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The Effect of Macronutrient Manipulation During Flowering on Cannabis Sativa Yield and Potency

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Abstract: Plant nutrition plays a vital role in the production of Cannabis Sativa. The objective of this study was to manipulate Nitrogen, Phosphorus and Potassium during flower and examine the effect on yield and potency. This experiment was replicated in two controlled environment chambers with three randomized high THC varieties. Treatment group one (T1) was applied a constant feed of nitrogen and phosphorous throughout the flowering stage. Treatment group two (T2) received adjusted fertilizer starting week 6 of flower, where Nitrogen was decreased by -62%, Phosphorus was increased by 44%, and Potassium was increased by 47%. During the final week of flowering T2 nitrogen was decreased further by -80%, phosphorus was increased by 53%, and potassium was increased by 55%. Target pH for substrate leachate was 6, and the EC target was between 2 - 3 mS/cm. These factors were monitored weekly with the pour through method and adjusted as needed. T2 yield of premium flower increased by 17% and total THC increased by 4%, compared to T1. Leaf tissue nutrient analysis confirmed higher accumulation of Nitrogen in T1 compared to T2. However, the Phosphorus and Potassium in T1 did not follow the same trend. Due to the source - sink relationship, it is hypothesized that Phosphorus and Potassium may be stored in the flower during the later flowering stage. More research is needed to understand the impact of different fertilizer regimens on nutrient uptake, flower yield, and potency. A second study is being concluded which has replicated these treatments.