Measuring the Effects of Varying Wavelengths of Light on the Growth of Hydroponically Grown Allium fistulosum

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The wavelength and intensity of light regulates the growth and development of plants and influences their physiology and morphology both above and below the ground. To study the effects of light color on the overall growth of hydroponically grown Allium fistulosum, or scallions, the stalk growths, fresh and dry weights of the stalks, dry weights of the roots, number of secondary roots, and average length of secondary roots were measured for under four different light colors – blue, green, red and white. The Tukey post-hoc tests conducted showed that the growth of stalks and biomass above the ground was maximized for the plants treated with white light while the root growth was maximized for the plants treated with red light. This demonstrated that growth of hydroponically cultivated scallions at various stages in their life cycle can be influenced using different combinations of light wavelengths. These findings can be used to help farmers determine the color combinations of light that best support plant growth at each stage of development.

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