

Resistance surveys and commercial testing services – similarities and differences for wild oats, barley grass and brome grass across south eastern Australia

John Broster¹, Peter Boutsalis, Chris Preston, Gurjeet Gill

¹Gulbali Institute, Charles Sturt University, Wagga Wagga, Australia
(jbroster@csu.edu.au)

Summary Wild oats (*Avena* spp.), barley grass (*Hordeum* spp.) and brome grass (*Bromus* spp.) are important weeds of cropping across south eastern Australia with herbicide resistance detected across this region in several herbicides to all three species. For this reason these species are all collected as part of the GRDC sponsored random surveys for herbicide resistance. Additionally, they are also provided to commercial resistance testing services for screening from locations where resistance is suspected. In this paper we compare the incidence of herbicide resistance for these species between random weed surveys and commercial testing services for samples collected from South Australia, Victoria, New South Wales and Tasmania across the 2015-2019 cropping seasons. Over 1000 wild oat, 300 barley grass and 400 brome grass samples have been collected from these two sources. For all three species a higher percentage of the testing service

samples are resistant to Group A ‘fop’ (testing services - wild oats 61%, barley grass 55%, brome grass 20%; surveys - wild oats 29%, barley grass 2%, brome grass 1%) and ‘dim’ (testing services - wild oats 8%, barley grass 20%, brome grass 31%; surveys - wild oats 1%, barley grass 1%, brome grass 0%) herbicides compared with random survey samples. However for the Group B ‘SU’ herbicides, resistance was more common in the random survey samples than the testing services (testing services - wild oats 6%, barley grass 0%, brome grass 12%; surveys - wild oats 4%, barley grass 17%, brome grass 23%). Variability in resistance levels between states and regions for samples from both sources resulted in increases and/or decreases in these differences. Potential reason for these differences will be discussed.

Keywords Herbicide resistance, wild oats, brome grass, barley grass