

NUTRIENT MANAGEMENT FOR SEMI-ARID CANNABIS PRODUCTION

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ABSTRACT

The industrial hemp (*Cannabis sativa* L.) industry rapidly emerged in Utah in 2019 with nearly 480 new hectares of hemp production. Production declined and stabilized during 2019-2022 due to low returns in a flooded pharmaceutical market. Though small and specialized, the hemp production industry is still viable in Utah and surrounding states. Many questions remain on optimal production practices for this new and potentially high-value crop. Research throughout the United States is limited on a large scale and regionally. One of the first Utah outdoor hemp research sites was established in 2020 near Logan, Utah (41.66N, -111.91W), looking at multiple production factors. One multi-year trial investigated fundamental fertility strategies. In 2020, there were three treatments of control, 100 lb N additional, and 100 lb P additional applied to three replications of plants and repeated for 2021. For 2022, the trial expanded to four P treatments, five N treatments, and a no applied nutrients control. Female hemp clones were transplanted in late May and harvested in September and October. Harvest index (leaf and flower biomass: total aboveground biomass), biomass yield, and stem yield for the three years. A complete cannabinoid analysis was measured on the 2020 and 2021 harvested plants to determine how these management factors influence the indices. Preliminary results will be presented.