Where cotton was responsive to K fertilizer there was a distinct advantage to band application over broadcast, both for yield and ROI. The reason for the better performance of banding is not completely understood. It has been speculated that since the soils in this study are fine textured there could be some K fixation occurring wherein high charge clay minerals (e.g., vermiculite, highly charged smectite) "fix" broadcast K fertilizer to a greater extent than banded K fertilizer. Detailed mineralogical analysis of these soils is planned to determine whether fixation may be a factor.

Concluding Thoughts

This study illustrates the importance of ongoing efforts to continue to further our understanding of K nutrition and soil interactions. More specifically, the findings here support the need for efforts that explore the new frontiers in K science. In 2015, IPNI tasked an international group of accomplished scientists to identify critical concepts that were missing or were inadequately characterized in existing soil K assessments or K recommendations. In the summary paper produced from this group (IPNI, 2015) the authors state *"Practitioners have often not been able to explain why soil-test K varies across the landscape or over time in response to management practices. Additionally, definitive calibrations of K soil tests to crop responses have not been achievable in some areas"*—a statement befitting the study reported here. Finally, the findings from this study have resulted in the formation of a larger and similar project that is being conducted across 12 cotton-producing states. BC

Acknowledgement

The authors would like to recognize the contribution of fellow researchers M.L. McFarland, D.A. Mott, D. Coker, and T. Provin as well as IPNI and Cotton Inc. for their support of this project.

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