

SURVEY OF POTATO STORAGE IN WASHINGTON STATE (1965)

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Potato storage must, by necessity, keep up with potato production. Potato acreage just about doubled in 1965 and potato storage has at least doubled.

The latest estimate of storage capacity in Washington is some 360,000 tons. It is mostly in the Columbia Basin, distributed as follows:

<u>Area</u>	<u>Tons</u>
Moses Lake	59,900
Warden	53,700
Quincy	81,500
Othello	89,500
Royal Slope	11,300
Franklin County	16,300
Other Areas	<u>47,800</u>
Total	360,000

A large part of this was built in 1965 and we expect a lot more will be built in 1966.

We checked a representative sample of those storages constructed in 1965. Of the 21 storages checked, ten or nearly half installed automatically controlled ventilation systems. Nine of the others had some kind of mechanical ventilation.

Nine of the 21 installed some type of equipment to add humidity to the ventilating air. Potatoes store best in 90% or higher relative humidity.

We paid particular attention to the insulation installed. The following table lists type of insulation, its thickness and calculated insulating value for the storages visited.

Insulation Installed in New Potato Storages
Columbia Basin 1965

	<u>Thickness</u>	<u>Approx. (R)</u>	<u>No.</u>
Mineral Wool, fiber glass, etc.	8"	31.3	1
" " "	6"	23.9	3
" " "	2"	9.1	1
Insulation board (wood fibre)	2"	5.6	1
Expanded polystyrene	4"	17.7	5
" " "	3"	13.7	2
" " "	2"	9.7	2
" " "	1-1/2"	7.7	1
Urethane	2"	16.0	2
Straw and Shavings	18"	36	<u>3</u>
Total			<u>21</u>

The most popular insulation is expanded polystyrene, being selected for 10 of the 21 storages. Urethane is installed in two of them and conventional bat, blanket or board insulation in the rest.

An insulation value of 20 or more is recommended for potato storage walls and roof. Note in the foregoing table only 7 of the 21 are 20 or above and three of these are the straw-roofed installations.

The principal disadvantage of the lower insulation values is that high relative humidities will produce condensation on interior surfaces during cold weather. In order to maintain drip-free roofs, it will be necessary to use lower relative humidity ventilating air. This has two disadvantages: first, it causes weight shrink, and second, it will permit more blackspot to form.

In order to get better information on how much shrink and blackspot lower humidities might cause, we have placed test samples in sixteen of these storages. Each sample is about 25 pounds of potatoes in a plastic mesh bag. Three of these bags are placed in each storage, one near the bottom, one near the center and one near the top. The mesh is open so that air can flow through uninhibited. Thus we have the same conditions of ventilation in the bag as in the pile of potatoes surrounding it.

The test bags were carefully weighed and placed in the storages last fall during filling. They will be weighed again when the storages are emptied. From these weights we can determine the shrink. By a visual inspection we will attempt to evaluate blackspot conditions.