



Conservation Agriculture in Urban Deserts

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Introduction

Cities, where people tend to concentrate in search for jobs, can potentially become food deserts. Food deserts are areas where people have low access to safely and freshly grown food, particularly vegetables.

Conservation agriculture is a sustainable way of producing food. While the number of farms being converted to CA is increasing, its principles has not been known to be practiced in urban landscapes.



Following CA principles of minimum soil disturbance, continuous mulch and diverse species will potentially provide safe and fresh vegetables to the household.



Conservation Ag. principles



This may be done by converting some portions of lawns into conservation agriculture plots using suitable combinations of cropping systems and minimizing the use of inorganic fertilizers and pesticides.

This study aimed to compare vegetable performance under urban CA with and without cover crops.

Materials and Methods

A turf grass lawn at Sockwell Hall, NCAT was converted into an oasis sofa. Oasis sofa's are 3' by 6' raised beds for urban conservation agriculture. On treatments with cover crops, a mixture of clover red, crimson and white clovers were planted in Fall 2011 prior to planting of vegetables in Summer of 2012. The treatment with cover crop was planted to leafy vegetables prior to planting in Summer of 2012.



Results

Treatment	Height, m	No. of fruits	Total Fresh Biomass kg (sofa) ¹	Yield, kg (sofa) ¹
-----Celebrity Tomato-----				
With cover crop	1.75a	121a	9.92a	18.25a
No cover crop	1.58a	103a	11.20a	15.98a
-----Cherry Tomato-----				
With cover crop	2.78a	2098a	8.97a	13.88a
No cover crop	2.41a	3195a	10.89a	20.15a
-----Eggplant-----				
With cover crop	1.11a	28a	3.25a	6.29a
No cover crop	1.09a	40a	3.92a	8.99a
-----Okra-----				
With cover crop	1.18a	185b	2.33a	2.85b
No cover crop	1.42a	373a	5.12a	7.45a

¹Means of vegetables having letters in common are not significantly different at 5% level of significance as indicated by Fisher's protected LSD test.

Conclusion

The plants height and total fresh biomass did not differ among treatments. Number of fruits and yield per oasis sofa of both tomatoes as well as eggplant were not significantly different. The number of fruits and total fruit weight was significantly reduced by half possibly due to producing less canopy cover which may have encouraged the re-growth of clovers and increased competition for nutrients.

Future Study

This study will be extended to look at tillage effects without cover crops. For treatments with cover crops, the right season of growing the cover crops will also be evaluated. Soil quality tests will also be determined and compared.



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