

ONION (*Allium cepa* ‘Plethora’)
Center rot; *Pantoea ananatis*
Sour skin; *Burkholderia cepacia*

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Evaluation of digging methods on post-harvest incidence of center rot and sour skin in onion, Georgia 2020.

Four rows of ‘Plethora’ onions were transplanted into 6-ft beds (panels) on 8 Dec at the commercial onion grower farm located in Lyons, GA. The fertility program was consistent with the University of Georgia Extension Service recommendations. The experimental design consisted of a randomized complete block with four replications. Treated plots were 20-ft long and were separated on each side by non-treated border panels. Plots were separated by a 3 ft bare-ground buffer within the row. Thrips and disease management program was followed according to the UGA Cooperative Extension recommendation. Natural infection was relied upon. Two methods of digging were evaluated; chain digger (TopAir, Inc., Parma, ID) and a straight blade undercutter (Top Air Inc., Parma, ID). After three days of field curing, onion bulbs were manually clipped leaving 5-6 inches from the neck region. Roots were also clipped but care was taken not to clip too close to the basal plate. Onion bulbs from replicated plots (four replicates) were bagged and stored at 4°C for one month. After period of storage, onion bulbs were individually cut using a sterile knife for the center rot and sour skin incidence. Data for mean center rot and sour skin incidences were analyzed using the Fisher’s protected LSD test at $P \leq 0.05$ (SAS version 9.4, SAS Institute, Cary, NC). Weather during the experiment was moderately wet with 8.5 in. of accumulation occurring between 15 Mar and 30 Apr. The average high and low temperatures for the month of Dec (2019) were 54° and 38° F, respectively and for the month of Apr (2020) were 75° and 53° F, respectively.

Center rot and sour skin were evaluated in onion bulbs after a month of storage under conditions mentioned above. The method of digging had a significant effect on center rot and sour skin bulb incidences in storage. Significantly higher incidences of center rot sour skin were observed with bed-ridge undercutter compared with the chain digger. Bulb rot with post-harvest fungi (*Botrytis* sp. and *Aspergillus* sp.) were not observed.

Methods of onion digging	Center rot bulb incidence (%) ^z	Sour skin bulb incidence (%) ^y
Chain digger	6.2 b	3.5 B ^x
Straight-blade undercutter	12.5 a	10.2 A
<i>P-value</i>	0.016	<0.001

^zMean center rot bulb incidence was calculated as number of bulbs with center rot /total number of bulbs evaluated × 100.

^yMean sour skin bulb incidence was calculated as number of bulbs with sour skin/total number of bulbs evaluated × 100.

^xMeans followed by the same letter(s) within each column are not significantly different according to Fisher’s protected LSD test at $P \leq 0.05$.