**Statistical Design Consulting**

**SEMESTER REPORT**

**Spring 2025**

**Client:** Dr. Petrus Langenhoven  **File Number:** 23-083

**Department:** Horticulture and Landscape Architecture **Major Prof:**

**Consultant:** Sumeeth Guda **Initial Meeting Date:** 07/25/23

**Meeting Attendees:** Robert Jung, Dr. Petrus Langenhoven, Dr. Chong Gu

**Statement of Problem:** To investigate propagation and on-farm hardening-off protocols on field establishment with CBD hemp

**Goal of This Project:** Journal Article, Grant Proposal

**Background:**

The client developed a standard production procedure for the propagation (regulation) of CBD hemp in a controlled environment setting before the initial meeting. Specifically, the client wants to identify the procedure that is expected to yield the best rooting of cannabis cuttings. The experiment involved two different light treatments, referred to as Glow film-full spectrum and Patriot Plus-red/blue spectrum, that can cover an entire tray in the client’s lab. The client plans to have two replications of these light treatments in different locations in the lab. The client also has two other factors that they initially considered, namely, the propagation trays and the hardening off processes. The response variable is defined with stem diameter and height of the plant along the growth stage and whole plant fresh weight in the harvest stage.

Additionally, the client is doing a study where they are seeing the effects of total nitrogen on sorghum yields when cover crops are introduced in the fall and spring harvest seasons. They wanted visuals to see the changes from the cover crops from the 2021-2024 harvest seasons.

**Progress During Current Semester:**

The client was a returning client since the summer 2024 semester, who needed 6 treatment / lagging plots created for the soil data sets that he sent to the consultant to show the effects of introducing a cover crop within a harvest cycle to track the total available nitrogen and total phosphorus in the soil. The client wanted to use these results for a poster to show farmers and other soil scientist. The consultant created the treatment plots using R and sent the results to the client. The consultant shared the results in a word document to the client and explained how to interpret the plot. They used the same procedure to create the plots in the Fall 2024 semester.

Dr. Langenhoven mentioned that while the work for this semester is complete, he will be continuing with the SCS and the project in the summer semester. Where they have plans to do further analysis using the data.

**Current Status: Continuing**