

Guar Tolerance to Three Postemergence Herbicides

Todd A. Baughman, Brian L. S. Olson, and John W. Sij

Year 2000

Summary of Results

INTRODUCTION

Guar (pronounced gwar) produces a binder and stabilizer in numerous food products (such as cheeses, dressings and sauces, beverages, etc.) and industrial materials (oil well drilling fluids, paper making, pharmaceuticals, etc.). Currently the only guar processing facility in the U.S. is located at Vernon, TX. In the early 1970's, guar production reached 100,000 acres in the Rolling Plains, but gradually diminished due to cheaper imports. With recent developments, production economics have resulted in favorable conditions for area growers. Currently no postemergence broadleaf herbicides are labeled for guar. Therefore, experiments were established at three locations in Texas and Oklahoma to evaluate potential herbicides for use in guar.

PROCEDURE

Guar trials were established and planted at Chillicothe and Lubbock, TX and Perkins, OK. Treflan at 0.5 to 1.0 pt/A was applied preplant incorporated as an overlay at all locations. Plot areas were maintained weed free through out the duration of the studies. Herbicides used were Raptor, Pinnacle, and 2,4-DB at 1, 2, and 4X the normal application rate along with a nontreated check. The corresponding rates were for Raptor: 5, 10, and 20 oz/A, Pinnacle: 0.25, 0.5, and 1.0 oz/A, and 2,4-DB: 1, 2, 4 pt/A. Guar injury ratings were determined at 14 and 28 days after treatment, and plant height (in) was also recorded at 28 days. At harvest, guar yield was recorded. Trials at all sites were designed as a randomized complete block with four replications.

RESULTS

At all locations in most instances injury (stunting) was most severe with Pinnacle followed by Raptor, and then 2,4-DB (Fig. 1, 2, 3). Injury of greater than 15% was observed at all locations at 14 DAPT with the 1X rate of Pinnacle. This level of injury only occurred at Lubbock with the 1X rate of Raptor and 2,4-DB. Plant heights were reduced with Pinnacle at all three locations when compared to the weed-free check (Fig. 4). 2,4-DB reduced heights at Lubbock and Perkins, and Raptor at Lubbock. Guar yields were not reduced at Chillicothe, while yields were reduced with all three herbicides when compared to the weed-free check at both Perkins and Lubbock (Fig. 5). Yields were quite low at all three locations, which may not have allowed the plants to fully recover from early season injury.

Acknowledgments: Appreciation is extended to Peter Dotray and R. Brent Westerman for conducting these trials at Lubbock and Perkins.

Figure 1. Guar injury 14 and 28 days after treatment at Chillicothe, TX.

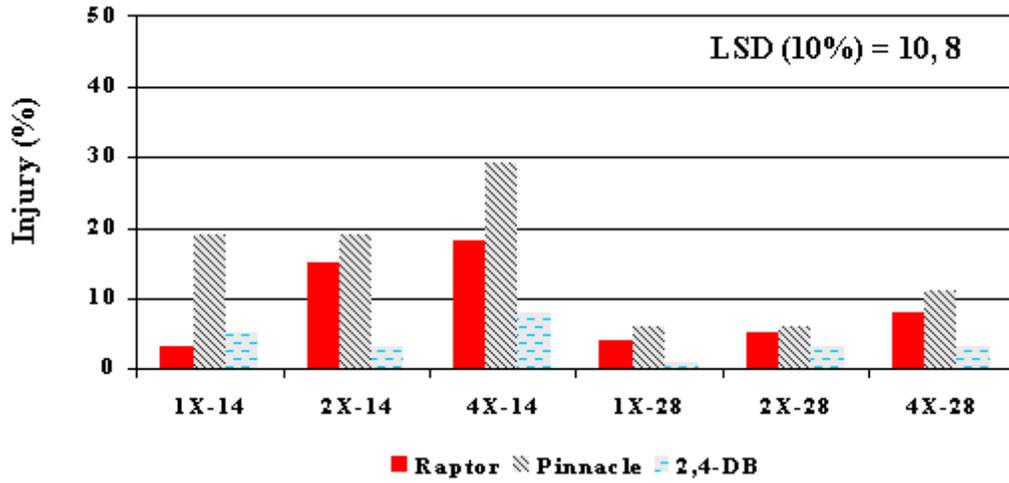


Figure 2. Guar injury 14 and 28 days after treatment at Perkins, OK.

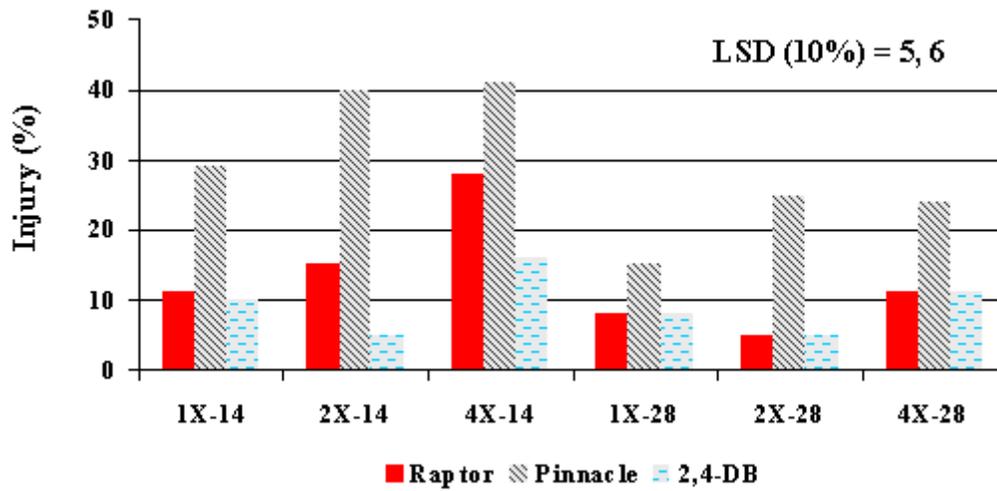


Figure 3. Guar injury 14 and 28 days after treatment at Lubbock, TX

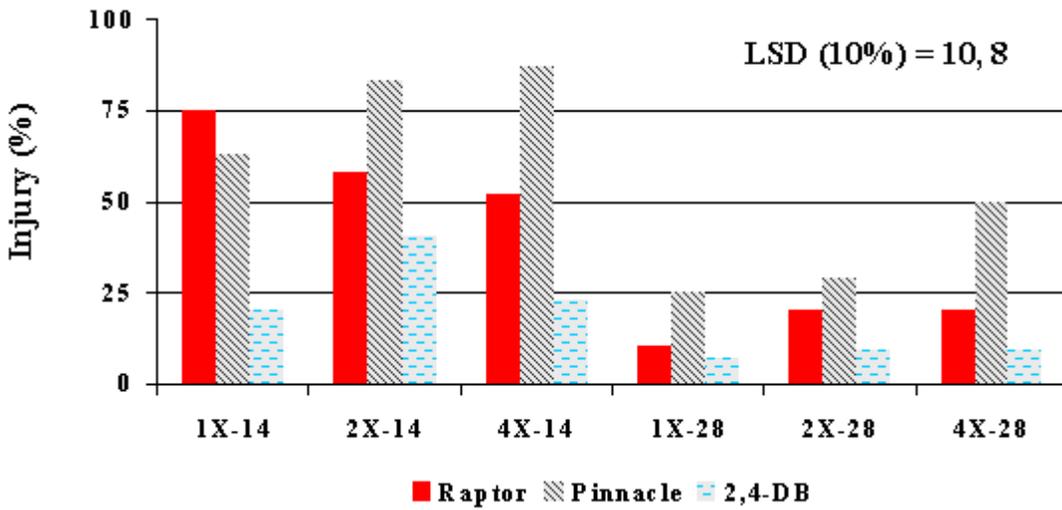


Figure 4. Guar height 28 days after treatment at Chillicothe, Perkins, and Lubbock.

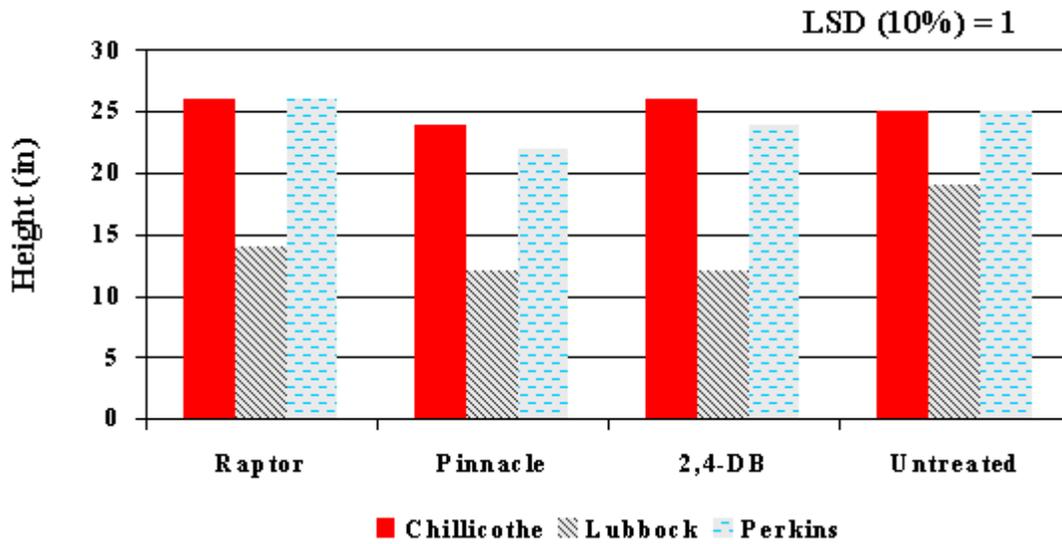


Figure 5. Guar yield from Chillicothe, Perkins, and Lubbock.

