

INTRODUCTION

- Peanut is susceptible to soilborne and foliar diseases which can negatively affect plant growth and final yield.
- To reduce the severity of different peanut diseases, many fungicide chemistries with a wide range of disease control have been developed and used.
- However, there is still lack of information regarding the effect of fungicides on the physiology of peanut plants.



OBJECTIVE

Evaluate the effect of different fungicide programs on leaf spot intensity and plant growth in the peanut crop.

MATERIALS AND METHODS

Location: Attapulgus Research and Education Center, University of Georgia, GA.

Experimental design: randomized complete block design, with five replications.

Treatments:

Cultivars:

- Georgia-06G
- Georgia-18RU
- TifNV-High O/L

Fungicide programs:

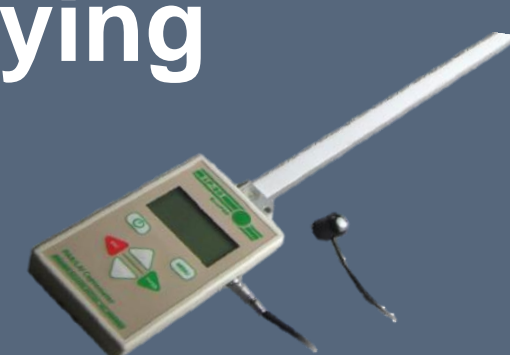
- Non-treated control (NTC)
- Chlorothalonil (5x; RED)
- Chlorothalonil (7x; CL)
- Chlorothalonil (3x) + Miravis (2x; CLM)



Measurements:

14 days after each fungicide spraying

- Leaf area index (ceptometer)
- Leaf spot intensity (Florida 1-10 scale)
- Pod yield at harvest



Data analysis: ANOVA and Tukey's test at $p \leq 0.05$

RESULTS AND DISCUSSION

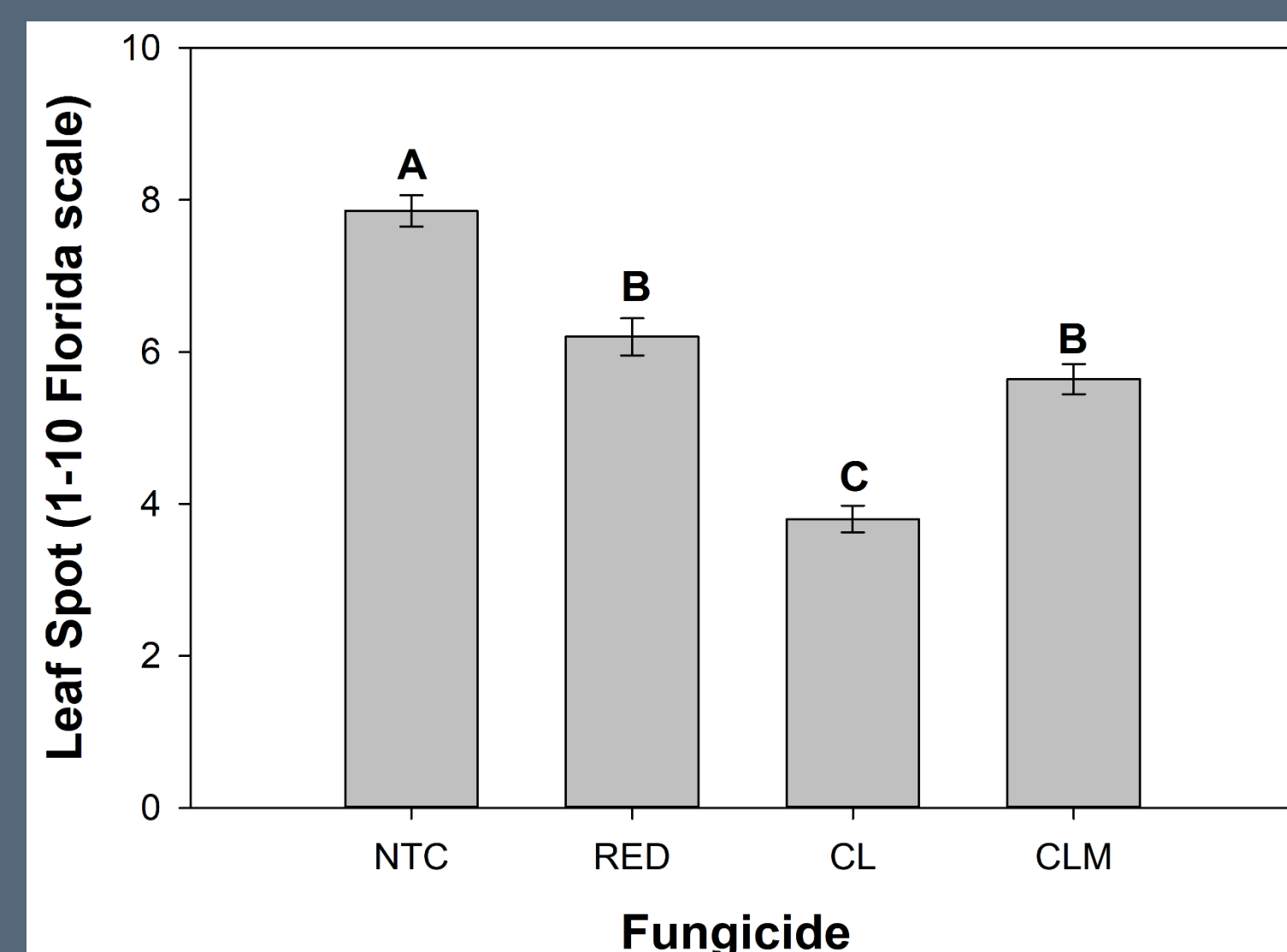


Figure 1. Effect of fungicide on Leaf Spot intensity (1-10 Florida scale).

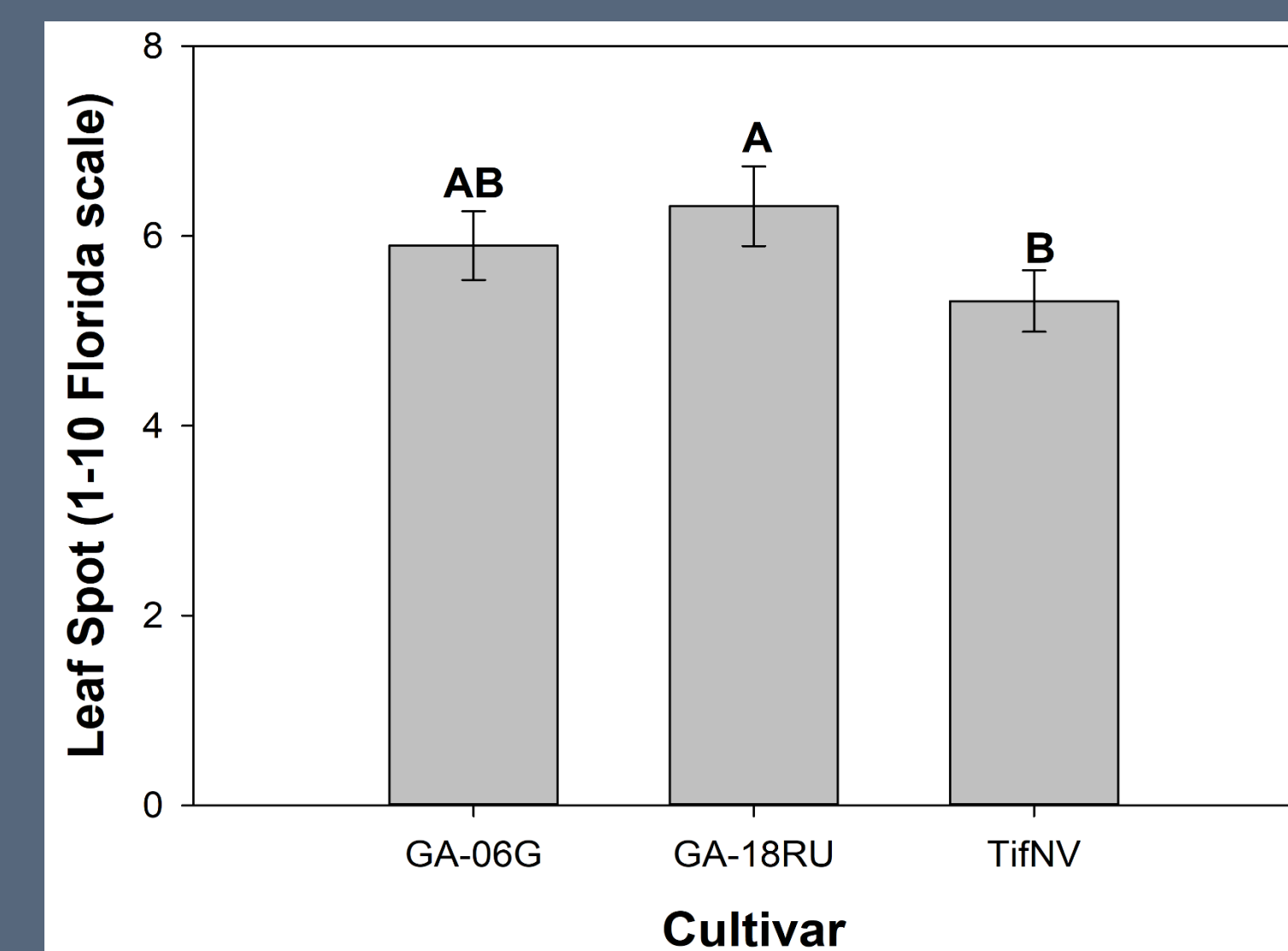


Figure 2. Effect of cultivar on Leaf Spot intensity (1-10 Florida scale).

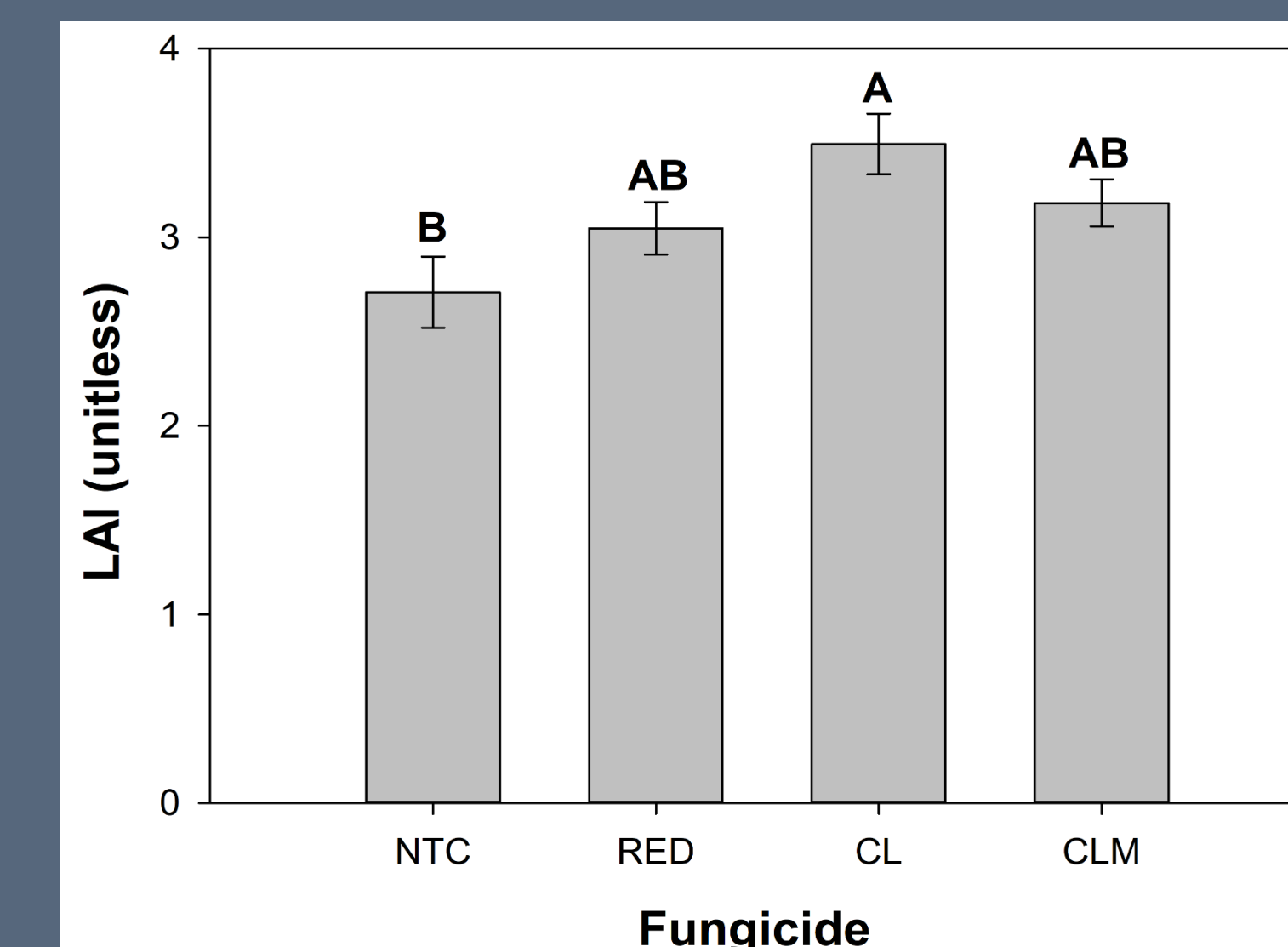


Figure 3. Effect of fungicide on Leaf Area Index (LAI; unitless).

- Leaf spot intensity was lower in plots treated with CL (Fig. 1) and planted with TifNV (Fig. 2) whereas LAI was greater in plots treated with CL (Fig. 3).
- There was a negative correlation between leaf spot and LAI (Fig. 4), indicating that greater leaf spot intensity resulted in higher defoliation. Yield was greater in plots treated with CL (Fig. 5) and planted with TifNV (Fig. 6).

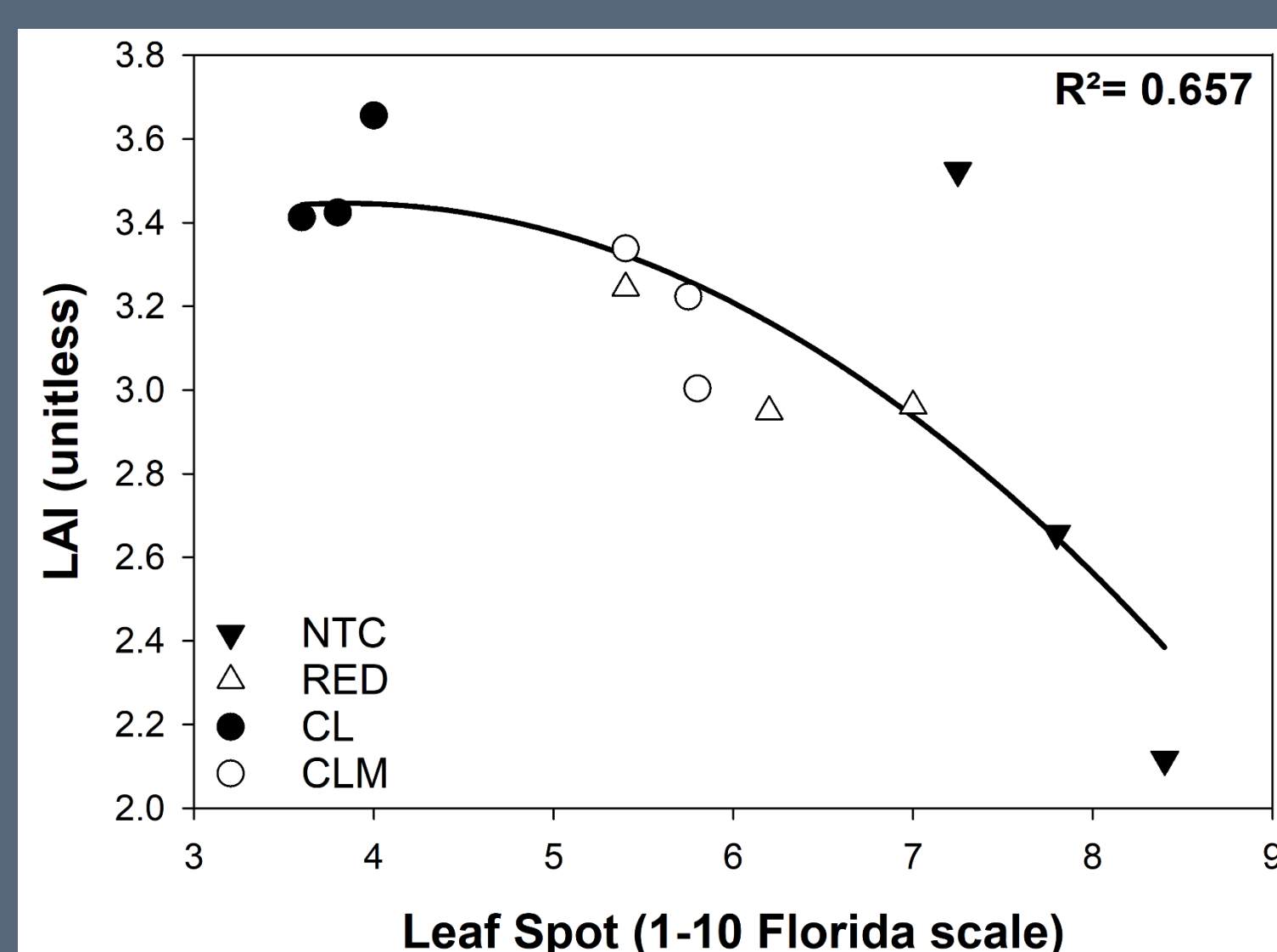


Figure 4. Relationship between leaf spot intensity and leaf area index (LAI) across all fungicides and cultivars.

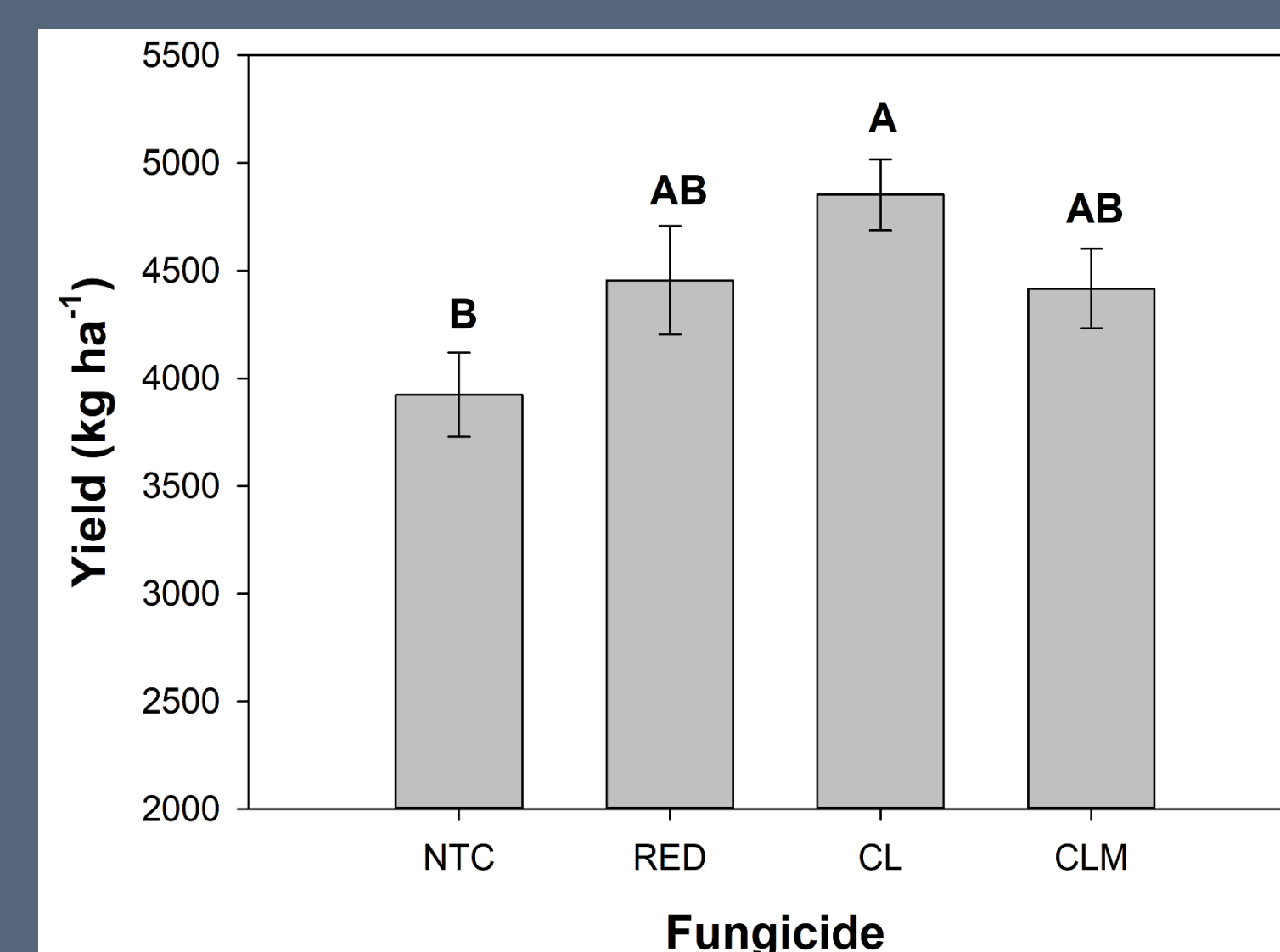


Figure 5. Effect of fungicide on pod yield (kg ha⁻¹).

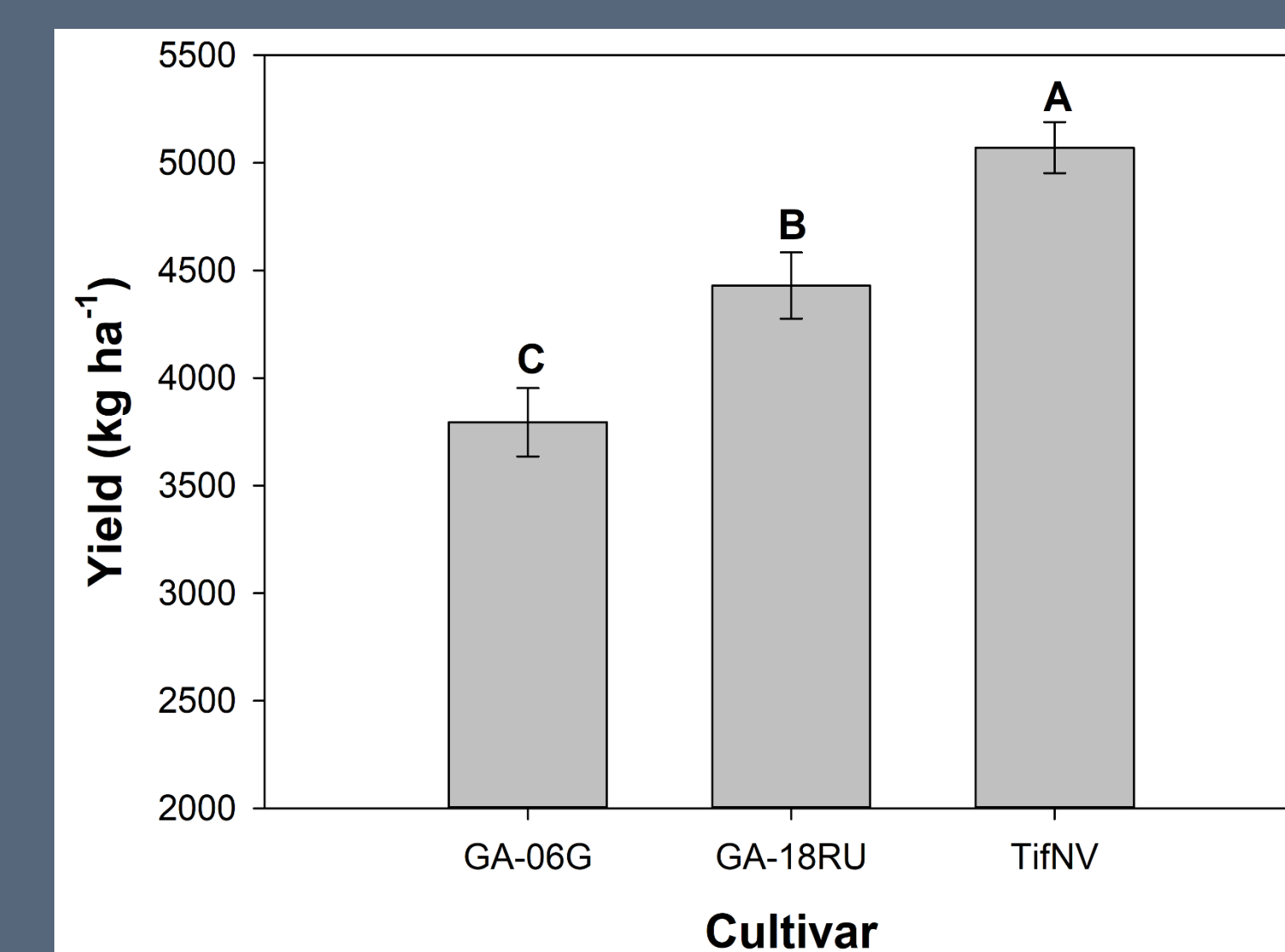


Figure 6. Effect of cultivar on pod yield (kg ha⁻¹).



CONCLUSION

Chlorothalonil applied seven times over the season and the cultivar TifNV-High O/L demonstrated improved control of leaf spot intensity without negatively interfering on canopy leaf area index and pod yield.

FUTURE RESEARCH

- Validate the results obtained in this research by conducting the same experiment in 2021.
- Conduct this trial in different sites to expose plants to different levels of disease severity.
- Select other cultivars to evaluate the efficacy of these fungicides on leaf spot control and plant growth.

ACKNOWLEDGEMENTS

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