

# EFFECT OF TRANSPLANT SIZE ON YIELD AND QUALITY OF VIDALIA ONIONS

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## **Introduction**

Onions grown in the Vidalia area are primarily grown as a transplanted crop. High density plantings are sown in September and transplanted in mid-winter (November-December) to their final spacing. Transplants should be relatively uniform in size with sufficient mass to withstand the shock of transplanting and adverse weather, but not so large that they are prone to seedstems and doubling.

In the past two years transplant size has been investigated as a treatment effect. The affect on yield has been ambiguous with larger transplants producing larger onions in 2004 but not in 2003 (Boyhan et al., 2004). In both years, however, there was a difference in seedstem production with smaller transplants producing fewer seedstems.

## **Materials and Methods**

Seed of 'Granex 33' and 'Century' were sown on 21 Sept. 2004 on plantbeds prepared 6-ft on-centers with 4 rows sown 12 in. apart with 60 seed/linear ft. Disease, insect, weed, and other cultural practices followed University of Georgia Cooperative Extension Service recommendations for onion transplant production.

Onion plants were harvested from the plantbeds on 22 Nov. 2004 and graded into size classes. Small transplants ranged from 40-65 gms/20 plants, medium transplants ranged from 124-154 gm/20 plants, and large transplants ranged from 263-275 gms/20 plants. There were six treatments, small, medium, and large transplants of 'Granex 33' and 'Century'. The experiment was arranged in a randomized complete block design with 4 replications. Each experimental unit or plot consisted of 4 rows spaced 12 in. apart with 5.5 in. in-row spacing. The length of the plot was 10 ft. Onions were grown according to University of Georgia Cooperative Extension Service recommendations.

Seedstems and doubles were counted for each experimental unit on 18 April 2005. 'Granex 33' onions were harvested on 11 May 2005 and 'Century' were harvested on 19 May 2005. Field or total yield was recorded at harvest after removal of the tops and roots. Onions were then graded into size classes of jumbos ( $\geq 3$  in.) and mediums ( $\geq 2$  in. and  $< 3$  in.).

## **Results and Discussion**

There were not large differences in number of seedstems between the treatments, however, large transplants of 'Granex 33' did have significantly more seedstems than any

other treatment (Table 1). Previous experiments have indicated that larger transplants resulted in more seedstems (Boyhan et al., 2004). It should be noted that the 2005 onion season overall had few seedstems. Large 'Granex 33' transplants had the greatest number of doubles at 9.9/plot. This is significantly more than any other treatment including large 'Century' transplants.

Large 'Granex 33' transplants had the highest total yield at 87.8 lbs/plot, which was significantly greater than medium or small transplant treatments. The results for 'Century' indicate no differences between large and medium transplant size for total yield. For both varieties, the large and medium transplants resulted in greater yield than the small transplant plots.

Jumbo yield for large transplant 'Granex 33' were significantly greater than all other treatments. There were no differences between large and medium transplants for variety Century.

In conclusion, growers should avoid small transplants because of low yield. This is primarily due to stand loss during the growing season presumably due to adverse weather conditions. Although this particular experiment does not highlight the increased seedstems that can occur with very large transplants this is always a potential problem. Growers can avoid large transplants by transplanting in a timely manner before they become too large.

### Literature Cited

Boyhan, G., M. Hayes, R. Hill, and T. Paulk. 2004. The effect of onion transplant size on seedstems. Ga. Onion 2004 Res.-Ext. Rpt. No. 3-2004:19-20.

Table 1. Transplant size and variety effect on total & graded yields, seedstems, and doubles.

| Treatment        | Total Yield      | Jumbos | Mediums | Seedstems        | Doubles |
|------------------|------------------|--------|---------|------------------|---------|
|                  | (lbs/10-ft plot) |        |         | (No./10-ft plot) |         |
| Small Granex 33  | 31.9             | 25.2   | 2.8     | 0.0              | 0.2     |
| Medium Granex 33 | 50.6             | 43.5   | 2.3     | 0.0              | 0.7     |
| Large Granex 33  | 87.8             | 75.2   | 1.3     | 1.5              | 9.9     |
| Small Century    | 35.4             | 17.2   | 2.4     | 0.0              | 0.2     |
| Medium Century   | 67.4             | 43.1   | 1.8     | 0.0              | 0.9     |
| Large Century    | 77.0             | 39.4   | 0.8     | 0.5              | 0.9     |
| CV               | 13%              | 16%    | 30%     | 21%              | 22%     |
| LSD (p=0.05)     | 11.6             | 9.6    | 0.9     | 0.9              | 0.7     |