

# Ag center uses remote sensing

Dwindling of the Ogallala aquifer is going to be a great concern to the area growers. Unpredictable rains and change in climate can make a difference in what to plant and when to irrigate.

The wells, which used to pump 600 gallons of water per minute, are now pumping only 200 gallons.

Growers use more than three wells to irrigate their crops to make a decent yield.

As a breeder, we need to develop a drought tolerant variety for peanuts that uses less water and at the same time be able to produce more yield per unit of water applied.

Now, New Mexico State University researchers are working on a method of monitoring peanut crops in order to help growers have a more healthy crop.

NMSU's Agricultural Science Center at Clovis is collaborating with Texas Tech to use remote sensing on peanut crops to estimate the crop biophysical characteristics, such as ground cover, leaf area index, biomass and yield.

This is the first year we are using the method of remote sensing on peanuts and, since the peanut ground coverage is so dense, we are all excited to see the results.

Along with Nithya Rajan and Stephan Maas, researchers with Texas Tech, I have been observing a peanut crop near Brownfield, Texas, since the

beginning of the growing season in May.

They're using the Texas Tech Airborne Multispectral Remote Sensing System flown aboard an aircraft provided by South Plains Precision Ag in Plainview, Texas.

The remote sensing system contains high-resolution digital cameras fitted with narrow band-pass filters that allow the cameras to acquire imagery in specific wavelengths of light.

Digital data extracted from the remote sensing imagery was used to calculate the values of vegetation indices, including the Normalized Difference Vegetation Index (NDVI) and the Perpendicular Vegetation Index (PVI), for the peanut canopies growing in planting configuration test plots.

NDVI and PVI are indicators used to measure a plant's growth and leaf canopy density. The vegetation indices can be correlated with ground measurements of crop biophysical characteristics made in the plots on the days with remote sensing observations.

## AG SENSE



By Naveen Puppala

This is the first year the Clovis science center has used remote sensing on peanut crops, but the method can be used on a variety of crops.

Rajan and Maas have previously used this method on cotton, sorghum and corn crops in West Texas with success.

We chose to use a test site in West Texas as this is an area that has seen more growth in the peanut crop industry. There are plans though to apply the remote sensing method in New Mexico.

Development of relationships between biophysical characteristics and remote sensing data could allow routine monitoring of peanut crop growth and yield potential in producers' fields.

With more research on remote sensing, it will help the growers to identify the correct time to irrigate their crops. The grower can identify low-lying and deficient areas within their pivot.

As peanut growers spend a lot of money on fungicides to control the foliar disease, with remote sensing, we can avoid the areas where the crop is good and pinpoint or apply fungicides only to the areas that are nutrient deficient or have problems with disease.

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