

ADJESIWOR, ALBERT T.* and ANDREW R. KNISS, Department of Plant Sciences, 1000 E. University Avenue, University of Wyoming, Laramie, WY 82071. **Effects of reflected light quality on growth and yield of *Beta vulgaris*.**

Reflected light from vegetation has a reduced red (R) to far-red (FR) ratio. Plants are able to sense changes in R:FR and use this as a cue to perceive impending competition. Responses to reduced R:FR often involve modified morphology and physiology which can affect growth and yield even in the absence of resource competition. Little is known about the effects of reflected light quality on *Beta vulgaris*. This study evaluated effects of reflected R:FR from grass (Kentucky bluegrass) on growth and yield of *Beta vulgaris*. Grass was clipped frequently to prevent shading and competition for light. Roots of grasses were isolated from *B. vulgaris* to ensure there was no competition for water or nutrients. *B. vulgaris* was harvested at 15, 32, 50, and 77 days after planting (DAP). Relative to the control (no grass), there were longer cotyledons (2.2 vs 1.5 cm), wider cotyledons (0.6 vs 0.5 cm), and wider cotyledon surface area (1.8 vs 1.0 cm²) in the grass treatment at 15 DAP. Presence of grass beyond 15 DAP generally resulted in reduced number of leaves, leaf area, and root fresh weight in *B. vulgaris*. There were three less leaves in the grass treatment compared to the control (no grass) at final harvest (77 DAP). The grass treatment reduced leaf area and root fresh weight by 10 to 21 and 15 to 48 % respectively, when *B. vulgaris* was harvested at 32, 50, and 77 DAP. These results showed that reflected light quality can reduce growth and yield of *B. vulgaris* even in the absence of direct competition for resources.