

Responses to the Agriculture Engineers and Horticulture Heads Advisory Committees' Comments

The proposal objectives and justification looks appropriate and broad. The proposal is timely and much needed, considering the interest and potential of the technology. My question is why the title limits the geographical area of application to Southern US? There is much work done outside of the Southern region. My thought is that the project should have a national scope rather than regional.

“Southern” was deleted from the title.

I reviewed the proposal and thought it interesting and definitely of value to the future of UAS for agriculture. I do not know the expectations for a multistate proposal so cannot comment on that but I think one gap I perceive is the lack of how data is managed. This is a ‘big data’ type of project yet this is not addressed in the proposal. The need for figuring out how to handle the output and transform into action requires both computer scientists or those who are knowledgeable about large data sets as well as statistical inference. This was not defined either. The applications side and the gaps were introduced well. I think these gaps will continue if there is no discussion in how to manage the data though.

A data management plan will be developed early in the project term.

I believe we need such a proposal – more details are needed. Seems like we have similar issues with aerial/satellite imagery (not sure we have resolved them) and what protocol are they using for specific applications? I would like to see specific objective(s) on developing protocols on standardized levels of imagery needed so that when data is aggregated it will be compatible from a variety of sources. It would make sense also develop a common MOU that data could be aggregated from various institutions. These items show up in Objective 1 under methods but how the implementation will occur needs to be addressed. The section under “Training and extension opportunities in UAS” has asked the right questions but I don’t see a direct approach to answering them. It is almost that with this experience it will be easily answered. I believe they have to have very committed objectives to answer and develop the knowledge highlighted in this section.

References for many protocols we will be using are provided, some are yet to be determined. If references for all protocols in the proposal were listed, it would be a very long list.

In response to the comments that objectives 1, 2, and 3 need to be different and more focused: I believe they are. It is only their structure perhaps similar, which is not necessarily a bad think for readers, but in term of what objectives plan on doing, they are very different.

Responses to Peer Reviewer Comments (most were incorporated in the proposal revision)

1. With regard to the suggestions of reviewers “*lack of how data is managed;*” “*need for figuring out how to handle the output and transform into action;*” “*specific objective(s) on developing protocols on standardized levels of imagery needed*”), two sub-objectives

were added to Objective 2: **(c) Detailed protocols for specific applications, and (d) Appropriate data management strategies.**

2. With regard to the suggestions of Yeyin Shi's review ("*Objectives 1, 2 and 3 can be set with less overlap but more distinct focuses*"), Objective 2 statement was changed as follows:
 - a. Original - "2. Test applications of UAS in real world situations in multiple locations to determine."
 - b. Final - "2. **Test applications of UAS in specific, real-world, production-agriculture situations in multiple locations to determine:**
3. With regard to both reviewers' comments above, the following statement was added as the first bullet under Objective 2 Methods: **Protocol Development: Multistate teams will work together to develop common protocols for common applications. For example, researchers in Texas and Georgia may collaborate to determine robust and repeatable ways – i.e., a specific series of steps – that UAS remote sensing data can be used to benefit cotton producers.**
4. With regard to the reviewer's written comments on page 7 of the proposal ("*Kept up/maintained by whom? Lots of data!*"), a sentence was added to the first bullet of Objective 2 Methods: **As much as possible, data will be uploaded to and maintained on a centralized database, such as the Agricultural Data Cooperative.**
5. Data Aggregation: Removed "**all**" in front of "**investigators**" to ensure it's not viewed as mandatory. Language on developing a MOU for participation was added.
6. Proposal Development: We disagree with "must figure out how to use them first" before we develop research proposals and did not incorporate this comment.