BY THE FLORICULTURE RESEARCH ALLIANCE

The Latest on Plug Production

The horticulture experts who comprise the Floriculture Research Alliance have been diligently conducting studies on a variety of methods for growing plugs. Here are four recent developments.

FLORICULTURE & NURSERY RESEARCH INITIATIVE

The Floriculture Research Alliance includes researchers who collaborate across universities and organizations on applied research. Their mission is to partner with industry stakeholders to develop science-based solutions to sustainability issues for floriculture. The universities collaborate with the USDA-ARS and are supported by the USDA Floriculture and Nursery Research Initiative. For more information, visit www.floriculturealliance.org.

Seedling Plug Size Effects on Flowering Time

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One of the factors that influences finish crop time of bedding plants is the maturity or starting size of the plugs or liners. A general assumption is that time from transplant to flowering is shorter when starting from a large plug compared to a smaller one, although limited research based data is available. We evaluated the effect of two plug sizes on finish crop time, plant quality characteristics and estimated production costs in five bedding plant species.

Species	Plug leaf number		Days to first flower at 73F		Estimated cost per pot (US$)							
					Heating		Plugs		Labor and overhead		Total	
Transplant size:	288	128	288	128	288	128	288	128	288	128	288	128
American marigold Inca Mix II	4	6	44	37	0.15	0.12	0.17	0.35	0.59	0.49	0.91	0.96
Geranium Ringo 2000 Deep Red	4	6	49	48	0.16	0.16	0.21	0.41	0.65	0.64	1.02	1.21
Snapdragon Rocket Mix	6	9	42	35	0.14	0.11	0.15	0.33	0.56	0.47	0.85	0.91
Transplant size:	128	36	128	36	128	36	128	36	128	36	128	36
Gerbera Jaguar Deep Orange	7	7	46	46	0.15	0.15	0.54	0.83	0.61	0.61	1.30	1.59
Osteospermum Asti Purple	9	9	43	41	0.14	0.13	0.54	0.83	0.57	0.55	1.25	1.51

Table 1. An example of estimated production costs when starting with two plug sizes (36-, 128-, or 288-cell trays) in the production of five bedding plant species grown at 73F (22C) for first flowering on April 1. Heating costs were calculated using Virtual Grower software for Grand Rapids, Michigan. Production time was based on research information generated in this project.

Among the species evaluated, plants grown as 128-cell plugs were more mature (had more leaves) and therefore flowered earlier than those grown from 288-cell plugs (Table 1). For example, snapdragon plants grown from a 128-cell plug had three more leaves at transplant and flowered seven days earlier at 73F (22C) than those grown from a 288-cell plug. In contrast, gerbera and osteospermum grown from 128- and 36-cell plugs were similar in maturity and—not surprisingly—flowered at the same time. Plug size had little or no effect on plant quality characteristics at first flowering.

As an example, we performed a simple economic analysis for the two plug sizes in this study using typical input costs. Our analysis showed that plants grown from a smaller plug had the lowest input costs, and therefore, a greater potential profit per pot (Table 1). Although some larger plugs flowered earlier, the shorter finish time was often offset by the higher price of the larger plug. Therefore, starting with a larger plug may not be a profitable strategy. Growers are encouraged to perform a more detailed analysis, using their own costs (heating costs can be estimated using Virtual Grower), to determine which plug size is the most appropriate and cost effective for their situation.