



Growth Regulator Herbicides Reduce Invasive Annual Grass Seed Production

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Growth regulator herbicides, such as aminopyralid, picloram, 2,4-D, and dicamba, are regularly used to control broadleaf weeds. Alternatively, these products are not used to control grass weeds, because it is widely believed that growth regulators do not damage grasses. However, growth regulators can prevent grass crops (e.g. wheat, rye) from producing seed if the compounds are applied while grasses are developing reproductive structures. We hypothesized that growth regulators would reduce invasive annual grass seed production. We applied growth regulators to Japanese brome in the greenhouse and field. In the greenhouse, picloram applied at 0.34 kg ae ha¹ reduced seed production 80% at the seedling growth stage and >99% at internode elongation, boot, and seed head emergence. Dicamba at 0.18 kg ae ha¹ was slightly less effective than picloram, and 2,4-D at 0.34 kg ae ha¹ was much less effective than picloram and dicamba. In the field, we applied aminopyralid at 69 kg ae ha¹ and 120 kg ae ha¹ and picloram at 420 kg ae ha¹ at the internode elongation, boot, and seed head emergence growth stages, and treatments reduced seed production between 93 and 100%. Annual brome seeds are short-lived in soil (e.g. 2-3 years), so using herbicides to reduce seed production may reduce annual brome populations. Also, annual bromes often proliferate when dicot weeds such as yellow starthistle and spotted knapweed are controlled with herbicides. It may be possible to use carefully timed growth regulator herbicide applications to simultaneously control annual grasses and dicot weeds.

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