounding the potatoes as shown in figure 1. When the fans were turned on aerometers showed good movement of air throughout the potato pile. On May 8, three and one half gallons of 36.4 per cent methyl ester of naphthaleneacetic acid were sprayed into the lateral air ducts and the walk-in tunnel with the circulating fans in operation. The resistance to air movement through the potatoes tended to create a low pressure area above the potatoes so that the plastic partition was subjected to no outward pressure.

![Figure 2](image_url)

**Figure 2.** Sprout growth on potatoes, untreated and treated with the vapor of methyl ester of naphthaleneacetic acid.