

ONION RESPONSE TO LOYANT[®] HERBICIDE RATE AND APPLICATION TIMING

Joel Felix and Joey Ishida, Malheur Experiment Station, Oregon State University, Ontario, OR

Introduction

New herbicides on the market are evaluated to determine onion tolerance and weed control. This effort is needed in order to broaden the products available for weed control in onion.

The herbicide Loyant[®] (rinskor) is registered for post-emergence control of broadleaf, grassy weeds, and sedges in rice. Loyant herbicide works well when applications are followed with a lot of water and, therefore, we hypothesized it could have potential to provide yellow nutsedge control in furrow irrigated fields.

Materials and Methods

A field study was initiated during spring 2021 at the Malheur Experiment Station to evaluate the response of direct-seeded onion variety ‘Vaquero’ to Loyant herbicide and the level of weed control at various application rates to onions at the 2-leaf stage. All the land preparation and seeding operations are similar to other weed control study at the Malheur Experiment Station and reported elsewhere in this book.

The study had a randomized complete-block design with three replicates. Individual plots were 7.33 ft wide (4 beds) by 27 ft long. Loyant herbicide treatments were applied when onions were at the 2-leaf growth stage in a field that had been sprayed with a delayed pre-emergence (7 days before onion emergence) application of Roundup[®] at 22 fl oz/acre (glyphosate 0.77 lb ae/acre) plus Prowl[®] H₂O at 2 pints/acre (pendimethalin 0.95 lb ai/acre) applied on April 12, 2021. Stinger[®] (clopyralid) herbicide was included for injury comparison purpose.

Loyant herbicide was applied at 5.45 fl oz/acre (rinskor 0.143 oz ai/a), 10.9 fl oz/acre (rinskor 0.286 oz ai/acre), or 16.4 fl oz/acre (rinskor 0.43 oz ai/acre) on May 13, 2021. A grower standard that received a delayed pre-emergence application of Prowl H₂O at 32 fl oz/acre (pendimethalin 0.95 lb ai /acre) + Roundup 22 fl oz/acre (glyphosate 0.75 lb ae/acre) and sprayed with Moxy[®] 2EC 12 fl oz/acre + GoalTender[®] 4 fl oz/acre and the untreated control were included. On May 11, all treatments (except the untreated control) were sprayed with Poast[®] herbicide at 1.5 pints/acre (sethoxydim 0.287 lb ai/acre) plus COC at 1 pint/acre (0.41 % v/v) to control grassy weeds.

Results and Conclusions

Onion emergence was observed on April 20, 2021. Observations on June 3, 2021 (21 days after Loyant application) indicated lack of onion tolerance for the herbicide. See photos on next page.



A. Moxy 2EC 12 fl oz/acre (bromoxynil 0.188 lb ai/acre)



B. Loyant 4.5 fl oz/acre (rinskor 0.143 oz ai/acre)



C. Loyant 10.9 fl oz/acre (Rinskor 0.283 oz ai/acre)



D. Loyant 16.4 fl oz/acre (Rinskor 0.46 oz ai/acre)



E. Untreated control



F. Stinger 6 fl oz/acre (clopyralid 2.26 fl oz/acre)

Figure 1. Onion variety ‘Vaquero’ response to Loyant herbicide (21 days after application) (B to D), the grower standard of Moxy 2EC 12 fl oz/acre + GoalTender 4 fl oz/acre (A), the untreated control (E), and Stinger (F) at the Malheur Experiment Station, Ontario, OR 2021. *Photographs courtesy of Joel Felix, Oregon State University.*