

YIELD RESPONSE OF CABBAGE (*Brassica oleracea* L. var *Capitata*) TO METHODS OF APPLICATION AND RATES OF CATTLE MANURE

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INTRODUCTION

Cabbage cultivar conquistador was grown under irrigation to evaluate the effects of two methods of manure application i.e. hill placement and dribbling in furrow; and rates of cattle manure application i.e. control, half recommended rate, recommended rate and 1.5 recommended rate. The soil from the trial site and the cattle manure used were analyzed.

MATERIALS AND METHODS

The study was conducted at the University of Limpopo Experimental Farm at Syferkuil in Limpopo Province. The experiment was laid out as a 2 x 4 factorial in a Randomized Complete Block Design with three replications. Two methods of manure application were used i.e. M1-Hill placement and M2-Dribbling in the furrow. Four rates of well decomposed cattle manure were applied: R0-Control- 0 kg/ha; R1 (half of recommended)-11.25 t/ha; R2 (recommended rate)-22.50 t/ha; R3 (One and half recommended rate)-33.75 t/ha (calculation after Averbeke and Yoganathan, 2003). The following parameters were measured i.e. number of marketable heads per plot, weight of individual marketable heads per plot and weight of total marketable heads per plot.

RESULTS AND DISCUSSION

The treatments did not affect growth duration of the cabbage. The crop matured after 103 days from transplanting.

Table below: Effect of method and rate of cattle manure application on cabbage head size and yield

Factor	Head size of average weight (kg)	Range of head size(kg) (Standard deviation in brackets)	Head size CV %	Yield of marketable heads (t/ha)
Method of manure application				
M1-Hill Placement	1.30	1.0 to 3.4 (0.17)	13.08	44.8
M2- Dribbling in furrow	1.70	1.0 to 3.6 (0.31)	18.24	59.0
Mean	1.5	---	---	51.9
Significance	ns	---	---	*
LSD	---	---	---	3.74
CV%	24.3	---	---	25.0
Rate of manure application				
R0 - Control	1.31	1.0 to 3.6 (0.16)	21.21	42.2
R1- Half recommended	1.48	1.0 to 3.2 (0.29)	19.59	50.1
R2 - Recommended	1.63	1.0 to 3.4 (0.29)	17.19	51.5
R3 – 1.5 recommended	1.76	1.0 to 2.8 (0.20)	11.36	63.7
Mean	1.55	---	---	51.8
Significance	ns	---	---	ns
LSD	---	---	---	---
CV%	23.5	---	---	25.1

The trial achieved moderate levels of marketable cabbage heads with a range of 42.2 to 63.7 t/ha and a mean yield of 51.8 t/ha. Size of marketable heads ranged from 1.0 to 3.6 kg. Dribbling of manure in the furrow had significantly out yielded hill placement in terms of marketable heads. Method of manure application did not affect mean head size. Dribbling manure in the furrow produce bigger heads of 1.7 kg average compared to 1.30 kg per head for hill placement. Hill placement produce heads less variable in size than dribbling in furrow (CV % of 13.1 compared to 18.2).

Rate of manure application had no effect on both cabbage head size and yield of marketable heads.

CONCLUSION AND RECOMMENDATION

For soils of moderate fertility, farmers can use half the recommended manure rate to the recommended rate to obtain good yield. Increasing manure rates produces heads less variable in size. Method of cattle manure application does not seem to influence cabbage head size.

REFERENCES

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