

THE MAGNIFICENT SEVEN IN OKLAHOMA'S WINTER WHEAT PRODUCTION REGION.
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The most problematic weed problems in Oklahoma's wheat producing region are a group of winter annual grasses, including cheat (*Bromus secalinus*), downy brome (*B. tectorum*), rescuegrass (*B. catharticus*), feral rye (*Secale cereale*), Italian ryegrass (*Lolium multiflorum*), jointed goatgrass (*Aegilops cylindrica*), and wild oat (*Avena fatua*). The use of sulfosulfuron since the late 1990's has improved control of cheat in western Oklahoma, the major wheat producing region of the state. However, sulfosulfuron has marginal activity at best on most of these other weed species. With the use of Clearfield Wheat production systems marketed first in 2002, Oklahoma producers can now effectively manage these other weed problems in wheat.

Experiments were established on farmer cooperator fields in the fall of 2001 and 2002 to evaluate several herbicides for control of cheat, Italian ryegrass, feral rye, and jointed goatgrass in winter wheat. The wheat variety used to plant these trials was an experimental population of imidazolinone-tolerant hard red winter wheat provided by Dr. B. Carver of Oklahoma State University. The experiment design at each location was a randomized complete block with 12 by 30 ft or 10 by 25 ft plots and four replicates. Treatments included chlorsulfuron + metsulfuron in a 5:1 ratio (Finesse) applied PRE at 0.38 oz ai/acre, sulfosulfuron (MON 37500 or Maverick) applied POST at 0.5 oz/acre, flucarbazone-sodium (MKH 6562 or Everest) applied POST at 0.43 oz/acre, imazamox (Beyond) applied POST at 0.5 and 0.63 oz/acre, imazapic (Plateau) applied POST at 1 and 1.25 oz/acre, mesosulfuron-methyl + mefenpyr-diethyl in a 1:2 ratio (AE F130060 + AE F107892 or Osprey) applied POST at 0.21 + 0.42 oz/acre, diclofop (Hoelon 3EC) applied POST at 12 oz/acre and an untreated check. POST treatments were applied in the fall (October-November), winter (January-February), and/or spring (March) months. All label recommended additives were included with the POST treatments. Weed control was visually estimated prior to harvest and grain yield, moisture and dockage due to weed seed were determined by harvesting at maturity.

All treatments except chlorsulfuron + metsulfuron applied PRE controlled cheat at least 95%. Chlorsulfuron + metsulfuron, which is labeled for cheat suppression, suppressed cheat less than 45%. Sulfosulfuron and flucarbazone-sodium controlled cheat at least 95%, but were ineffective on feral rye, and jointed goatgrass regardless of application timing. Imazamox controlled cheat and jointed goatgrass at least 99% regardless of application timing or rate. Control of jointed goatgrass with imazamox decreased dockage (due to weed seed in the harvested grain) from over 7% to less than 0.4% except with the winter applications which still had approximately 1% weed seed in the harvested grain. Imazamox controlled feral rye approximately 80 to 85% when applied in the winter months, but control was between 85% and 99% when the herbicide was fall or spring applied. The fall and spring imazamox treatments decreased dockage in the harvested grain (due to feral rye seed) from 13.3% to 3% or less at one location and from 17.3% to less than 2% at the other experiment location. Metsulfuron + chlorsulfuron applied PRE and followed with an activating rainfall controlled Italian ryegrass 85% at harvest, however, without a timely rainfall after application control was 0%. Fall applications of imazamox, imazapic, or mesosulfuron-methyl + mefenpyr-diethyl consistently controlled Italian ryegrass better than winter or spring applications. This control differential translated into an average 17 bushel/acre yield advantage when these herbicides were applied in the fall rather than in the winter or spring months.