EVALUATION OF PUSH PLANTERS FOR SMALL PLOT WORK

George Boyhan, Extension Vegetable Specialist
Shane Curry, Extension Agent, Montgomery County
Dept. of Horticulture
1111 Miller Plant Science Bldg.
Athens, GA 30602
gboyhan@uga.edu

Introduction

Small scale plot work is done at a variety of locations both at research centers and on-farm. Sowing seed in these small plots is often accomplished with a small push planter. These planters are easy to transport and use. They are, however, not the precise seeder, but will often suffice for this type of work.

A popular push planter that can be used, which is also popular among home gardeners is the Earthway push planter (Figures 1 & 2). This planter relies on a series of notched plates to handle different sized seed and account for different spacing. Another such push planter is from Jang Automation headquartered in South Korea (Figure 3).

The objective of this study was to evaluate these two planters with a variety of different sized seed. Seed sizes ranged from small (carrots and onions) to large (beans, sweet corn, squash, and cucumbers).

Materials and Methods

The study was conducted at the Vidalia Onion and Vegetable Research Center in Lyons, GA. The experimental design was a randomized complete block design with each experimental unit 10 ft. in length. A single row of each vegetable seed was sown with each planter in each experimental unit.

The two planters used were an Earthway Planter model 1001-B and a Clean Seeder AP1 (Jang Automation Co., LTD, Cheongju-city, South Korea). Each was used according to manufacturer's directions for the specific seed.

The varieties used in this study were 'Goliath' beans, 'Passion' sweet corn, 'Dixie' squash, 'PX14710830' cucumber, 'Tasty Peel' carrots, and 'Candy Ann' onion. To plant beans with the Earthway planter, plate 1002-14 (beans, sm. Peas) was used and the depth gauge was set to 0.75 inches. For sweet corn plate 1002-4 (sweet corn) was used and the depth was set to 1 inch. The squash seed was also planted with plate 1002-4. The cucumber seed was planted with plate 1002-22 (beets, okra, sw. chard) and the depth was set at 0.75 inches. Carrots were also sown with plate 1002-22

with the depth set at 0.5 inches. Finally the onion seed were sown with plate 1002-5 (radish-med, leek, asparagus, spinach) and the seed depth was 0.5 inches.

The gears used on the Jang seeder were number 14 on the front and number 29 for the rear cog for all seed planted. The 6 slot A seed roller was used for beans, corn, squash and cucumber. For carrots the 6 slot AA seed roller was used. Finally the 12 slot Y roller was used for onion seed.

Seed were sown on 10 April 2008 and the data was collected on 29 April 2008. Data collected consisted of stand counts for each seed type on a randomly selected 18 inch length of row for each planter in each experimental unit.

Paired t-tests were calculated between the seeders for each seed type. The probability of a significant difference between each seeder for each seed type was calculated.

Results and Discussion

There were no differences in stand count for beans, sweet corn, squash, or cucumbers (Table 1). There was insufficient stand with the carrots to ascertain any difference between the planters. There was a significant difference in stand count for onions between the Jang and Earthway planters. Although it is not evident in the data, the Earthway appeared to do a better job with larger seed while the Jang did a better job with small seed (Figures 4 & 5).

A thorough evaluation of the Earthway planter for small research work has been done by Parish and Bracy (2004) where they evaluated all of the plates in a variety of configurations where some slots were blocked to improve overall seed spacing. They found the Earthway to be adequate for a variety of purposes including for small research, demonstration and home garden use particularly where overall mean spacing is desirable and uniformity of spacing is less so.

The Jang planter used a small tray with holes to determine the proper seed roller to use to properly singulate the seed. In addition the sprockets used with the chain mechanism can be changed to affect seed placement. The Jang planter is a more sturdy piece of equipment then the Earthway and this is reflected in the price, which is approximately $375.00. This in comparison to an Earthway that can be purchased for about $75.00.

For more information about the Jang planter visit their website at:

http://www.jangauto.com/

In addition to this, a video of the operation of the Jang planter can be found on You Tube at:

http://www.youtube.com/watch?v=6eWwUXRIZ38&feature=related

In conclusion, this study was too small to reliably determine which of these planters is better. Both will probably get the job done, but don't expect too much. Neither of these is a commercial precision planter, but then again neither costs that much either.

Literature Cited

Parish, R.L. and R.P. Bracy. 2004. Recommendations for effective use of a garden seeder for research plots and gardens. HortTechnology 14:257-261.

Table 1. Stand count comparison between Jang Automation and Earthway seeders.

Vegetable	JAC[z]	Earthway	Paired ttest
	(Stand count/18 inches)		Probibility
Beans	2.5	3.3	0.644
Sweet corn	4.0	5.0	0.727
Squash	4.5	6.5	0.834
Cucumber	14.8	19.5	0.744
Carrot	-	-	-
Onion	21.5	0.0	0.045

[z]Jang Automation Company

Figure 1. Earthway push planter.

Figure 2. Various plates used the Earthway planter.

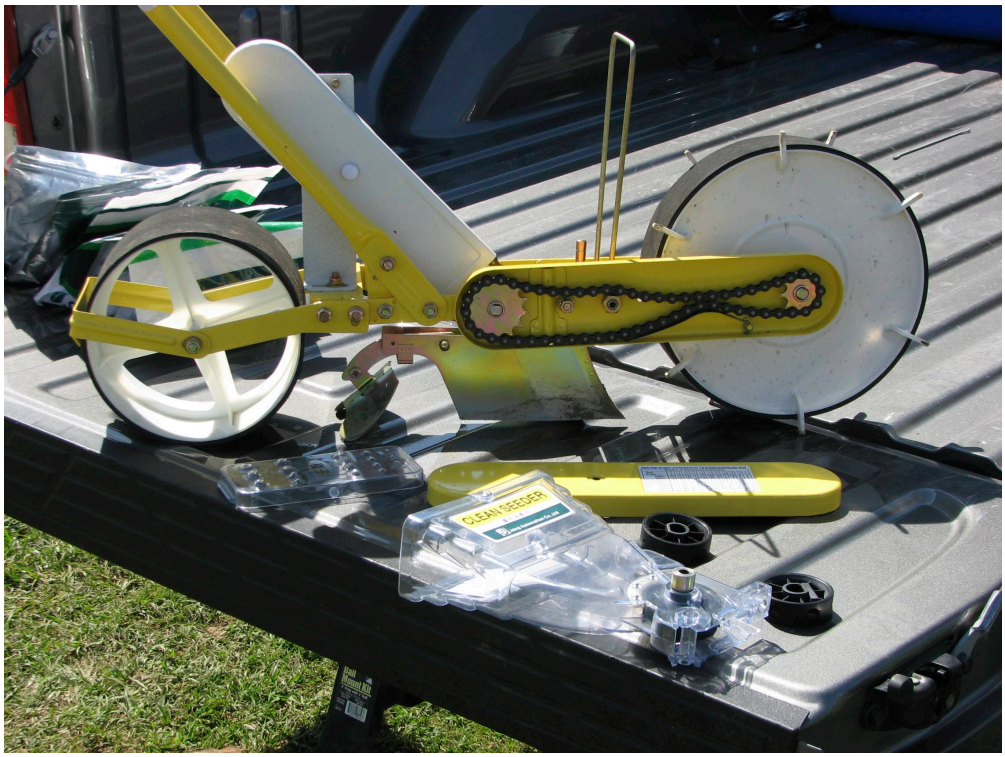

Figure 3. Jang Automation Clean Seeder AP1.


Figure 4. Onion seed – Earthway used on the left of the stake and Jang seeder used on the right.

Figure 5. Squash seed – Earthway used on the left of the stake and Jang seeder used on the right.