WEED CONTROL IN IMIDAZOLINONE RESISTANT WHEAT WITH IMAZAMOX. Mark M. Claassen and Dallas E. Peterson, Associate Professor and Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66506.

Imidazolinone resistance in wheat, marketed under the Clearfield trade name, provides producers with a new option for the control of a wide spectrum of weeds. These include troublesome grasses such as rye and bromus species as well as winter annual broadleaves. Field experiments were established in the fall of 2001 at Hesston and Manhattan, Kansas, to evaluate crop safety as well as efficacy of application times and rates of imazamox herbicide alone and in combination with tank mix partners.

A Clearfield derivative of 'Hondo' winter wheat was planted with 20-cm row spacing at each location in early October. Fall treatments were applied in early to mid-November to 10 to15-cm wheat with 2 to 5 tillers; 5 to 7.5-cm cheat and downy brome with 1 to 3 tillers; 10 to15-cm rye with 2 to 5 tillers; and 2.5 to 10-cm bushy wallflower rosettes. Spring treatments were sprayed in late March on well-tillered, 10 to 15-cm wheat; tillered 5 to 10-cm cheat and downy brome; tillered 10 to15-cm rye; and 5 to15-cm bushy wallflower rosettes. Imazamox was applied alone at rates of 35 and 44 g/ha as well as at 35 g/ha in combination with 21 g/ha chlorsulfuron&metsulfuron or 140 g/ha dicamba. These treatments were compared with 29 g/ha flucarbazone sodium, 45 g/ha MKH 6561, and with 35 g/ha sulfosulfuron alone or in tank mix with 21 g/ha chlorsulfuron&metsulfuron. The effect of herbicides on wheat and weeds were evaluated visually at various times during the growing season. Crop response was further assessed by measurement of grain yield and test weight.

Minor crop injury in the form of chlorosis and/or stunting was observed with most treatments, but the addition of chlorsulfuron&metsulfuron to imazamox greatly increased the negative effect on wheat. Imazamox and competing herbicides controlled cheat with both fall and spring applications, but fall timing tended to be slightly more effective. The addition of chlorsulfuron&metsulfuron to imazamox tended to reduce the level of cheat control in the spring treatment. Only fall-applied imazamox provided effective control of downy brome and rye. All treatments controlled bushy wallflower. There was no imazamox rate effect on crop injury or weed control. Yields were enhanced by weed control at one location and reduced significantly by injury from imazamox plus chlorsulfuron&metsulfuron at the other. Most herbicide treatments improved apparent wheat test weight.

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