AGRONOMY

Herbicide Options for Volunteer Canola in Xtend Soybeans

Faster-acting herbicide modes of action were more effective at preventing soybean yield loss, especially under high volunteer canola pressure.

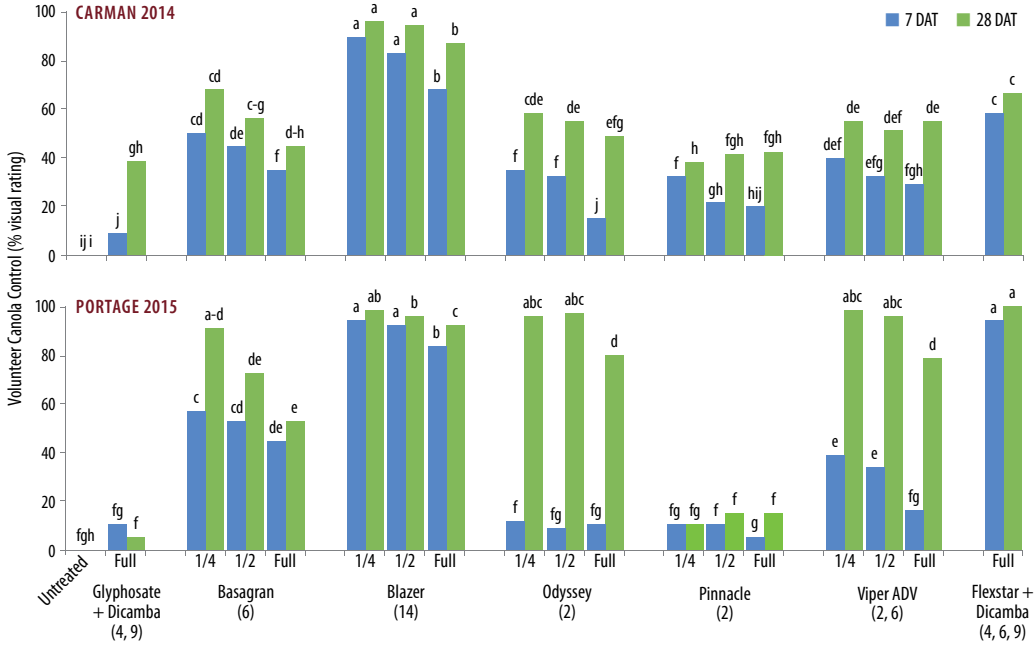
IN 2017, SOYBEAN varieties with resistance to two modes of action first became available in Manitoba. Roundup Ready 2 Xtend® varieties offer glyphosate and dicamba herbicide tolerance. The efficacy of these products against glyphosate-resistant (GR) volunteer canola is not well documented and additional tank-mix herbicides may be necessary to manage volunteers in these systems. Accordingly, this study evaluated the efficacy of in-crop herbicide tank-mix options for Xtend soybean systems.

In 2014 and 2015, an experimental variety of Xtend soybeans were planted in Carman and Portage. GR volunteer canola was planted at the same time as the crop. Glyphosate was applied prior to crop emergence to minimize weed pressure from other species. Several registered post-emergent (post) tank-mix herbicide partners were applied in addition to glyphosate and dicamba. These in-crop applications targeted the 2–4 leaf stage of volunteer canola and the V3 stage of soybeans. Three rates of each product were tested: 1/4, 1/2 and full. As per protocol of the seed suppliers, these experiments were terminated at flowering (R1). Percent volunteer canola control was assessed seven and 28 days after treatment (DAT) and soybean biomass was used as a surrogate for soybean yield.

Dicamba tended to benefit from an in-crop partner for GR volunteer canola control. Active ingredients in Group (Gr) 14 and Gr 6 provided more rapid control than the slow-acting active ingredients in the Gr 2 family (Figure 1). Higher use rates or products known to sometimes cause soybean injury (the "hotter" treatments) were more effective under conditions where volunteer canola growth quickly surpassed the soybean crop, threatening soybean productivity (Carman 2014, Figure 1). However, in 2015, smaller volunteer canola resulted in more herbicide contact with the crop, resulting in delayed soybean growth. Under such conditions, lower rates of tank-mix partners adequately controlled volunteer canola. This was further illustrated in Carman in 2015, where every herbicide treatment resulted in complete control compared with the untreated checks (data not shown).

A number of herbicides with various modes of action were effective for in-crop management of volunteer canola in soybeans. Xtend varieties required an effective in-crop herbicide to maximize volunteer canola control and soybean growth.

Figure 1. Volunteer canola control (seven and 28 days after treatment (DAT)) for post-applied herbicides in Xtend soybean systems applied at 1/4, 1/2 or full rates. Herbicide chemistry groups are indicated in brackets.



Within each rating date and location, different letters above bars indicate statistically significant differences among treatments.

PRINCIPAL INVESTIGATOR Dr. Rob Gulden, University of Manitoba

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