ONION (*Allium cepa* 'Plethora')
External and internal bulb rot; *Pantoea spp.*
*Burkholderia spp.*

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

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 foliage was manually clipped leaving 5-6 inches from the neck region on 30 Apr. 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; n=# per replicate) were bagged and stored at 4°C for one month. After period of storage, onion bulbs were individually cut using a sterile knife to determine center rot and sour skin incidence. Data for mean external and internal rot bulb incidence was analyzed using the Fisher's protected LSD test at $P \leq 0.05$ (SAS version 9.4, SAS Institute, Cary, NC). Total accumulated rainfall was 5.5 in. between 18 Mar and 30 Apr. The average high and low temperatures for the month of Dec (2021) were 55 and 42° F, respectively and for the month of Apr (2022) were 74 and 61° F, respectively.

External and internal bulb rot incidence was evaluated after a month of storage. The method of digging had a significant effect on internal bulb rot and but not onthe external bulb rot incidence after storage. A significantly higher incidence of internal rot was observed with the straight bed-ridge undercutter compared with the chain digger. Bulb rot due to post-harvest fungal pathogens (*Botrytis* sp. and *Aspergillus* sp.) was not observed.

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| Methods of onion digging | External rot incidence (%)[z] | Internal rot incidence (%)[y] |
|---|---|---|
| Chain digger | 5.2 a | 1.3 B[x] |
| Straight-blade undercutter | 4.7 a | 10.7 A |
| *P-value* | 0.472 | <0.001 |

[z]Mean external bulb rot incidence was calculated as number of bulbs with external rot /total number of bulbs evaluated × 100.
[y]Mean internal bulb rot incidence was calculated as number of bulbs with internal rot/total number of bulbs evaluated × 100.
[x]Means followed by the same letter(s) within each column are not significantly different according to Fisher's protected LSD test at $P \leq 0.05$.