

IMPACT OF WHEAT AS A ROTATIONAL GRAIN CROP ON PALMER AMARANTH

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The use of cereal rye as a cover crop is being used in some states as a non-chemical control strategy for helping manage herbicide – resistant Palmer amaranth. With the support of the Kentucky Small Grain Growers Association, University of Kentucky conducted trials at Doug Voorhees farm in Fulton County and Chad Elkins farm in Warren County to determine impact of wheat as a rotational grain crop on early emerging populations on Palmer amaranth. Both sites had a history of problems of Palmer amaranth. The population of Palmer amaranth at the Fulton County site was slow to develop and was too erratic to obtain meaningful results. However the Palmer population at the Warren County site was sufficient to evaluate.

METHODS

Wheat at the Warren County site was planted in three separate strips or replicates on October 11, 2012. These were compared with three fallow strips (i.e. check strips with no wheat or full-season soybeans) and with three strips scheduled for full-season soybeans the following spring. The full-season soybean received a burndown application of Gramoxone plus Authority MTZ at 18 oz/A on May 16 and a postemergence treatment of Prefix at 2.33 pt/A on June 20. The double-crop soybeans received the burndown application of Gramoxone plus Authority MTZ at 18 oz/A on July 2 and a postemergence application of Liberty at 32 oz/A on July 24.

RESULTS

Figure 1 compares densities of Palmer plants during the early part of the growing season for the three treatments. Palmer was observed in mid-May in the full-season soybeans and in the fallow check plots, compared to no Palmer in the wheat. The burndown treatment for the full-season soybeans provided good Palmer control for approximately a month, but a postemergence treatment of Prefix was needed by the third week in June. Wheat did not have any Palmer amaranth near the time of harvest on June 29. Once wheat was harvested, double-crop soybeans were treated with a burndown program that included a soil-residual herbicide. A few isolated Palmer amaranth plants were observed in the double-crop soybeans when Liberty was applied July 24.

SUMMARY

Double-crop soybeans had an advantage over full-season soybeans in limiting early season emergence of Palmer amaranth due to the shading effect of wheat (See photo 1). However, Palmer plants emerged in the tramlines and skip areas before harvest (See photo 2).

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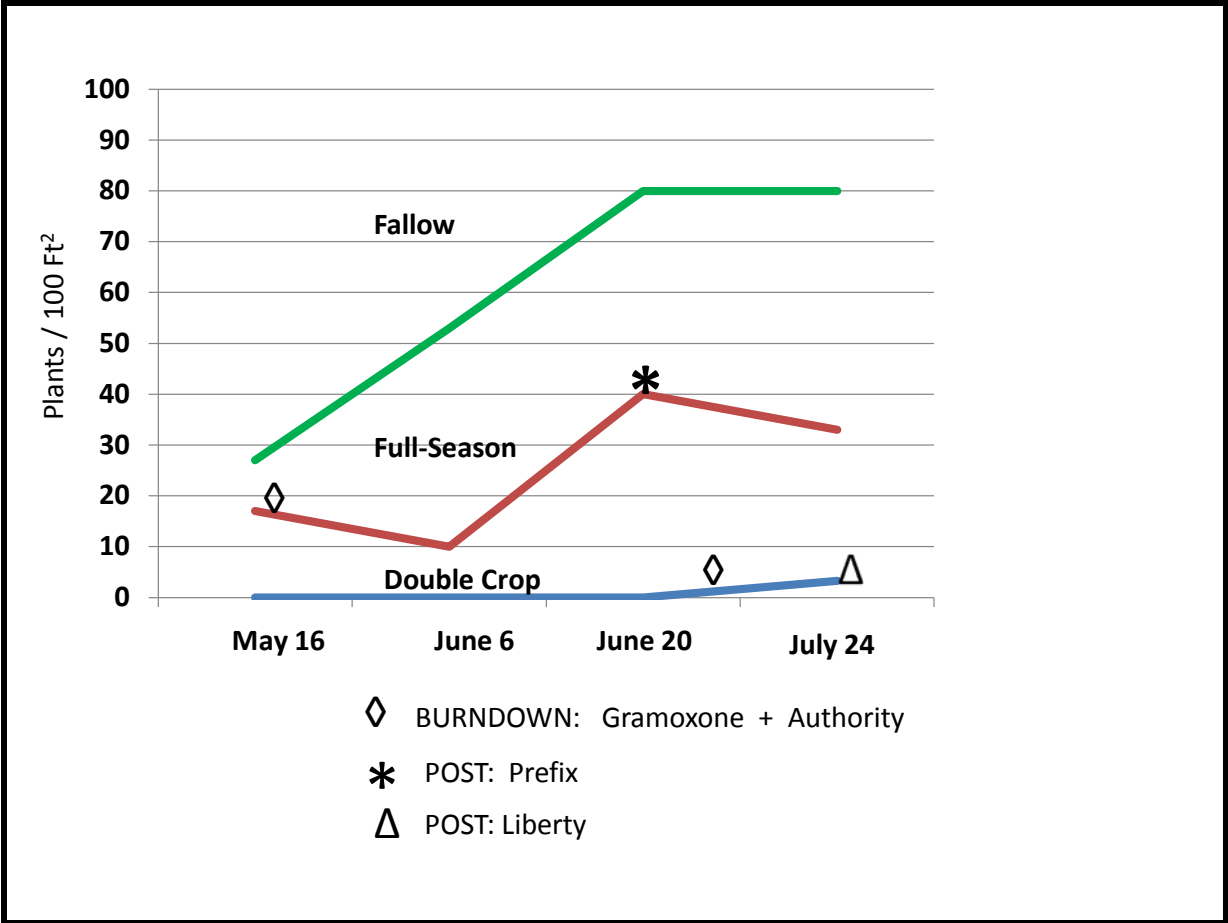


FIGURE 1. PALMER AMARANTH DENSITY (Warren County – 2013)



Photo 1.
(No Palmer in wheat)



Photo 2.
(Palmer in tramline)