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A Laboratory Exercise for Teaching Plant Interference and Relative Growth Rate Concepts¹

LANCE R. GIBSON and MATT LIEBMAN²

Abstract: Interference between weeds and crops is a key topic in undergraduate weed science courses. A laboratory exercise was developed at Iowa State University to actively demonstrate how small-seeded weeds can compete with large-seeded crops despite the initial seedling size disadvantage. Spring wheat and wild mustard were grown in pots in monoculture and in competition with each other. One set of plants was harvested at 1 wk after planting and another at 6 wk after planting. Relative growth rates (RGR) were calculated for the 5-wk period using the classical approach of plant growth analysis. The results from four semesters were analyzed to determine whether the experiment was meeting its intended outcomes. It was successful in this regard. In each of the four semesters, wild mustard had a lower initial dry weight and a greater RGR than did wheat. Students were required to write a scientific paper using the experimental results after completing a series of active-learning exercises. Assessment by students suggested that the experiment, active-learning exercises, and writing assignment were valuable activities.