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# APPLICATION FOR STATISTICAL CONSULTING

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YOUR PRIMARY POSITION AT PURDUE: Staff

HOW DID YOU FIND US: I've used the consulting service before

LIST STATISTICS COURSES TAKEN AND STATISTICAL COMPUTING EXPERIENCE:

STAGE OF RESEARCH: Analysis (all data have been collected)

IF DESIGN STAGE IS COMPLETE, WAS A STATISTICIAN CONSULTED FOR DESIGN? Yes

PREVIOUS CONSULTANT – INSTITUTION/DEPARTMENT: Zeyu Zhang Statistics

ESTIMATED NUMBER OF CONSULTING HOURS NEEDED THIS SEMESTER: 5 - 15 hours

EXPECTED COMPLETION DATE OF PROJECT: 9/30/2023

IMPORTANT DEADLINE OR DUE DATES RELATED TO YOUR PROJECT: July 24,2024

THE RESULTS OF THIS RESEARCH WILL PROBABLY BE PUBLISHED AS:

Journal Article,Grant Proposal

IS THIS RESEARCH SUPPORTED BY A GRANT OR CONTRACT? Yes

If so, give grant/contract title: Getting it right inside: Developing a propagation standard for Indiana hemp growers

GIVE A BRIEF DESCRIPTION OF YOUR RESEARCH INCLUDING:

PURPOSE:

This material was presented to the SCS in 2020/21.

The objectives of this study are:

1) to establish a propagation protocol for the indoor production of hemp clones using sole-source LED lighting, 2) to determine the impact of propagation protocol on field establishment, 3) to establish a protocol for on-farm hardening-off practices, 4) to evaluate ten different hemp genetics and initiate the development of a production manual.

Design:

Propagation phase (in the greenhouse)

Hardening off phase (greenhouse and high tunnel)

Establishment and production (field)

Experimental variables of interest:

1. Clone rooting success

2. Establishment and survival rate

3. Biomass production

Research questions:

Overarching question:

What impact does propagation and hardening off procedure have on the establishment, survival, and growth (production) of hemp

Sub questions:

1. Does the light source and type of propagation tray affect the growth and rooting of clones?

2. What is the impact of the hardening-off procedure on the survival of clones in the field?

3. Does propagation and hardening-off procedures affect hemp production?

DESCRIPTION OF VARIABLES TO BE MEASURED:

Design:

Propagation phase (in the greenhouse)

Two sole source light sources (Red:Blue and White/Full spectrum)

Three types of propagation trays (50-count square, 72-count square, 72-count hexagon)

Hardening off phase (greenhouse and high tunnel)

Four hardening-off techniques (no hardening (DLI=15), hardening in the greenhouse (DLI=20), hardening in the high tunnel with 30% shade, hardening in the high tunnel with 50% shade)

Three replicates

Five plants per replicate

As suggested in the earlier consultation, each plant was tracked individually throughout the entire study.

All clones were planted in a field setting at Meigs research farm. Treatments were arranged in a randomized complete block design.

Variables of interest

1. Stem diameter and root rating (after propagation phase)
2. Establishment and survival rate (alive or dead, Lodged or upright, split main stem or not)
3. Biomass production (plant height and stem diameter data was collected weekly, and fresh mass was collected at the end of the growing season)

RESEARCH QUESTIONS THAT YOU WANT TO ADDRESS USING STATISTICAL METHODS:

1. Does the light source and type of propagation tray affect the growth and rooting of clones?
2. What is the impact of the hardening-off procedure on the survival of clones in the field?
3. Does propagation and hardening-off procedures affect hemp production?
4. Does the treatment combinations affect the growth rate?

STATISTICAL ISSUES:

Data analysis and statistical codes

I use SPSS or SAS

ADDITIONAL INFORMATION YOU THINK WOULD BE HELPFUL:

ATTACHMENTS:

No Attachments