

Title	Effects of Organic and Inorganic Fertilizers on Growth, Yield and Nutritional Quality of White Cabbage (<i>Brassica oleracea</i> L. var. <i>capitata</i> f. <i>alba</i> cv. Cape Horn)
Author	Mr. Ganja Singh Rai
Degree	Master of Science in Horticulture
Advisory Committee Chairperson	Associate Professor Nipon Jayamangkala

ABSTRACT

In this study, the field trial following the randomized complete block design (RCBD) with three replications using white cabbage (*Brassica oleracea* L. var. *capitata* f. *alba* cv. Cape Horn) as a test crop, was conducted at Maejo University, Thailand in 2008 to compare between organic and conventional farming systems. The efficacy of composts alone as well as their combination with poultry manure tea (PMT) in promoting growth, yield and nutritional quality of white cabbage, was investigated in comparison to chemical fertilizers. The amount of all added fertilizers was adjusted to total nitrogen (N) supply of 125 kg/ha in all treatments except the control. Vitamin C and leaf nitrate contents were selected as indicators of nutritional quality of cabbage.

In this study, the highest fresh weight yield of cabbage head (44 ton/ha) among all the treatments was recorded in inorganic treatment. However, no significant difference was observed between this inorganic yield and the highest yield among organic treatments (40 ton/ha) produced by organic plot fertilized with poultry manure compost in combination with PMT in 1:3 proportion. Other organic treatments produced yields ranging from 31 to 37 ton/ha which were significantly different from inorganic plot ($P < 0.01$). The lowest yield (12 ton/ha) was observed in control. As for quality, vitamin C was higher in all the organically fertilized cabbages (106 to 139 mg/100 g) than in inorganic cabbage (103 mg/100g) but leaf nitrate was lower in all organically fertilized cabbages (163 to 309 mg/kg) than chemically fertilized cabbage (589 mg/kg). These integrated results showed the possibility for organic farming to produce high quality cabbage with yield similar to that of conventional farming when compost is used in combination with PMT.

Keywords: cabbage, compost, nitrate, organic farming, poultry manure tea, vitamin C.