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Precision Aerial Application – Past, Current and Future

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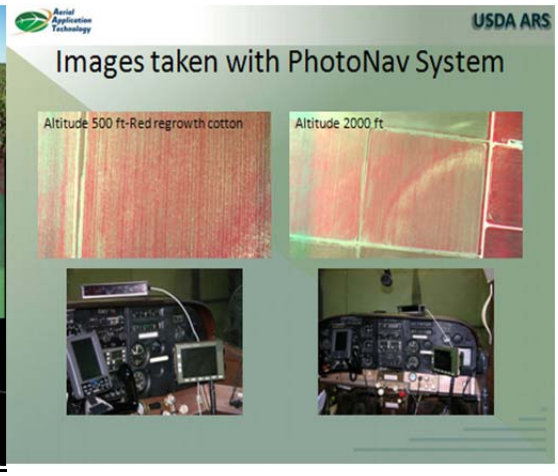
Abstract: Precision agriculture includes different technologies that allow agricultural professional to use information management tools to optimize agriculture production. The new technologies allow aerial application applicators to improve application accuracy and efficiency, which saves time and money for the farmer and the pilot. The USDA-ARS-Aerial Application Technology group has an active research component in precision application. This presentation will discuss the various research components and how they will ultimately fit into a complete precision application package. Since aerial applicators are flying over numerous fields between spray missions, these aircraft can be fitted with multispectral cameras that can detect crop diseases, water stress, and other crop conditions. Research is underway to convert these images into application maps (i.e. shape files) without a lot of effort or special knowledge from the pilot/operator, which could then be a new service to a customer. These application maps could then be easily uploaded into the spray system computer to make variable-rate aerial application of cotton growth regulators, defoliants, and insecticides. The goal of these research projects is to demonstrate that precision agriculture technology has the potential to benefit the industry by saving operators and farmers' time and money.

Research Projects: Research is underway to convert aerial images into application maps without a lot of effort or special knowledge from the pilot/operator, which could then be a new service to a customer. These application maps could then be easily uploaded into the spray system computer to make variable-rate aerial application of plant growth regulators, defoliants, fungicides, and insecticides.



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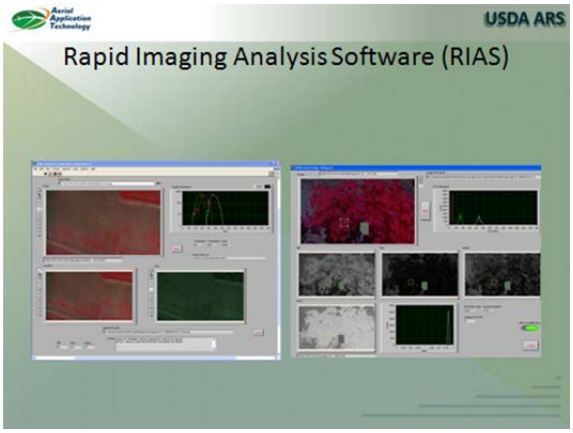

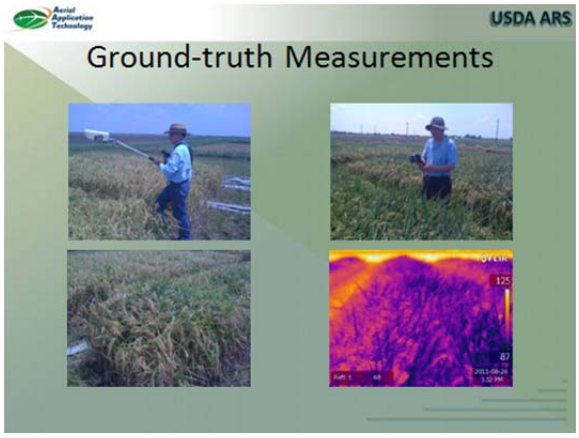

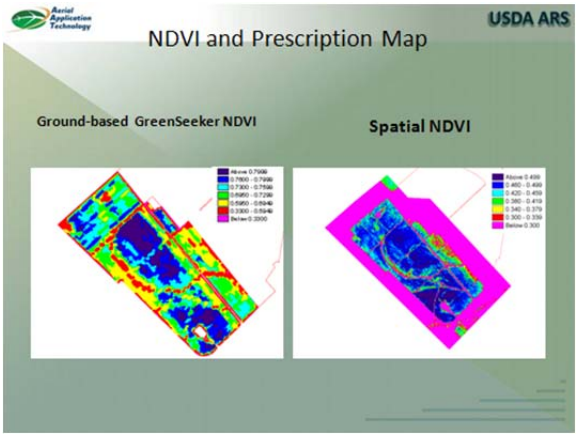

Summary: Research is underway to convert aerial images into application maps without a lot of effort or special knowledge from the pilot/operator, which could then be a new service to a customer. These application maps could then be easily uploaded into the spray system computer to make variable-rate aerial application of plant growth regulators, defoliants, fungicides, and insecticides. Precision aerial application will result in more judicious use of pesticides, thereby satisfying environmentalists, legislators and farmers. Precision aerial application will allow for the targeting of inputs to specific areas of fields, enabling farmers to remain successful in an increasingly competitive industry, and save time and also provide additional revenue for aerial applicators.