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Herbicide Evaluation in Arkansas Rice, 1996

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Recommended Citation

Webster, Eric; Talbert, Ron; Baldwin, Ford; Gealy, David; Dillon, Tomilea; Norsworthy, Jason; Schmidt, Lance; and Beaty, Dwayne, "Herbicide Evaluation in Arkansas Rice, 1996" (1997). *Research Series*. 146.
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HERBICIDE EVALUATION IN ARKANSAS RICE, 1996

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ACKNOWLEDGMENTS

The authors acknowledge the Arkansas Rice Research and Promotion Board for financial support for some of these experiments. The following companies also provided financial support and chemicals used in the studies: AgrEvo, BASF, Cedar, Cyanamid, DowElanco, DuPont, FMC, Helena, Monsanto, Rhone-Poulenc, Rohm & Haas, Terra, UAP, Valent and Zeneca.

The assistance of the following individuals is gratefully acknowledged: Howard Black, Biological Technician, National Rice Germplasm Evaluation and Enhancement Center; Mike Dillon, Research Technician, Lonoke; Troy Dillon, Research Technician, Lonoke; Larry Earnest, Superintendent, Southeast Branch Station, Rohwer; Bill Fox, Research Specialist, Rice Research and Extension Center, Stuttgart; Toby Hedges, hourly assistant; Vann Langston, hourly assistant; John Robinson, Director, Rice Research and Extension Center, Stuttgart; Vaughn Skinner, Farm Manager, Main Experiment Station, Fayetteville; Randy Spurlock, Research Technician, Rohwer; Celeste Wheeler, Research Technician, Lonoke; Sunny Wilkerson, hourly assistant, Lonoke; Marilyn McClelland, Research Associate, Main Experiment Station, Fayetteville (editing and compilation); and Marci Milus and Jody Edwards, secretarial staff.

HERBICIDE EVALUATION IN ARKANSAS RICE, 1996

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INTRODUCTION

Herbicidal weed control is economically important for production of rice. Field experiments are conducted annually in Arkansas to evaluate the activity of developmental and commercial herbicides for selective control of weeds in rice. These experiments serve both industry and Arkansas agriculture by providing information on the selectivity of herbicides still in the developmental stage and by comparing the activity of these new herbicides with that of recommended herbicides.

The research reported herein is a compilation of data from experiments conducted by four of the state's agronomic researchers responsible for weed control in rice. Eric Webster is located at the Southeast Research and Extension Center at Monticello and conducts rice research at the Southeast Branch Experiment Station at Rohwer. Ron Talbert, located at the Main Experiment Station, Fayetteville, conducts research at Fayetteville, at the Rice Research and Extension Center, Stuttgart, and at the Lonoke location of the University of Arkansas at Pine Bluff. Ford Baldwin's rice research is located primarily at the Lonoke location of the University of Arkansas at Pine Bluff, and David Gealy is located at the National Rice Germplasm Evaluation and Enhancement Center at Stuttgart.

Common names of herbicides presented in data tables are referenced to trade names and sponsoring companies in Appendix Table 1. The scientific names of the plants evaluated and their associated Bayer codes are listed in Appendix Table 2. Climatological data for 1996 are presented in Appendix Table 3.

METHODS

Pertinent information specific to each field test precedes each data table. Included is information on general field conditions, field maintenance, and herbicide application and general conclusions from the data. All test areas were fertilized as recommended from soil tests. Experiments at Lonoke were fertilized before planting with chicken litter at 200 pounds/acre (lb/A), which was incorporated lightly into the soil with a field cultivator.

The herbicides used in these studies are designated in the tables by the common name proposed to or accepted by the Weed Science Society of America or, when common names are unavailable, by code number designation. A trade name is specified for compounds having more than one trade name or manufacturer. The Stam® formulation was used where propanil formulation is not designated. Herbicides formulated as pre-packaged mixtures are listed in tables by their component herbicides in parentheses. All herbicide rates are expressed in pounds of active ingredient or the acid equivalent per acre (lb/A) on a broadcast basis. Adjuvant rates are expressed as percent volume/volume.

Effects of the herbicide treatments were evaluated by weed control ratings, crop injury ratings, crop yields, and crop stand counts. Percentages of weed control and crop injury were visually estimated: 0% represents no effect, and 100% represents complete kill. Rice yield is reported as lb/A; 1 bushel = 45 pounds. Data were subjected to analysis of variance, and the LSD

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(Least Significant Difference) test at the 5% level of significance was used for separation of means.

ABBREVIATION OF TERMS

The following abbreviations are used in tables:

BkPkCO₂, CO₂ backpack sprayer
CEC, cation exchange capacity of soil
Cot., cotyledon
DAT, days after treatment
DF, dry flowable
DPF, days prior to flood
DPRE, delayed preemergence
EC, emulsifiable concentrate
EPOST, early postemergence
fb, followed by
FF, flat fan nozzle
G, granular formulation
Gpa, gallons per acre
LF, leaf
LPOST, late postemergence
LSD, least significant difference
ME, microencapsulated
MP-44, annual weed control recommendations for Arkansas
MPOST, mid-postemergence timing
N/A, not applicable
PI, panicle initiation
POST, postemergence
POSTFLD, after flood
PPI, preplant incorporated
PRE, preemergence
PREFLD, before flood
RCB, randomized complete block (experimental design)
UAPB, University of Arkansas at Pine Bluff
WAF, weeks after flood
XR, extended range nozzle