

A Fertilizer Leaf Spray for Coffee.

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ABSTRACT.

A trial was conducted on mature *Coffea arabica* at Aiyura to determine the effects on yield of fertilizer leaf sprays. 'Sea Magic SM-3' was compared with Urea and a compound fertilizer and the trial extended over three years from 1961 to 1964. The only treatment to give significant yield increase was the compound fertilizer, 'Nitrophoska Green' with trace elements, applied to the ground.

INTRODUCTION.

EARLY in 1961 a trial was begun on mature *Coffea arabica* at the Highlands Agricultural Experiment Station, Aiyura, to test the effect of fertilizer leaf sprays on the yield of coffee.

Main interest centred on a proprietary leaf spray known as 'Sea Magic SM-3', manufactured by Chase Protected Cultivation Ltd., England. In order to give a comparison, two other forms of fertilizing were used, one a foliar spray containing Urea and the other a soil application of a compound fertilizer which would have approximately the same cost per acre (landed in the Highlands) as 'Sea Magic'.

MATERIALS AND METHODS.

The composition of materials used and their rates of application are described below.

'Sea Magic' Spray.—This was used at 2 gal. per acre per year, in two applications of 1 gal. concentrate mixed with 80 gal. water, sprayed on one acre of trees each six months. This amounted to about 1½ pints of spray mixture per tree at each application.

Urea Spray.—A Urea concentrate was made up containing approximately the same quantity of nitrogen per gallon as 'Sea Magic', and this was diluted and sprayed on at the same rate as 'Sea Magic'.

Compound Fertilizer.—'Nitrophoska Green' (15 per cent. N, 15 per cent. P₂O₅, 15 per cent. K₂O) at 2 cwt. per acre, plus trace element mixture at 28 lb. per acre, per year were applied to the soil. This treatment also was administered in two applications of 1 cwt. 'Nitrophoska' and 14 lb. trace elements each six months. The trace element mixture contained 5.4 per cent. Mg, 3.4 per cent. Mn, 2.3 per cent. Cu, 1.5 per cent. Zn, 1.4 per cent. Fe, 0.6 per cent. B, 0.4 per cent. Mo, and approximately 12 per cent. S.

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The trial was laid down on a block of 'Blue Mountain' variety *Coffea arabica* planted in 1954, spaced on a 9 ft. triangle and pruned to a single-stem system, under *Albizia stipulata* shade. Design was a randomized block with four replications. Each plot consisted of four rows of 12 trees each, of which only the two centre rows were recorded for yield.

These treatments were continued for three years until mid 1964, when the trial was concluded.

RESULTS.

Yields were recorded over the full period, and a summary is shown in Table 1.

Table 1.—Coffee Fertilizer Leaf Spray Trial.

Treatment.	Annual Yields. Pounds cherry coffee from four plots of 24 bushes each.			Average Yield. Pounds clean coffee per acre per year. 1961-1964.
	April, 1961- March, 1962.	April, 1962- March, 1963.	April, 1963- March, 1964.	
Control—no fertilizer	1,865	1,423	879	1,344
'Sea Magic' Spray	2,316	1,366	1,009	1,513
Urea Spray	1,770	1,498	728	1,289
Compound Fertilizer	2,189	1,987	1,600	1,863
Least difference for significance 5 per cent.	750	350	410	322

* A factor of 15 per cent. was used to convert weights of cherry harvested to weights of clean coffee.

CONCLUSION.

The only treatment to give a significant increase over the control was the compound fertilizer, 'Nitrophoska Green' with trace elements, and it yielded significantly more than all other treatments. Neither 'Sea Magic SM-3' nor the Urea leaf spray gave any significant difference in yield from the untreated control.

(Received January, 1965)