

ONION (*Allium cepa* ‘Vidora’)
Internal bulb rot; *Pantoea* spp.
External bulb rot: *Burkholderia* spp.,
Pectobacterium spp.

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Evaluation of harvesting methods on post-harvest incidence of external and internal bacterial bulb rot in onion, Georgia 2022.

Four rows of ‘Vidora’ onions were transplanted into 6-ft beds (panels) on 5 Dec at the commercial onion grower farm located in Glenville, GA. The fertility program was consistent with University of Georgia Extension Service recommendations. 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. At harvest maturity, onion bulbs were undercut using a bed ridge frame undercutter (Parma Inc.) followed by a three-day field curing period. Following curing, two different harvesting methods were evaluated; manual harvest and mechanical harvest using Top Air Onion Harvester (Top Air Topper Loader 3400, Top Air Inc., Parma, Idaho). For manual harvest, onion foliage was 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 the middle two-rows of each replicate plot (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 incidence of external and internal rot. Data for mean incidences of bacterial external and internal bulb rot were analyzed using the Fisher’s protected LSD test at $P \leq 0.05$ (SAS version 9.4, SAS Institute, Cary, NC).

External and internal bulb rot were evaluated in onion bulbs after a month of storage. The method of harvest had a significant effect on internal bulb rot incidence but not on the external rot. Significantly higher incidence of internal bulb rot was observed with the manual harvest compared with the mechanical harvest. Internal rot was associated with mainly *Pantoea* spp., and external rot was associated with *Burkholderia* spp. and *Pectobacterium* spp. based on arbitrarily-collected symptomatic samples. Bulb rot due to post-harvest fungal pathogens (*Botrytis* sp. and *Aspergillus* sp.) was not observed.

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Methods of onion harvest	External rot incidence (%) ^z	Internal rot incidence (%) ^y
Mechanical harvest	2.3 a ^x	3.0 B ^x
Manual harvest	1.6 a	12.0 A
<i>P-value</i>	0.468	<0.001

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

^yMean internal bulb rot incidence was calculated as number of bulbs with internal rot/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 $P \leq 0.05$.