

## A Simple Method for Temporary Cone Storage

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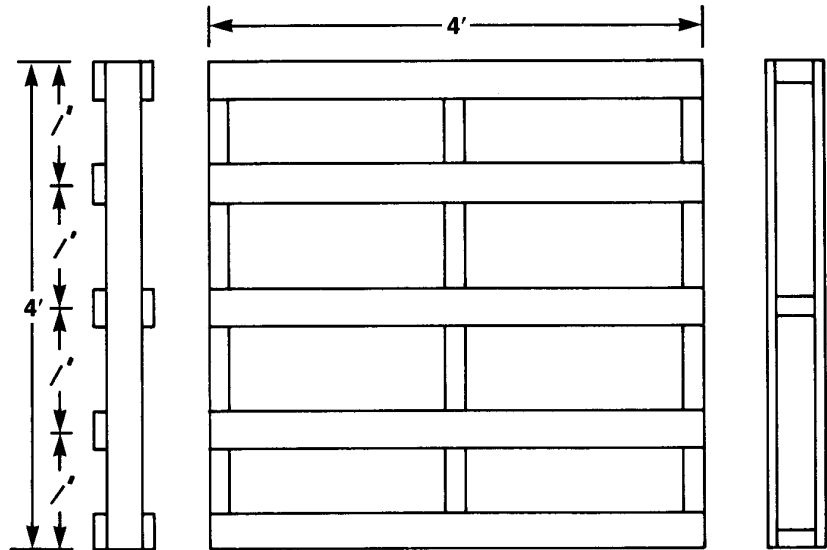
*A simple method for field storage of bagged cones using pallets and 2 by 4's is described.*

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A simple means of temporarily storing green cones that allows for adequate air circulation to prevent the build up of harmful temperatures or molds has been successfully used for the past 2 years. Cones of ponderosa pine, Douglas-fir, white fir, red fir, incense cedar, Jeffery pine, and sugar pine were stored on the racks with no adverse effects.

The storage racks are made up of pallets and 2 by 4's. The pallets were made from 2 by 4's and 1 by 4's and are easily adapted for other uses such as holding Leach single-cell container systems for growing seedlings.

The cone racks are made by standing the pallets on end with 2 by 4's placed between them to hold the sacks of cones. The pallets used here were 4 by 4 feet with five 1 by 4's on the side that would normally be up and three on the bottom (fig. 1). By extending the 2 by 4's used to hold the sacks through the pallet, five tiers of sacks on each half of the pallet could be made (fig. 2). Fifty 100-pound potato sacks, each containing a maximum of 1 bushel of cones and tied at the top to allow room for cone expansion, could be placed on 8-foot 2 by 4's between two pallets (fig. 3). With



**Figure 1.**—Side, front, and top view of pallet constructed with 2 by 4's and 1 by 4's.

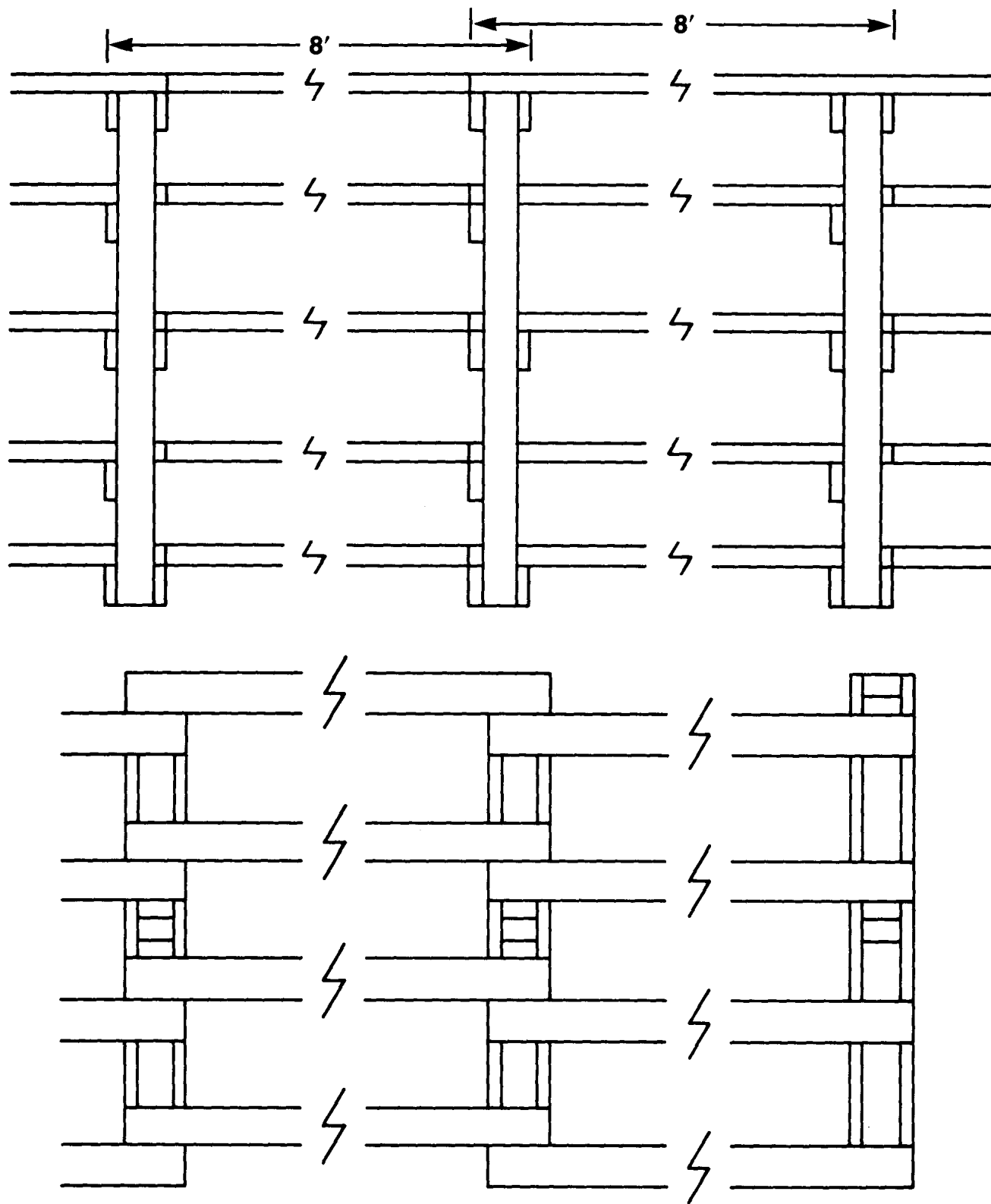
only 1 bushel of cones per sack, there is room for the cones to spread out when the sacks are laid flat on the racks, allowing for adequate air circulation between cones and sacks and good use of available space. Even the bottom tier of sacks has 4 inches of clearance under it for air circulation.

Reasonably good lumber should be used because the weight of the green cones is substantial. Eight-foot 2 by 4's were generally used between pallets, because 10-foot lengths resulted in considerably more sag in the middle than the "8-footers" did.

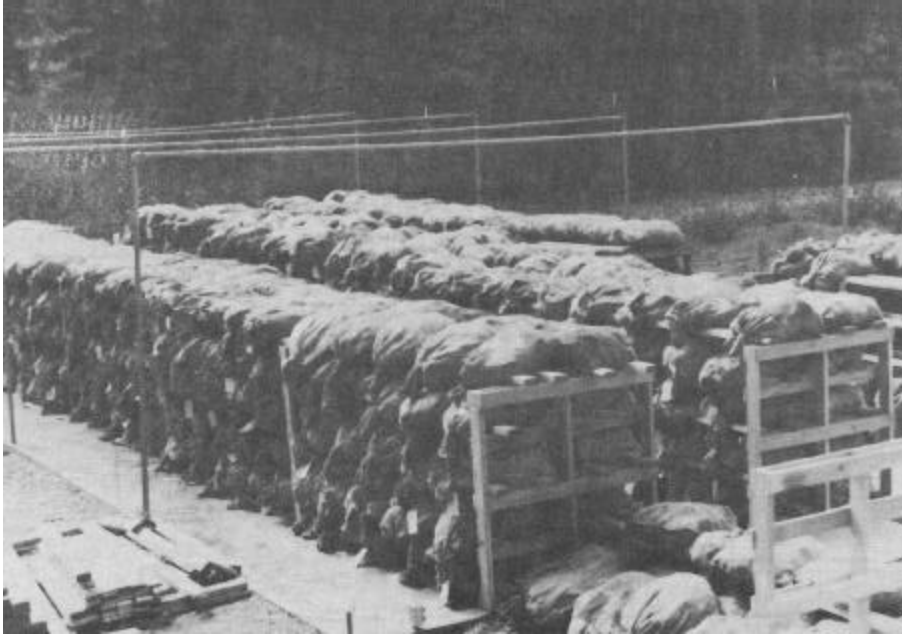
This system works well wherever there is reasonably flat ground to stand the pallets on, although some slope can be tolerated by tying a

pallet or two to something solid (e.g., a tree in the field or a post on a fence) to prevent side-shifting of racks of cones. One advantage of this system is that the number of racks can be extended indefinitely by simply adding a new pallet to the end of the string and adding the 2 by 4's necessary to make a new rack. Also, possibilities for arranging the racks are almost unlimited since the distance in any one direction can be as short as 8 feet.

Another advantage to this system is that you can easily add sacks of cones to the racks because the next level of 2 by 4's need not be added until the lower level is filled. Thus, you can always lay sacks down from the top and never have



**Figure 2.**—Side view (top illustration) and top view (bottom illustration) of pallet and 2-by-4 arrangement. Five sacks of cones can easily be placed between two pallets on each level on each side for a total of 50 sacks between two pallets.



**Figure 3.**—View of sacks of cones stored on pallet and 2-by-4 racks. Note that some racks are only partially filled.

to slide sacks in between rows of 2 by 4's. One person can easily build or tear down racks of cones if necessary.

The tagged ends of the sacks should be placed toward the outside for easy reading. Also, a small spot of spray paint applied to the end of the sacks, using a different color for each different lot of cones, makes locating a particular lot easy. This way, sacks of one lot can be easily removed even if various lots are mixed on the racks.

When finished, both the pallets and 2 by 4's can be stored in a relatively small area until needed again. Also, transportation to field locations is easy since a pickup truck can haul enough pallets and 2 by 4's to store 200 to 300 bushels of cones.