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Biodiesel from Sunflowers: Phase II - An Analysis of Soil Moisture Content and Sunflower Oil Content

This project was designed to determine if soil moisture had an influence on the oil content of sunflowers grown for biodiesel production. I predicted that soil moisture content will affect the oil content of sunflowers during the R5 reproductive stage of sunflower growth more than any of the other reproductive stages and more than the total accumulated soil moisture for the year. The experiment took place on 7 fields with 3 plots per field. Soil samples were taken every two weeks throughout the growing season and analyzed for moisture content. Soil samples were also collected from each plot at the beginning of the project for a fertility analysis. When the sunflowers were ready for harvest, seed samples were taken from each plot and sent to a laboratory for oil content testing. Soil moisture in the dry land samples decreased over the course of the year; however, soil moisture in the samples from the irrigated fields stayed consistent until the last two sample dates. Laboratory analysis of the sunflower seed samples showed that oil content varied greatly among all fields. Oil content tests had a high of 44.6% with a low of 34%. The results of my project did not support my hypothesis. Those fields with the best soil moisture levels during the R5 stage of growth did not produce sunflowers with the highest oil content. Also, the fields with the highest total accumulated soil moisture did not produce sunflowers with the highest oil content.