

## **INDUSTRIAL HEMP RESPONSE TO NITROGEN APPLICATION**

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### **ABSTRACT**

With the increasing interest in industrial hemp (*Cannabis sativa L.*) as a versatile crop for both fiber and grain production, optimizing nitrogen (N) management has become critical for maximizing its productivity. Field experiments were conducted at two locations (Novelty, Albany) in northern Missouri to evaluate the effects of N application rates on industrial hemp growth, biomass, and grain yield. The experiment was set as a randomized complete block design with a split-plot arrangement and four replications. Main plots included four varieties (Puma, Yuma, Futura 83, Orion 33 ) and subplots were five N rates (0, 45, 90, 134, and 179 kg N ha<sup>-1</sup>). The plant biomass yield, grain yield, height, plant stand, and stem diameter were recorded to assess industrial hemp growth and production under different N rates. Pre-plant soil samples were collected from two depths (0–15 and 15-30 cm) to determine baseline soil N content. Post-harvest soil samples will be collected to assess residual N levels, allowing for evaluation of nitrogen-use efficiency and the environmental impact of N fertilization. The results from these field experiments will be presented at the NCSF conference.