

Plant growth rate, stem length unaffected by rice hull, peat substrate

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Plant growth retardants, or PGRs, are used in greenhouse operations to produce uniform, compact, and marketable plants. Although PGRs can be applied using a variety of methods, most common applications are foliar sprays or substrate "drenches". Research has shown that drenches provide more uniform results and increase the duration of effectiveness compared with sprays, but the efficacy of drenches can be affected by factors such as the amount of solution applied and the substrate components used.

Organic components such as parboiled rice hulls are becoming more common in soilless growing substrates. While some organic substrate components, such as bark, have been shown to reduce the efficacy of PGR drenches, the influence of rice hulls had not been determined until recently. Purdue University scientists Christopher Currey, Diane Camberato, Ariana Torres, and Roberto Lopez published a research report in [HortTechnology](#) that identified the impact of a substrate containing rice hulls on PGR applications for controlling plant height or stem length of containerized greenhouse crops.

For the experiments, 'Callie Deep Yellow' calibrachoa and 'Delta Orange Blotch' pansy were planted in containers filled with a substrate containing 80% peat and 20% perlite or 80% peat and 20% parboiled rice hulls. After planting, 2.5-fl oz drenches containing deionized water or ancymidol, paclobutrazol, or uniconazole were applied to plants grown in each substrate.

Results showed that [plant growth](#) retardants, but not substrate, affected growth rate and final stem length of calibrachoa. Similar to calibrachoa, the rate of growth and plant height of pansy 6 weeks after applications was affected by PGR, but not substrate.

"There was no significant difference in final plant height or stem length of pansy or calibrachoa, respectively, between plants grown in standard or rice hull substrate when given identical PGR applications. Based on these results, rice hulls did not reduce PGR drench efficacy when included as a substrate component comprising 20% of a substrate", noted corresponding author Lopez.

"Our research shows that producers may employ PGR drench strategies that have previously been used for plants grown in substrate comprised of peat and perlite for plants grown in substrate containing peat and rice hulls at the proportions used in this study", concluded Lopez.

More information: [horttech.ashspublications.org/ ...nt/abstract/20/5/863](https://horttech.ashspublications.org/...nt/abstract/20/5/863)

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