

Effect of using manure and inorganic fertilizer on the yield of cabbage

Objective

To develop recommendations for the application of fertilizer including the use of manure, for cabbage.

Methods and materials

Test location:

Mama Clementina Foundation Production Farm (Weruweru Farm), in Weruweru, Hai District of Kilimanjaro, Tanzania.

Bimodal rain pattern: Oct – Dec and March – June, approx. 1,200 mm annually

Mean minimum temperature at night is 15°C to 17°C and mean maximum temperature ranges from 25°C to 33°C depending on season.

Design: Used completely randomized design with four replications

Sowing date: 6 May 2016

Transplanting: 5 June 2017

Harvest date: 8 August 2017

Plant spacing: 50 cm x 50 cm
(40 000 plants/ha)

Fertilizer treatments: 100 kg N/ha, 200 kg N/ha and 250 kg N/ha for each of inorganic and cattle manure (1.5%). For inorganic the fertilizer Urea (46%N) was used.

Varieties: Seedlings of the variety Gloria F1 were raised in trays and transplanted under furrow irrigation.

Results



| Treatment | Yield (t/ha) | Head weight(Kg) |
|-----------------------|--------------|-----------------|
| Inorganic 100 kg N/ha | 57.25ab | 2.2a |
| Manure 100 kg N/ha | 50.42a | 2.0a |
| Inorganic 200 kg N/ha | 63.11ab | 2.5ab |
| Manure 200 kg N/ha | 68.11ab | 2.5ab |
| Inorganic 250 kg N/ha | 77.75b | 2.9b |
| Manure 250 kg N/ha | 53.33a | 2.3a |
| I.s.d. | 20.3 | 0.57 |
| CV (%) | 21.9 | 15.7 |
| P-value | 0.1 | 0.05 |

Means with the same letter within a column are not significantly different at the 5% level. I.s.d.=least significant difference.

Conclusions and recommendations

For yield, there is no benefit in applying either manure or inorganic fertilizer beyond 100 N/ha. For cattle manure tested this would be 6.7t/ha. The choice of what to apply depends on soil fertility and availability of resources.

Note: The conclusion is based on one test only done at Hai (997m ASL) and might be different in other areas.