Effect of Organic and UAN-32 Fertilization on Bok Choy and Soil Properties

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INTRODUCTION

* California leads the nation in agricultural production with over three hundred crops produced annually.

* Among these crops are specialty vegetables such as Bok Choy, Daikon, Bitter Melons and Nappa cabbage which are commonly grown by the South East Asian Community (SEAC).

* With the need to increase production and remain competitive in the local, national and global markets, these SEAC growers are often turning to excessive agro-chemical applications to ensure high yields and early maturity.

* These growers are also faced with environmental regulations, particularly linked to nitrate contamination of water resources.

OBJECTIVE

To evaluate the effect of Organic fertilizer (Phyta Grow 12-0-0) and inorganic (UAN-32) fertilizer on (i) yield of Bok Choy, (ii) soil pH and electrical conductivity, (iii) and soil Nitrate (NO3)

METHOD AND MATERIAL

Location: Fresno State. A sandy loam soil was used in a greenhouse (pot) study.

DAT: Bok Choy seeds were planted in early November 2011(0 DAT).

Fertilizer Treatments: Inorganic fertilizer (UAN-32) and Organic fertilizer (Phyta Grow 12-0-0).

Fertilizer Rates: Fertilizer rates were 30, 90 and 150 lbs N/ac.

Irrigation: Irrigation was be based on the crop- evapo transpiration (ETr) requirements, determined primarily by the soil moisture levels in the top four inches in the pots, and visual observation of either leaf turgidity or wilting.

Experimental Design: The experimental setup was a completely randomized block design (CRBD) comprising of 4 blocks of 6 pots each (2 fertilizers x 3 rates). (Fig. 1)

METHOD CONT’D

Soil and plant analyses:

• Soil: EC, pH, and Nitrate (NO3)

• Plant: Yield, SPAD

RESULTS

Table 1. Data’s Collected

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CONCLUSIONS

The result show that inorganic fertilizer (UAN-32) have a higher yield on Bok Choy crop as compare to slow release (Phyta Grow 12-0-0) organic fertilizer.

There is an effect on Bok Choy yield at different fertilizer rates (30, 90 and 150 lbs N/ac) for both organic and inorganic fertilizer. (Fig. 3)

However at 90 lbs and 150 lbs N/ac, (UAN-32) inorganic fertilizer have comparable yield. Concluding that 150 lbs N/ac for Bok Choy isn’t necessary. (Fig. 3)

At 150 lbs N/ac, (Phyta Grow 12-0-0) organic fertilizer yield similar result to inorganic fertilizer at 90 lbs and 150 lbs N/ac.

In this experiment there was no significant difference in soil pH and EC as a result of the fertilizer treatments. (Fig.3&4)

These findings are encouraging as SEAC growers seek out innovative fertilization technique for enhancing vegetable production.

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