

Carrot Mulch Trials

INTRODUCTION:

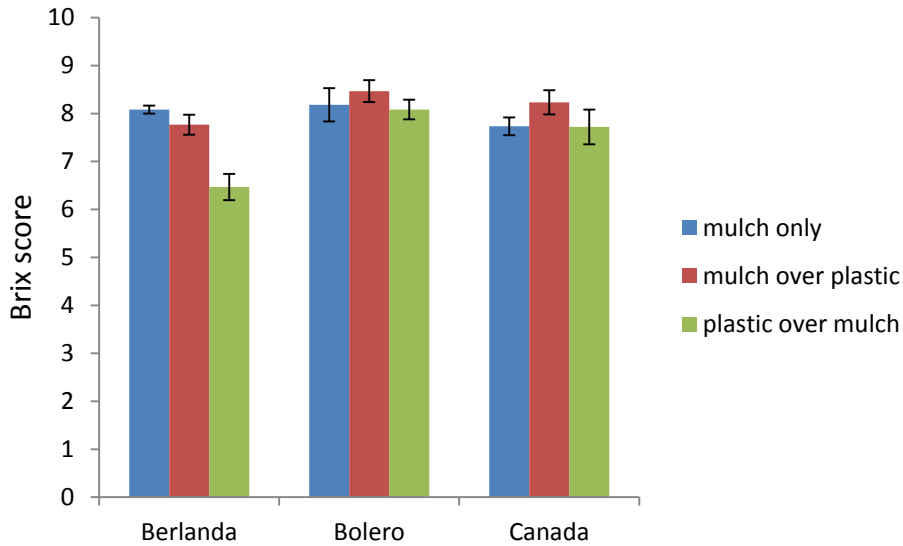
The need for information related to winter season harvest extension is growing as more farmers are looking to expand their winter harvest sales. One of the areas in need of more research is storage of winter vegetables. Instead of harvesting carrots from the field and transporting them to cold storage, an alternative option is to leave carrots in the ground where they grew. To make winter digging easier, rows can be covered with leaves or straw, plastic, or a combination of these materials. The plastic keeps the bottom layer of mulch dry to make it easier to dig the carrots when the ground is frozen. Growers have reported that they are able to keep carrots through the winter to early spring using this method. Varying types of mulch have been recommended for this use. We ran a pilot non-replicated study to look at the ability of different mulch options to produce quality carrots.

METHODS:

We experimented with three mulch treatments on 15' x 50' treatment plots 1) straw mulch only, 2) straw mulch with a 4 mil plastic overlay, and 3) 4 mil plastic with a straw mulch overlay and 4) no mulch,. We used one large round bale of hay per plot to produce a 6-12 inch layer of mulch. We planted three carrot varieties, Canada, Bolero, and Berlanda, on August 9, 2011. Mulch treatments were put down on 11/30/10. We harvested 16 carrots of each variety in each mulch treatment on April 11, 2011, evaluated damage from insect, disease, rodents and freezing, and processed subsamples for Brix ratings.

RESULTS:

Carrots without mulch were killed by freezing, but all mulch treatments protected carrots from freeze losses. By the time carrots were harvested, temperatures had warmed considerably and although carrots were still crisp and sweet, tops were beginning to regrow. Disease, including Sclerotinia white mold had developed on 2 to 6% of samples but injury from rodents and insects was low. Brix ratings over all mulch treatments averaged 7.4 in Berlanda, 7.9 in Canada and 8.2 in Bolero. Across all three varieties, average Brix scores were consistently lower when carrots were stored under the “plastic over mulch” treatment; however, scores were only significantly lower for the Berlanda variety (see graph below).



Discussion. This method for overwintering can be viable and produce marketable, sweet carrots if carrots are harvested in early spring before regrowth. Using mulch over plastic, or straw mulch only, appeared to produce similar results in terms of carrot sweetness. For a simple and cheap mulching system, carrots can simply be stored under straw mulch. Adding a layer of plastic before applying mulch adds some additional cost, but may save labor by keeping the ground drier and easier to dig during the winter. To ensure a marketable harvest, carrots must be dug in the spring before warm weather encourages them to begin growing again and diseases develop in the moist environment under the mulch. Further studies could evaluate the viability of harvesting during varying winter conditions, damage risks from rodents, insects or disease, and the timing of spring harvest. For growers who have storage facilities available, fall harvest and storage in a more controlled and protected environment may be less risky, but in-field overwintering could provide an alternative.

(Photos to be added)

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