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Design and performance of a laser-based weed control system

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Design and performance of a laser-based weed control system
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This paper investigates the influence of CO2 laser as a non-contact tool for weed control application. The study aims specifically to the unfocused beam treatment for distant targets. The optical design was evaluated by an optical design software. The spatial profile of the laser beam was analyzed. The characteristics of the laser beams at targeted distance were explored. Based on the optical setup, the optimal expanding of the laser beam was archived. The relation between irradiation times and spot sizes was examined. These results demonstrate the potential of CO2 laser as promising alternative for an efficient weed control.

Keywords: Lasers, Weed control, Physical optics propagation

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