INTRODUCTION

- Perennial weeds such as alligatorweed (in rice) and redvine (in row crops) are becoming more problematic as Louisiana producers adopt more conservation tillage practices.

- Perennial weeds often begin spring growth before crops are planted and are difficult to manage in crop without the use of multiple herbicide applications.

- Fall applications of glyphosate for Johnsongrass and dicamba for redvine have long been recommended for managing these weeds. A standard recommendation for alligatorweed has not been established.

- Many producers complain of inconsistent results from fall herbicide applications and the high cost of dicamba for redvine control.

- Most fall applications have been made in late October to early November. One of the main reasons for this is because those are the earliest dates possible following many cotton crops. Another important reason is that it is commonly believed that the best time for fall applications is within a couple of weeks of the first frost.

- In recent years the best Johnsongrass control following corn harvest has been observed in September.

- The increased use of a cotton:corn rotation provides an opportunity for producers to make earlier fall applications.

- Glyphosate prices have dropped dramatically in recent years, which may make high rates of glyphosate the most economical program for controlling susceptible perennial weeds in the fall.

- The objective of this research was to evaluate herbicide programs for managing alligatorweed and redvine.

MATERIALS and METHODS

ALLIGATORWEED:

- Two studies were established in the fall of 2003 on Woodsland plantation near Monroe, La to evaluate fall applications of herbicides for alligatorweed control.

- The field was planted to rice in 2002, fallowed in 2003, planted rice in 2004, and fallowed in 2005.

- In the fallow years the field was disked 2-3 times, leveled and cultivated. The field was not tilled during the cropping years.

- **Figure 1.** In the first study several phenoxy herbicides and glyphosate were applied on September 15, 2003. Various combinations of glyphosate and the phenoxy herbicides were also evaluated. The results from the combinations are not reported because no combinations were better than glyphosate alone. Alligatorweed control was evaluated March to October in 2004 and in April and September of 2005. Only the May 2004 ratings are reported.

- **Figures 2-4.** In a second study the effect of glyphosate, glyphosate plus 2,4-D and glyphosate plus triclopyr application timing was evaluated. Alligatorweed was evaluated as in the first study. Alligatorweed control approximately 6, 12 and 24 months after application are reported in figures 2, 3, and 4, respectively.

REDVINE:

- **Figure 5.** In the fall of 2002 a study was established on a growers field (Mr. Rocky Williams) near Crowville, La to evaluate fall applications of herbicides for redvine control.

- The field was planted to cotton in 2001, corn in 2002, cotton in 2003, and corn in 2004. The field was prepared for planting in the fall by clipping stalks and re-hipping within two weeks of harvest. The field was not tilled while under study.

- **Figure 6.** The cotton was harvested early in 2003. As result the field was prepared for planting by early September and presented an opportunity to investigate sequential fall programs. The plots from 2002 (12 40-inch rows) were reduced to 4 row plots and treated with dicamba, glyphosate or not treated in late September of 2003.

- **Figure 7-8.** A second study was established in the fall of 2004 to evaluate the effect glyphosate application timing and rate on redvine control. Two replications were on Rocky Williams farm near Crowville, La and two replications were on the Vanderman's farm near Saint Joseph, La. Herbicide applications were made the same day using the same equipment.

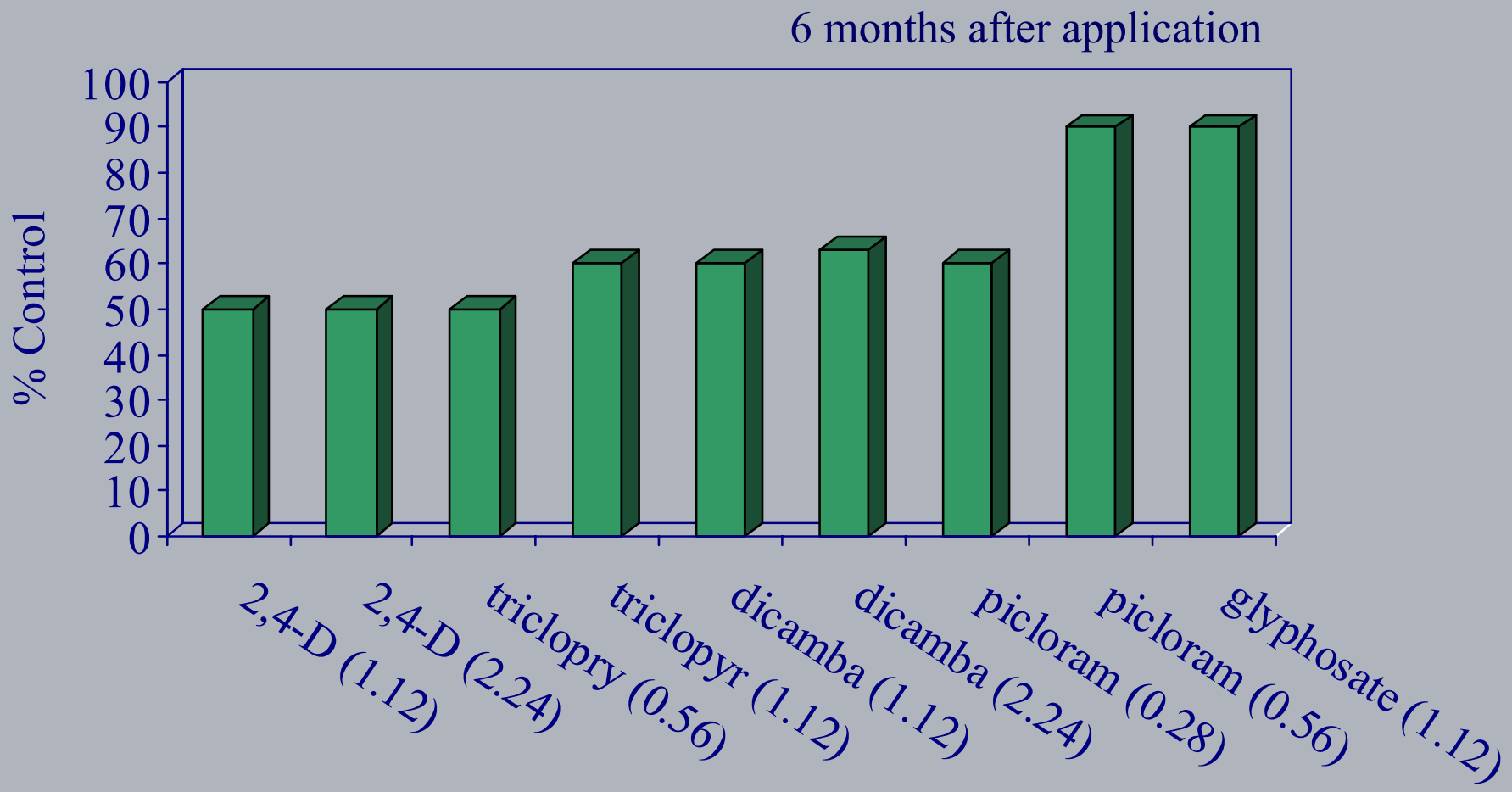

Figure 1. Alligatorweed control approximately 6 months (May) from selected herbicides applied the previous Fall. Rates listed in parenthesis are in kg ai/A. An 80/20 non-ionic surfactant at 0.25 % v/v was used for all herbicides except glyphosate.

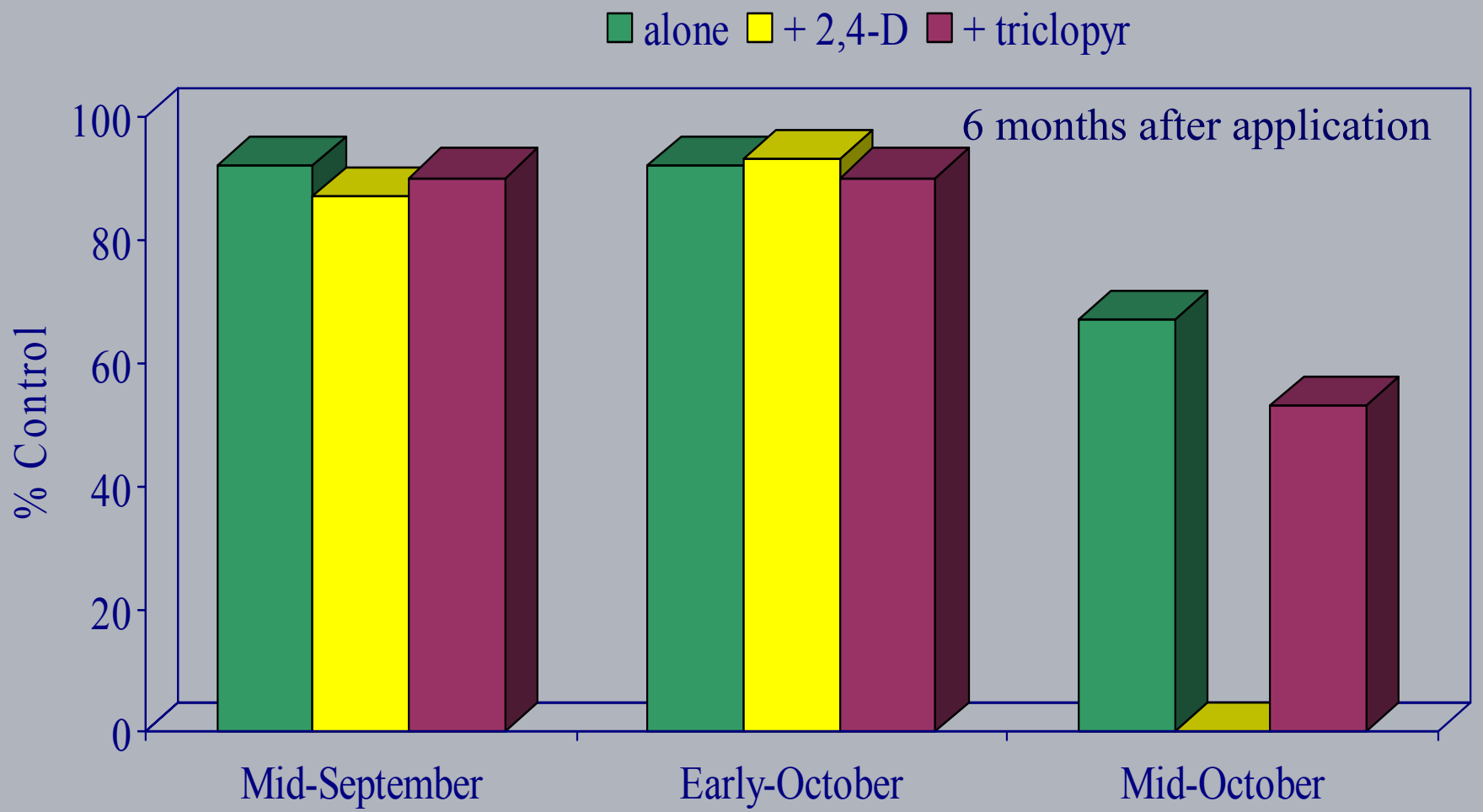

Figure 2. Effect of fall application timing on alligatorweed control approximately 6 months (early April) from 1.12 kg/ha glyphosate, glyphosate plus 1.12 kg/ha 2,4-D, and glyphosate plus 1.12 kg/ha triclopyr.

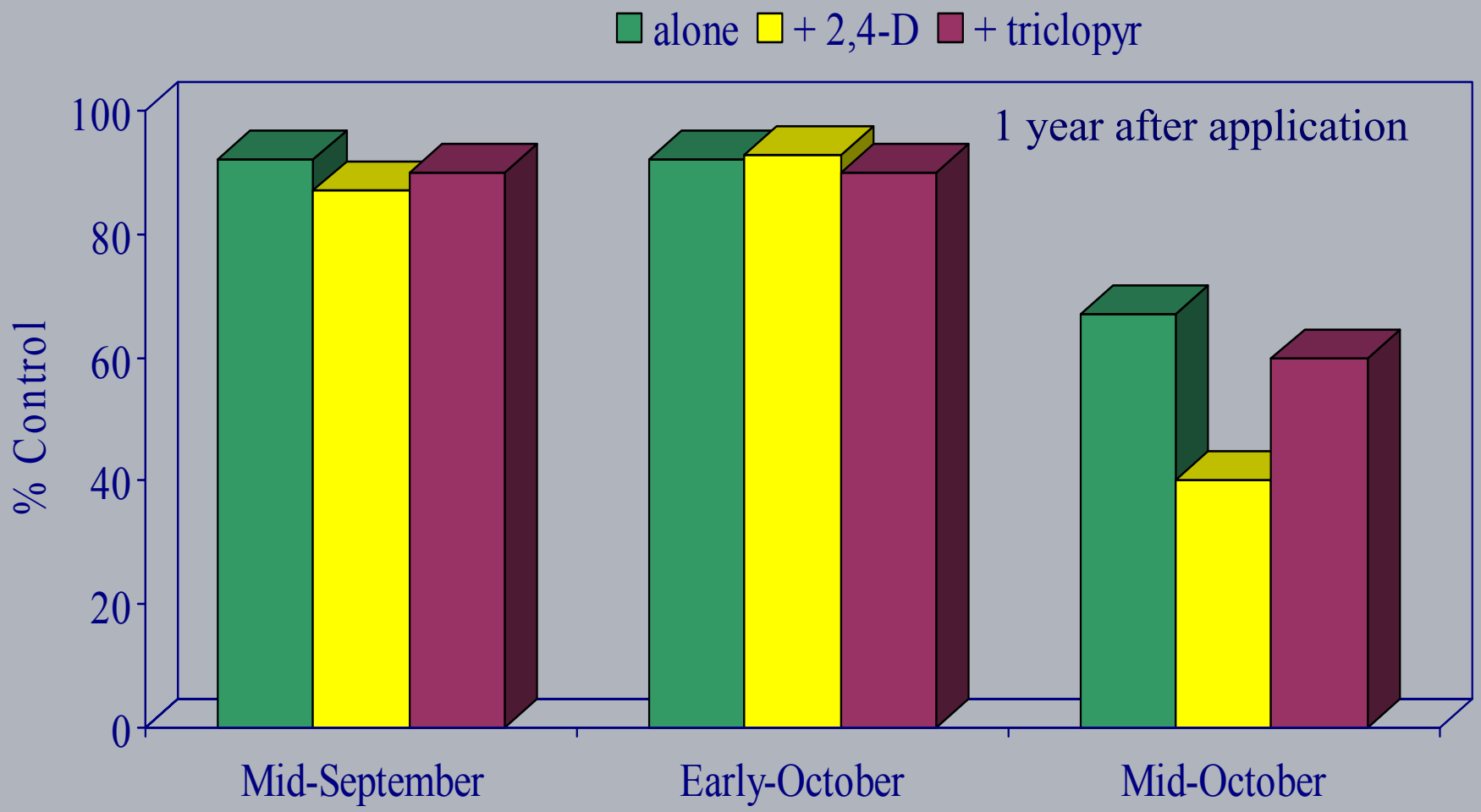

Figure 3. Effect of fall application timing on alligatorweed control approximately 1 year (early October) from 1.12 kg/ha glyphosate, glyphosate plus 1.12 kg/ha 2,4-D, and glyphosate plus 1.12 kg/ha triclopyr.

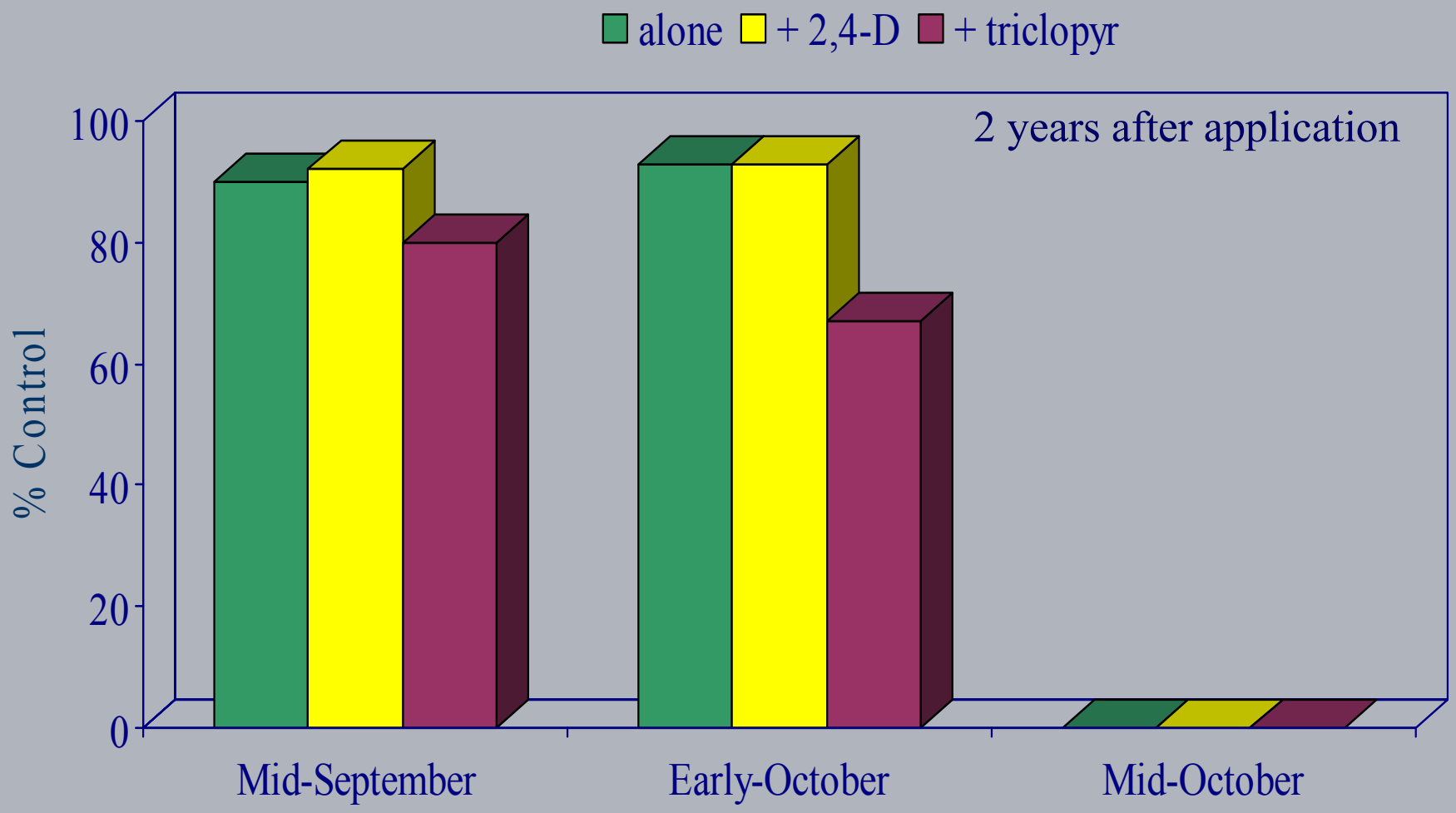

Figure 4. Effect of fall application timing on alligatorweed control approximately 2 years (early October) from 1.12 kg/ha glyphosate, glyphosate plus 1.12 kg/ha 2,4-D, and glyphosate plus 1.12 kg/ha triclopyr.

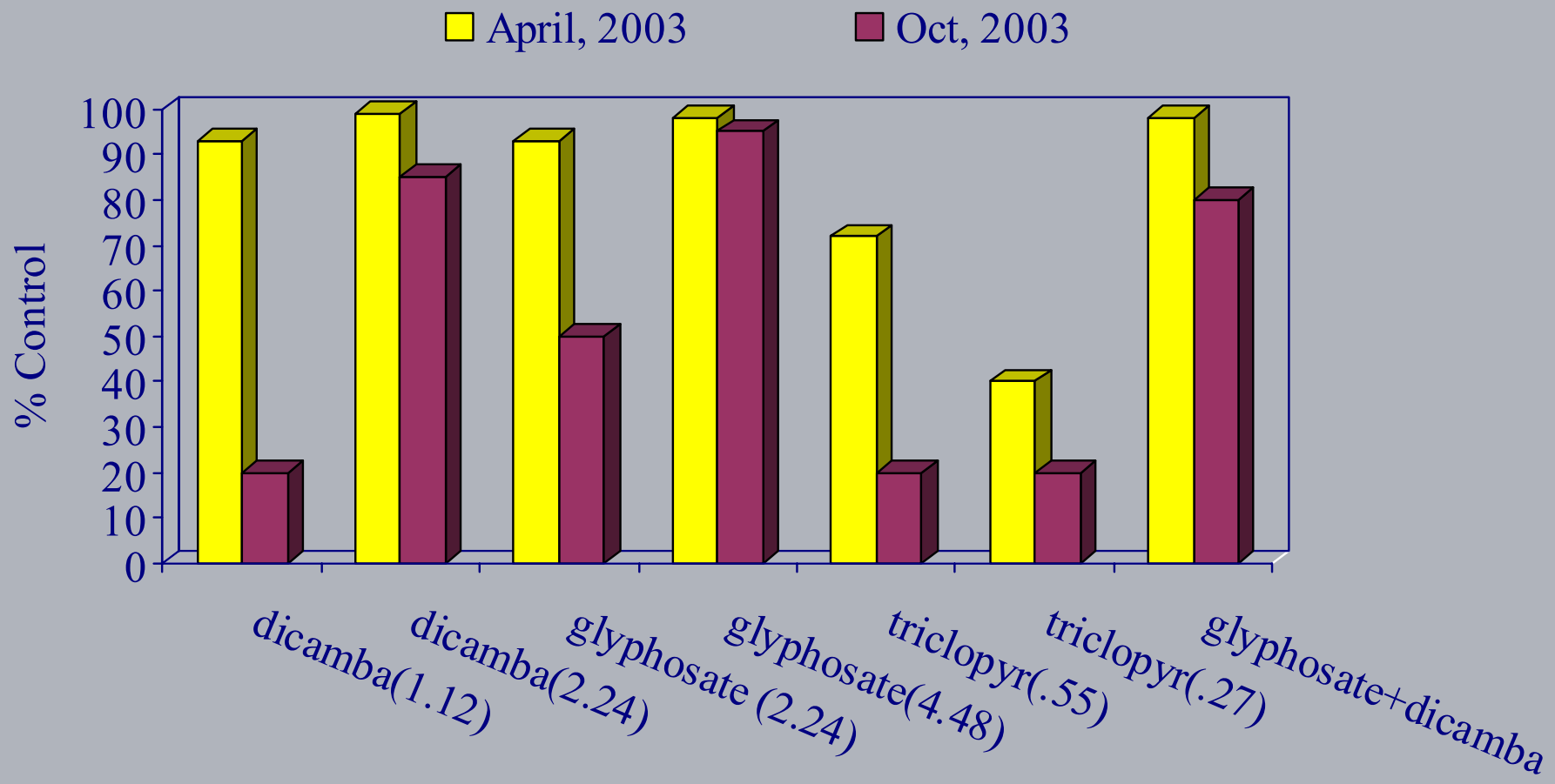

Figure 5. Redvine control in 2003 following fall applications of dicamba, glyphosate and triclopyr made on September 22, 2002. Rates listed in parenthesis are kg ai/ha. The rates for the glyphosate plus dicamba combination were 2.24 and 1.12, respectively.

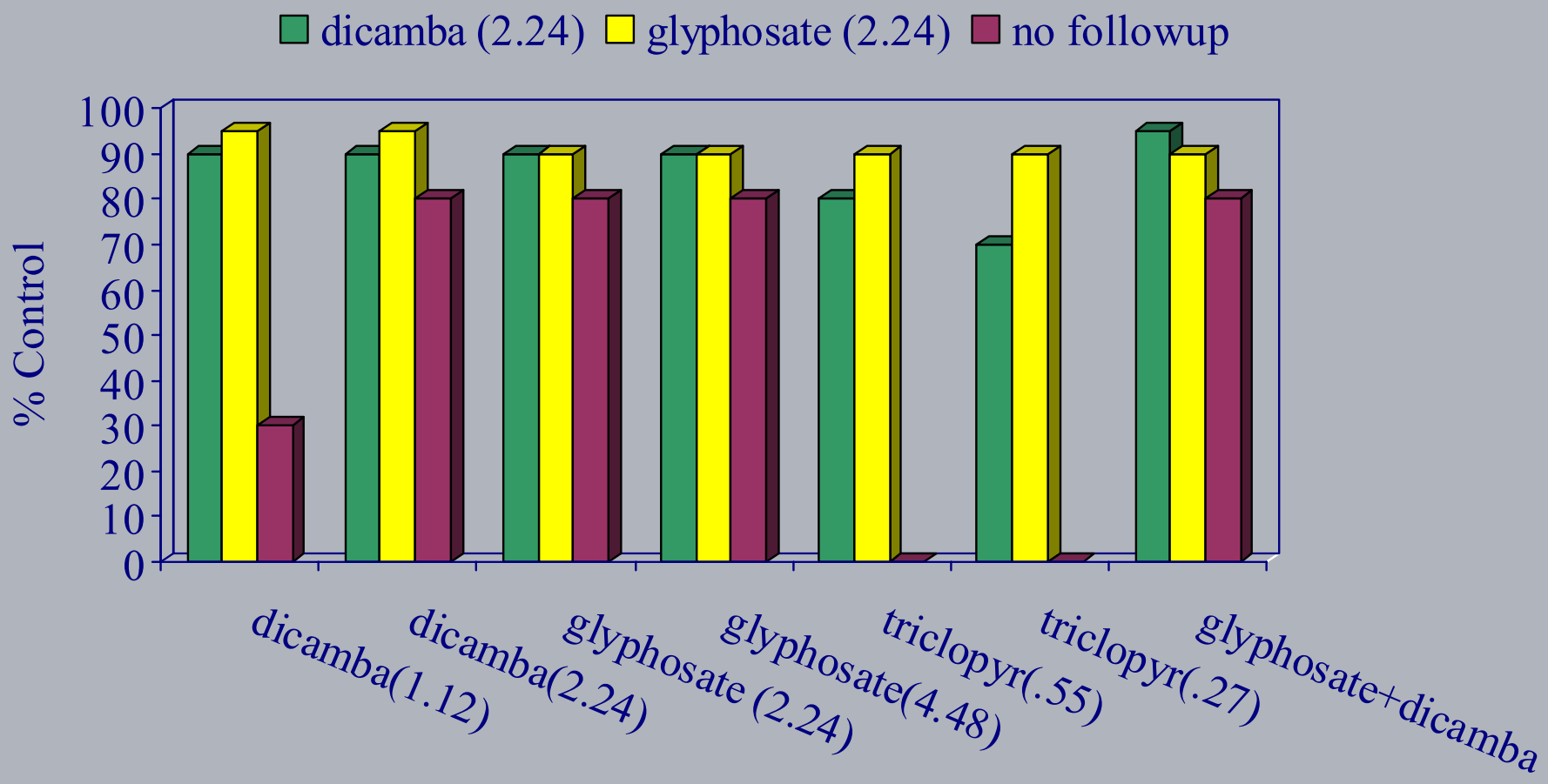

Figure 6. Redvine control in June, 2004 from fall applications of glyphosate, dicamba, or triclopyr applied on September 22, 2002 and followed by dicamba or glyphosate on September 26, 2003. Rates listed in parenthesis are kg ai/ha.

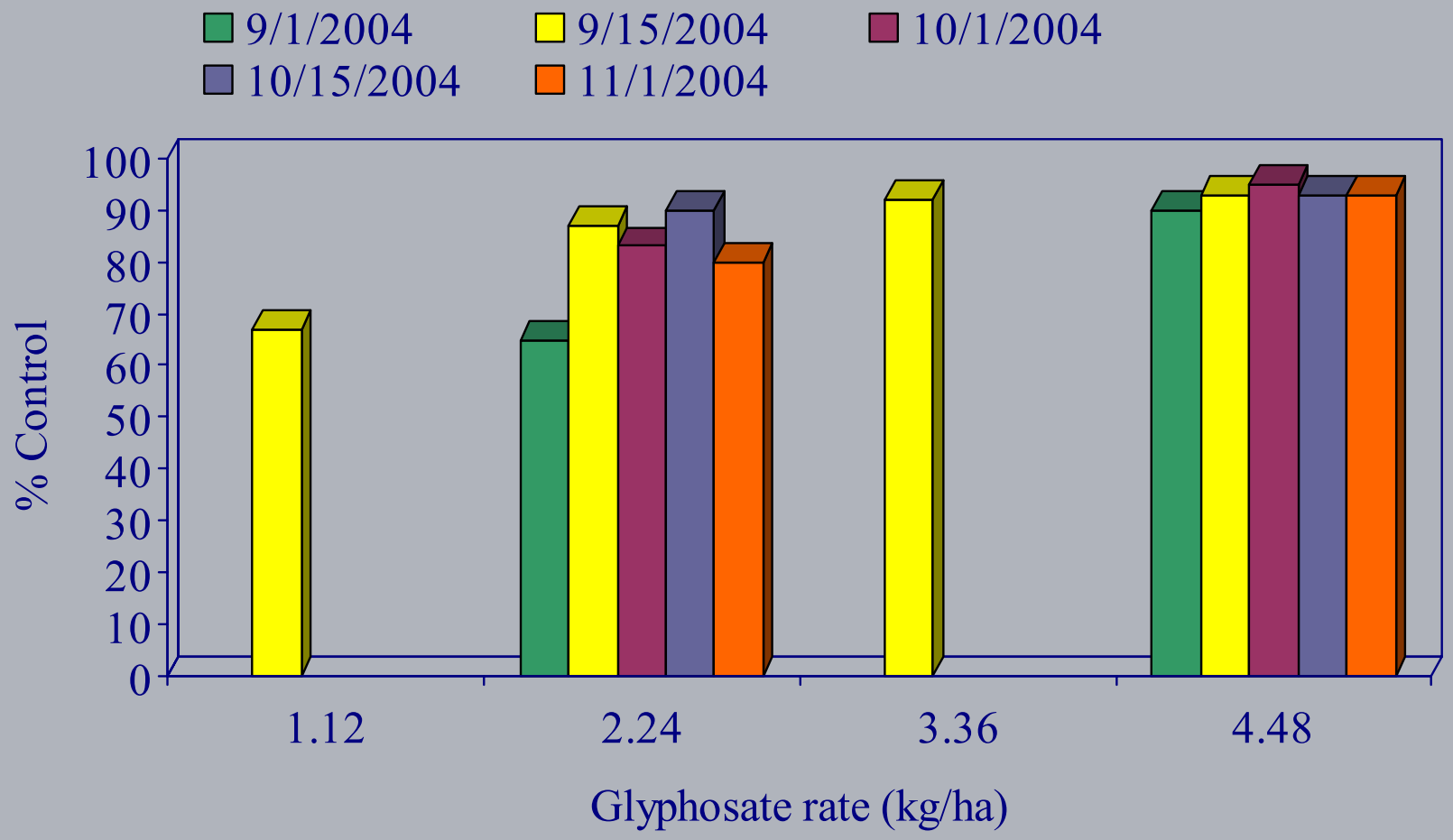

Figure 7. Effect of glyphosate application rate (x-axis) and application timing (see legend) on redvine control in April, 2005.

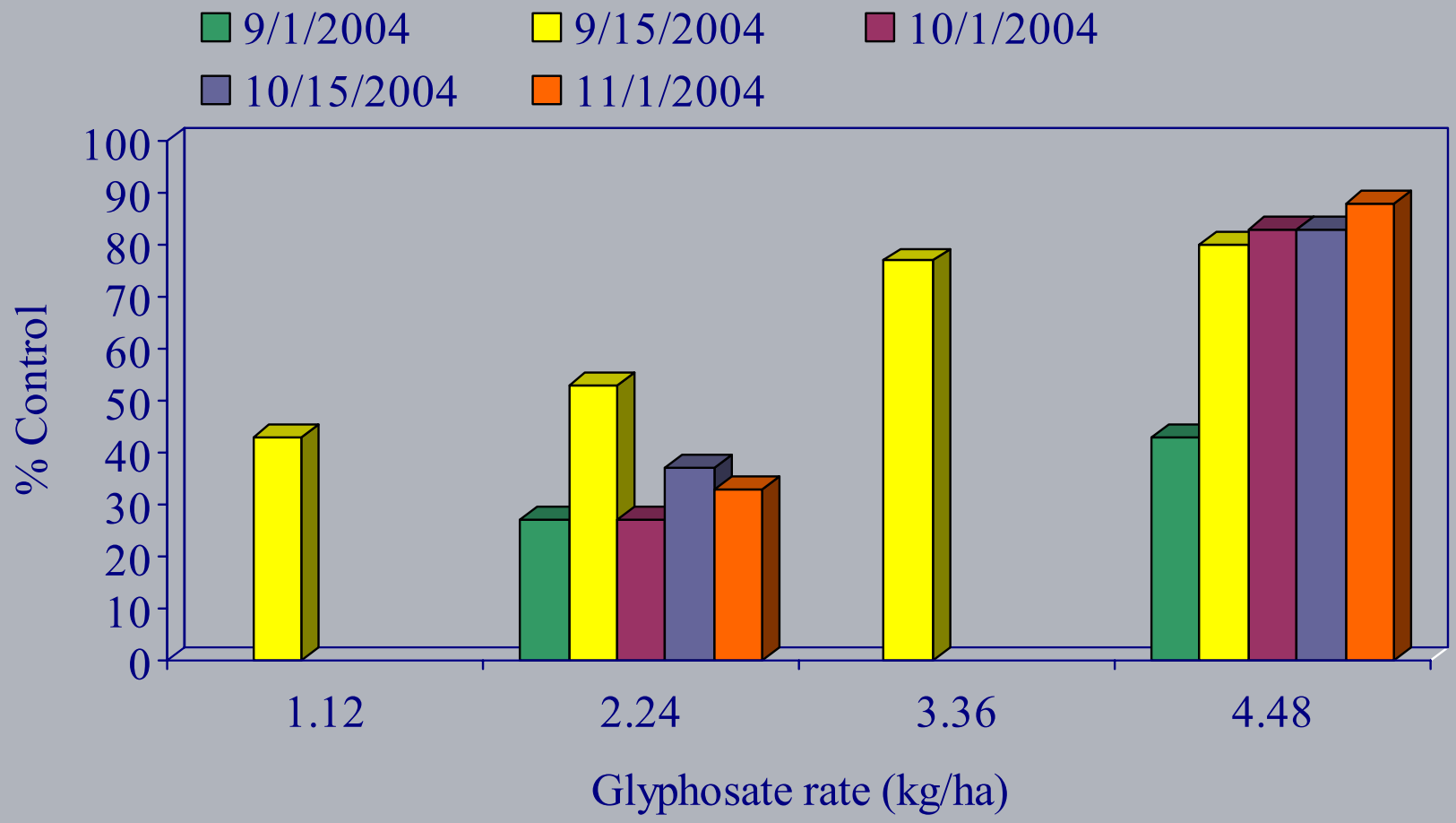

Figure 7. Effect of glyphosate application rate (x-axis) and application timing (see legend) on redvine control in September, 2005.

SUMMARY/CONCLUSIONS

ALLIGATORWEED:

- Picloram at 0.56 kg/ha and 1.12 kg/ha glyphosate resulted in the best alligatorweed control (Figure 1). Dicamba, 2,4-D, triclopyr and picloram at 0.28 kg/ha resulted in 70% or lower alligatorweed control. Synergistic responses were not identified when glyphosate was tank mixed dicamba, 2,4-D, triclopyr or picloram (data not shown).

- Glyphosate applied alone resulted in excellent alligatorweed control for as much as two years after application (Figures 2-4). Control was best from mid-September to early-October, and was considerably lower with mid-October application timings. Tank mixing glyphosate with either 2,4-D or triclopyr did not improve alligatorweed control. In fact in many cases, especially with mid-October applications, alligatorweed control

was reduced when glyphosate was mixed with 2,4-D or triclopyr compared to glyphosate alone.

- Overall, fall applications of glyphosate appear to be very promising for controlling alligatorweed in rice. Research is currently being conducted to verify these results. An additional study was initiated that includes more glyphosate application timings and rates.

REDVINE:

- At 6 months after application, glyphosate at 2.24 and 4.48 kg/ha controlled redvine similar to dicamba at 2.24 kg/ha (Figure 5). Triclopyr resulted in the lowest redvine control. Glyphosate at 4.48 kg/ha, 2.24 kg/ha dicamba and 2.24 kg/ha glyphosate plus 1.12 kg/ha dicamba controlled redvine 95, 85 and 80% one year after application. The remaining treatments resulted in 50% or lower redvine control.

- Glyphosate at 2.24 kg/ha applied in late-September of 2002 and 2003 resulted in redvine control in 2004 equal to or better than single or multiple applications of dicamba or 4.48 kg/ha glyphosate (Figure 6).

- In April of 2005, 2.24, 3.36, and 4.48 kg/ha glyphosate applied September 15, 2004 resulted in similar levels of redvine control (Figure7). The best control from 2.24 kg/ha from glyphosate was observed from mid-September to mid-October. Timing had little effect on redvine control with 4.48 kg/ha glyphosate. By September, treatments began to separate demonstrating the need for at least 3.36 kg/ha glyphosate.

- These results show that glyphosate at higher rates control redvine as well as 2.24 kg/ha dicamba. Glyphosate at 4.48 kg/ha resulted in the most consistent and long term redvine control from single applications. Still, 2.24 kg/ha applied each fall may be the best approach for managing redvine.

ACKNOWLEDGEMENTS

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- The redvine research was partially supported by the Louisiana Soybean and Feedgrain Research and Promotion board.