

Effect of Trichoderma spp on Cabbage Growth

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Application of *Trichoderma koningii* to unsterilized soil in greenhouse increased cabbage growth (Liu, 1990). The increase in cabbage growth was due to the production of heat resistant growth substances by *T. koningii*. Several other reports also indicated that *Trichoderma* spp. increased plant growth in both field and greenhouse experiments. The purpose of this experiment was to evaluate the effect of *Trichoderma* spp., specifically PROMOT, on cabbage grown under field conditions.

Material and Methods

Field experiment on cabbage was conducted in Ventura County, California in 1993. Experimental field was divided into 30 plots. Individual plot was 6 rows wide and 40 feet long. Randomized complete block design was employed with 5 treatments and 6 replications. The treatments are shown in Table 1.

Table 1. Treatments of PROMOT in cabbage experiment

Treatment	Rate of PROMOT (quart/A)	Frequency of Application
1Q1	1	1
1Q2	1	2
2Q1	2	1
2Q2	2	2
Control	0	0

PROMOT was diluted with water equivalent to 50 gallons per acre and applied to soil as a side dress. The first application was conducted at planting and the second application was conducted 30 days later. Cabbages were hand harvested from the middle 2 rows of each plots and weighed for yields.

Results and Discussion

Yields of cabbage from each individual plots and the average for each treatment are shown in Table 2. The analysis of variance for the yield data is shown in Table 3. Application of PROMOT increased the cabbage yields. However, only at the rate of 2 quarts per acre with 2 applications PROMOT significantly increased cabbage yields. The increases in cabbage due to other PROMOT applications are not statistically significant. There is no significant difference on cabbage yield among all the PROMOT treatments. The highest yield is obtained by 2 applications of PROMOT at the rate of 2 quarts per acre followed by 2 applications of PROMOT at the rate of 1 quart per acre.

Table 2. Effect of PROMOT on the yield of cabbage.

Treatment	Cabbage Yield (CWT/A)						Average *
	1	2	3	4	5	6	
1Q1	291.9	284.2	293.8	261.9	254.6	270.3	276.1 ab
1Q2	281.4	259.8	263.7	296.2	298.2	301.9	283.5 ab
2Q1	272.3	293.6	290.1	261.7	269.3	283.6	278.4 ab
2Q2	279.9	321.7	316.3	280.9	298.4	283.5	296.8 a
Control	259.7	273.9	248.3	265.1	281.7	251.5	263.4 b

* Means in the same column not followed by a common letter differ significantly at $p \leq 0.05$ as determined by DMRT.

Table 3. Analysis of variance for cabbage data.

Source	df	SS	MS	F
Block	6-1=5	542.1	108.4	0.37
Treatment	5-1=4	3526.5	881.6	3.04 *
Error	20	5801.46	290.1	
Total	29	9870.0		

Reference

Liu, S.D. 1990. Growth promotion effect of *Trichoderma* spp. Unpublished report.