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## THE COMPARATIVE EFFICIENCY OF FOLIAR AND SOIL APPLICATION OF COMPLEX FERTILIZERS ON PADDY

The spraying of nutrients on the foliage of crop plants has been recommended under situations and soil conditions such as flooding or water-logging, saline and alkali soils with high moisture stress etc. (Bhaumik 1966; Helkiah, *et al* 1973). There are a number of reports, both supporting as well as contradicting, the response of crops to such practices (Sadayappan and Ratinam, 1969) and Gorde and Kibe 1973). So far, straight fertilizers either singly or in combination, have been used for foliar spraying. As the high analysis complex fertilizers containing the three major nutrients are now being widely used by cultivators it was felt worthwhile to test the feasibility of foliar application of complex fertilizers on paddy. In order to compare the effectiveness of foliar vs soil application of complex fertilizers on rice (variety *Sabari*) a pot culture experiment with four treatments and five replications in a simple randomised block design was carried out at the College of Agriculture, Vellayani during 1977.

The general fertilizer recommendation of 90-45-45 of N, P and K/ha respectively was adopted. A basal dose of '*Vijay*' complex fertilizer (17-17-17) + Urea to supply NPK as 60+15+15 was given to all the pots and the NPK dose of 30+30+30 was applied in two equal doses in the form of '*Vijay*' complex, one at the stage of tillering and the other at the stage of panicle initiation.

The required amount of '*Vijay*' complex fertilizer (0.4 g per pot) was dissolved in 10 ml water and sprayed with an atomiser on the foliage for foliar application and applied in the pots around the plants for soil application. The treatments were soil application of fertilizer at tillering and panicle initiation stages. (T<sub>1</sub>), foliar application of fertilizer at tillering and foliar application at

Table 1

The average weights of grain and straw of rice treated with fertilizers by foliar and soil application

	Treatments				C D (0.34)
	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	
Weight of grain per pot in	35.8	32.4	30.8	30.2	2.509
Weight of straw per pot in g	42.3	40.6	39.6	39.8	1.829

panicle initiation stages (T3) and foliar application at tillering and soil application at panicle initiation stages. Results are presented in Table 1.

Statistical analysis of the results showed that there is no significant difference in the yield of grain and straw due to foliar application of complex fertilizer partially or fully at any particular growth stage. Complete soil application of complex fertilizer ( $T_1$ ) was found superior to foliar application at tillering and/or at panicle stage. The slightly lower yields of grain and straw observed in foliar treatments might be due to lack of complete absorption of nutrients through the foliage.

### സംഗ്രഹം

നെല്ല് കോംപ്ലക്സ് വളങ്ങൾ മണ്ണിൽ ഇടിയും പർണ്ണപോഷണം മുഖേനയും നല്കുന്നതിൽ ഏതാണു മെച്ചമെന്നു തീർച്ചപ്പെടുത്തുവാൻ പരീക്ഷണത്തിൽ നിന്നും ഈ രണ്ടു സമ്പ്രദായങ്ങളും തമ്മിൽ വിളവിലെ ഏകദേശം ഒരേ തീർച്ചയിലാണ് സ്വാധീനിച്ചതെന്നു മനസ്സിലാക്കാൻ കഴിഞ്ഞു.

### REFERENCE

- Bhaumik, H. O. 1966. "Foliar application of urea for higher crop yields". *Fert News* 2, 20—24.
- Gorde, R. N. and Kibe, M. N. 1973. "Effect of foliar and soil application of phosphate on China Mung Crop (*Phaseolus aures*). *Madras Agric. J.* 60, 729—732.
- Helkiah J., Ramanathan G., Vadivelu S. "A note on Foliar spray of urea vis-a-vis soil application." *Madras Agric. J.* 60, 1058—1059.
- Sadayappan S. and Rerhinam P. 1959. "Foliar fertilization on rice in the Tambaram tract" *Madras Agric. J.* 56, 195—197.

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