Consortium for Kansas Unmanned Systems

Theme: Applications

·   Precision Agriculture
·   Remote Sensing
·   Image Processing

·   Information sharing and knowledge management

High-resolution agriculture image analysis

AgPixel software is designed to precisely interpret images acquired through unmanned air vehicles (UAVs), as well as satellite and high altitude imagery. As the United States government moves forward to regulate commercial use of UAVs for the agricultural industry, the subsequent increased interest in UAVs by farmers and agronomists alike has created a burgeoning need for post-flight image analysis.

The increased usage of UAV imagery in the future will require cutting-edge software solutions to interpret the sheer amount and complexity of data. For example, with the use of a UAV imaging system, a 600-acre operation could be captured using precise, high-resolution photography in a mere 30 minutes. However, the wealth of data these aerial images provide, specifically with regard to vegetation indices, N-rate recommendations, and yield estimates, is only as efficient as the software used to interpret the data. AgPixel is designed to help provide that assistance in understanding the data with advanced tools such as multiple vegetation indices, atmospheric correction, pixel selection, analysis, comparisons, supervised and unsupervised classifications, and exporting.

While the focus of AgPixel is rooted in soil management and crop production, less traditional uses could include the tracking of livestock herds or lost animals, detection of unwanted animal predators, and up-to-date surveys of structural systems from roads and bridges to irrigation systems. AgPixel software can be organically tailored to the needs of the operation, allowing it to be utilized in any area of precision agriculture.

The implications of this technology, although not yet being utilized in the commercial realm, would mean an increase in productivity and efficiency not previously witnessed since the mechanization of agriculture. From large-scale agricultural operations to small sustainable farms, the ability to apply resources such as fertilizer to exact specifications, will reap cost-savings and environmental benefits.

Suggested keywords:

UAV
Precision Agriculture
Remote Sensing
Image Processing
Information sharing
Knowledge management