

INTERIM REPORT ON FERTILIZER RESPONSES OF SEEDLING TEA IN EXTENSION EXPERIMENTS IN UVA

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This paper reviews the results obtained so far from 13 extension experiments on fertilizer responses now in progress in the Uva Province. Results indicate significant responses to nitrogen in seven of the 13 experiments; responses to different levels of phosphate, potash and lime (Limbox) are very minimal and in all instances not statistically significant. There were also no significant differences between three different types of nitrogen in regard to yield.

In order to investigate the responses of seedling tea to different types and quantities of fertilizer under Uva conditions, 11 extension experiments were started in 1965 in different sub-districts. A further two experiments were added in 1966, bringing the total to 13. The details of the treatments and the designs of these experiments have been published in the Annual Reports of the Advisory Division (Foster-Barham 1967; 1968). All experiments had nitrogen at three levels, namely 120, 240 and 360 lb per acre per year. Four of the 13 experiments also had three levels each of phosphate (0, 30 and 60 lb per acre per year) and potash (0, 60 and 120 lb per acre per year) in all combinations. A further three experiments had three levels of Limbox as a second factor, while the remaining six experiments had three types of nitrogen, namely sulphate of ammonia, calcium ammonium nitrate and urea, as the second factor. In experiments involving Limbox and the three types of nitrogenous fertilizers, phosphate and potash were added as a basal mixture, twice a year at the rate of 30 lb P_2O_5 and 120 lb K_2O per acre per year. Pre-treatment pluckings were carried out in all experiments for periods ranging from 3-8 months to correct for possible inherent yield variations between plots.

The results are summarized in Tables 1, 2, 3 and 4; the figures in these tables refer to yield per acre for periods varying from 20-28 months.

RESPONSES TO NITROGEN

The responses to nitrogen in these experiments varied, only seven of the 13 showing statistically significant responses (Table 1). In four experiments, there were significant responses up to 240 lb nitrogen and in three up to 360 lb. The return in terms of crop per pound nitrogen added was between 0.8 and 2.9 pounds made tea in these seven experiments. It can be said that, on the whole, the responses to nitrogen of mature seedling tea in Uva are somewhat low, compared with the responses seen in the up-country districts (Bhavanandan and Manipura 1969).

RESPONSES TO DIFFERENT TYPES OF NITROGEN

In all six experiments in which three different types of nitrogenous fertilizer were tested, the results have not shown any significant differences in yield to the three forms of nitrogen (Table 2). It is interesting to note that even at the highest level of nitrogen tested (360 lb per acre per year), where the dosage rate was as high as 90 lb per application, there have been no significant differences in yield so far.

RESPONSES TO PHOSPHATE

In all four experiments in which the responses of mature tea to phosphate were tested, the results so far obtained do not indicate any significant responses to the different levels tested (Table 3).

TABLE 1 — *Yield responses of mature seedling to nitrogen in 13 extension experiments in Uva*

Yield (lb/acre) for periods varying from 20-28 months

Experiment	Estate	Nitrogen levels (lb/acre/year)			LSD (<i>P</i> < 0.05)
		120	240	360	
XUA1	Aislaby	4343	4482	4521	NS
XUA2	Aislaby	4387	4725	4872	222
XUA3	Hugoland	4724	4880	4440	NS
XUA4	Hugoland	4986	5102	5026	NS
XUA5	Telbedde	3191	3315	3289	NS
XUA6	Telbedde	6488	6453	6613	NS
XUA10	Cannavarella	5391	5795	5924	249
XUA11	Cannavarella	4808	4817	5031	NS
XUA12	Spring Valley	2838	3060	3492	276
XUA13	Spring Valley	6018	6300	6348	162
XUA14	Kahagalla	3803	3778	4174	192
XUA15	Kahagalla	3882	4128	4164	216
XUA16	Hugoland	5046	5130	5304	195

TABLE 2 — *Yield responses of mature seedling tea to different types of nitrogen in extension experiments in Uva*

Yield (lb/acre) for periods varying from 20-28 months

Experiment	Estate	Types of nitrogen		
		Sulphate of ammonia	Calcium ammonium nitrate	Urea
XUA1	Aislaby	4438	4493	4415
XUA3	Hugoland	4964	4764	4857
XUA5	Telbedde	3262	3231	3297
XUA11	Cannavarella	4991	4848	4813
XUA13	Spring Valley	6234	6270	6168
XUA15	Kahagalla	4140	4056	3984

RESPONSES TO POTASH

In the four experiments in which the responses of mature tea to potash were tested, the results available to-date indicate no significant responses to the different levels (Table 4). It must be remembered, however, that in nearly all the estates in which these experiments were conducted, potassium manuring in the recent past has been of a very high order (175-200 lb K₂O per acre per year). The lack of significant responses to potash in these experiments may, therefore, be due to high soil reserves of this fertilizer.

TABLE 3 — Yield responses of mature seedling tea to phosphate in extension experiments in Uva

Yield (lb/acre) for periods varying from 20-28 months

Experiment	Estate	Phosphate levels (lb/acre/year)		
		0	30	60
XUA2	Aislaby	4689	4641	4654
XUA4	Hugoland	5071	5017	5026
XUA12	Spring Valley	3066	3216	3114
XUA14	Kahagalla	3969	3788	3993

TABLE 4 — Yield responses of mature seedling tea to potash in extension experiments in Uva

Yield (lb/acre) for periods varying from 20-28 months

Experiment	Estate	Potash levels (lb/acre/year)		
		0	60	120
XUA2	Aislaby	4543	4976	4645
XUA4	Hugoland	5084	4946	5084
XUA12	Spring Valley	3090	3054	3252
XUA14	Kahagalla	3910	3950	3896

RESPONSES TO LIMBUX APPLICATIONS

In the three experiments where three different levels of Limbux were tested, no significant differences in yield between the treatments have been obtained to-date.

REFERENCES

- BHAVANANDAN, V. P. & MANIPURA, W. B. (1969). Fertilizer responses of tea in the up-country districts. *Tea Q.* 40, 135-144.
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