

[9] Controlling Jointed Goatgrass In The Central Great Plains. Robert N. Klein* and Gordon E. Hanson, University of Nebraska West Central Research and Extension Center, North Platte, NE..

Several studies have been conducted in North Platte, NE since 1996 with the goal of managing jointed goatgrass (*Aegilops cylindrica*) growing in winter wheat (*Triticum aestivum*). Since 1996 long-term studies were conducted that examined the effects of altering crop rotations, wheat cultivars, no-till/till practices, tillage timing, selective grass herbicides, and plowing and burning as tools to manage jointed goatgrass (JGG) populations in a winter wheat-fallow rotation (W-F). Inserting row crops (corn) into the W-F rotation had the greatest effect on reducing JGG. The row crops allowed the use of herbicides effective in JGG control. The W-C-F and W-C-C-F rotations almost eliminated JGG from the succeeding wheat crop, with two years of row crops having the greatest effect; reducing the JGG seed bank more than one year of row crops. The effect of wheat cultivars in our study was minimal. The use of taller/more competitive cultivars may reduce the number of JGG cylinders (the JGG seed structure) per JGG plant in the growing wheat, thus reducing the subsequent JGG seed rain. Cultivars that produce taller/denser crop residue interfere with JGG germination in subsequent crops in the rotation. However, much of this ungerminated JGG can remain dormant in the residue, and available to re-infest wheat later in the rotational cycle. The most effective use of cultivars is through the use of imazamox resistant wheat cultivars allowing the control of JGG in the growing wheat crop. Altering tillage timing has only a minor effect on JGG densities. In the tillage timing study, JGG density was far more affected by timely precipitation, regardless of tillage timing. While tillage did result in greater germination of JGG, the effect was not enough to subsequently reduce the number of JGG cylinders in the wheat phase of the crop rotation. Altering the method of tillage was far more effective than altering tillage timing. Plowing to a depth of 20 cm with complete soil inversion succeeded in burying the JGG cylinders deep enough that germination of JGG was prevented. No JGG cylinders were found less than 10 cm deep. Burning was also effective in preventing JGG cylinders from germinating, but not as effective as plowing.