

The Effects of I-Grow Induction Lighting versus HPS Lighting on Forcing Roses

Authors

Michele Scheiber Ph.D and Michael S. Dobres Ph.D

Two taxa of roses were grown under both an I-Grow Induction lights (400 watts) and HPS lights (1000 watts) to compare the effect of light source on forcing material into bloom. The study was conducted as a Randomized Complete Block Design with three replicates in a climate controlled greenhouse. All plants were grown at 67-80F ambient daytime air temperatures and 66-75F ambient night air temperatures. In addition, bottom heat was applied at 68F and plants were watered as needed. Supplemental lights were mounted 1.25 m above the bench surface and plants were illuminated for 16 HR a day plus natural daylight. The study was conducted for 12 weeks beginning in February 2013. Date of first sign of bud color, date of first bloom, and date of full bloom were recorded and average number of weeks until first sign of color bud, first flower and full flower were calculated. Each taxa received vernalization. All taxa were grown in standard production size containers appropriate to the given taxa (Table 1).

Results

Supplemental light source had a great effect on forcing rose varieties. Two rose varieties Rosa Double KnockOut and Rosa Red Drift were evaluated. Double Knockout grown under the I-Grow began showing bud color and flowered an average of 2 weeks earlier than plants grown under a standard HPS lights. Results were similar for Red Drift with bud colorization, first flower date, as well as full flower date occurring an average of 1 week earlier under I-Grow lights (Table 1). Only one replicate of Double Knockout grown under the HPS lights reached full flower stage with the remaining replicates flowering sporadically. For both varieties, the overall flower coverage was substantially higher for plants receiving supplemental light from the I-Grow light (Figure 1).

Table 1. Average number of weeks to bud color, first flower and full bloom for 2 rose taxa grown under two supplemental light sources (I-Grow Induction versus HPS).

Taxa	Light Source	Container Size	Average Weeks to Bud Color	Average Weeks to First Flower	Average Weeks to Full Bloom
ROSES					
Rosa Double Knock Out	HPS	1-gallon	6.0	7.3	6.5
Rosa Double Knock Out	I-GROW	1-gallon	4.0	5.0	6.0
Rosa Red Drift	HPS	1-gallon	5.7	7.0	8.0
Rosa Red Drift	I-GROW	1-gallon	4.3	5.3	7.0

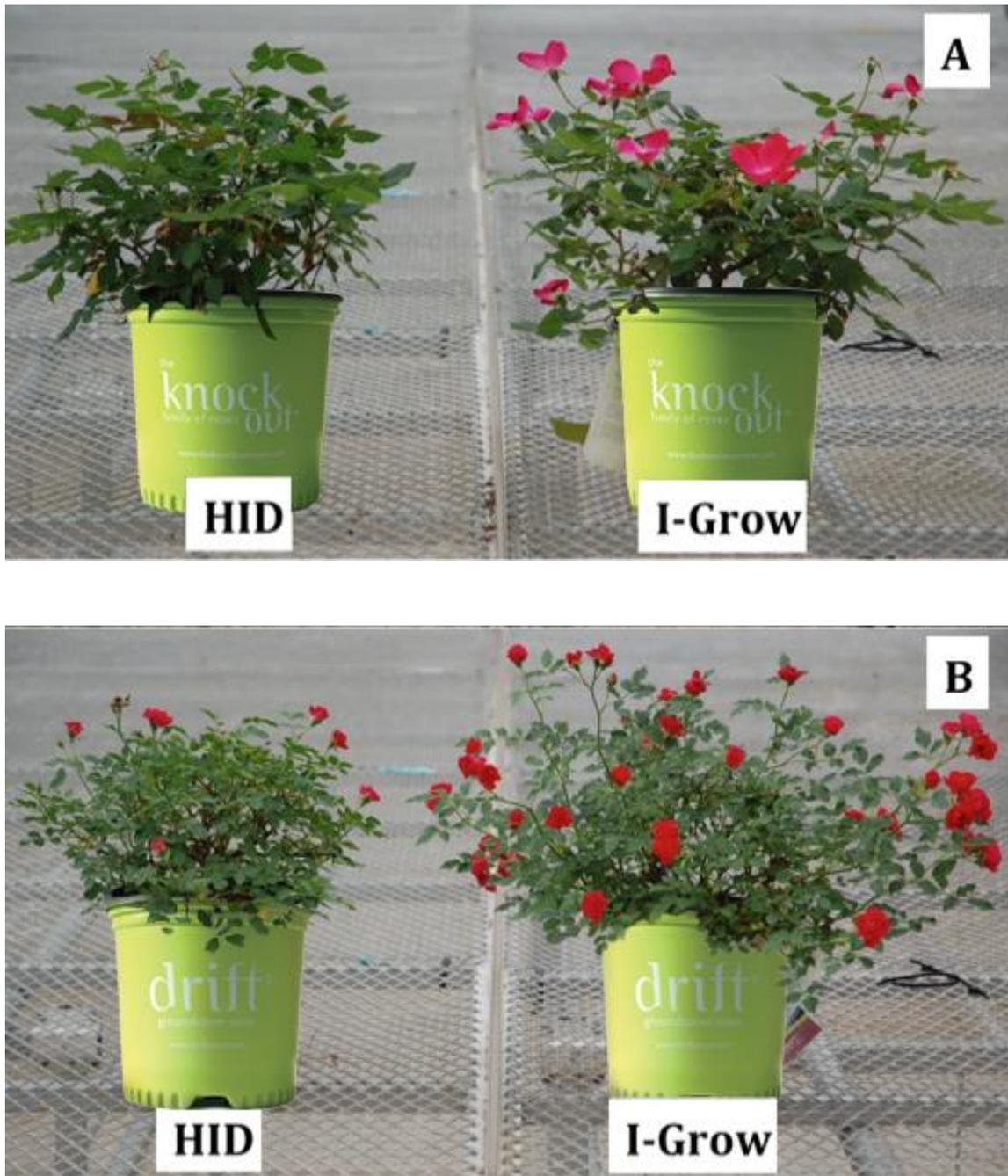


Figure 1. A) Double Knockout rose and B) Red Drift rose grown under HPS and I-Grow Induction lights.