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FERTILISER RECOMMENDATIONS FOR IMMATURE TEA

This Advisory Circular replaces Circular No F 9, Serial No. 01/96, issued in January 1996 on the use of fertiliser for immature tea plants.

1 Introduction

Immature tea plants selected for vigour, apart from other desirable characters, require generous fertiliser applications in the early stages of growth. Although immature plants are capable of rapid development, their root systems are small and occupy only a small soil volume from which the nutrients can be absorbed. An adequate supply of the necessary nutrients should, therefore, be made available for best results.

Fertilizer mixture T200 is recommended for immature tea from field planting to the commencement of plucking. A separate fertiliser mixture, T750, with a higher proportion of nitrogen is recommended from commencement of plucking to the first prune. Special attention should be given to the methods and frequency of application. The amelioration of soil pH with dolomitic limestone is also an important operation during the immature phase.

2 Application from field planting to commencement of plucking

2.1 Correction of soil pH with dolomitic limestone

Application of dolomitic limestone is recommended for the maintenance of soil pH levels between 4.5 and 5.5 for better growth of tea.

2.1.1 Specifications

The dolomitic limestone must have a minimum of 18% MgO, and approximately 100% of particles passing through 30 mesh, and 40 to 60% of particles passing through 100 mesh.

2.1.2 Application

Check the soil pH at the time of planting. If the pH level is below 4.5 in spite of dolomitic limestone application during rehabilitation, apply 500 kg of dolomite per ha in both the 1st and 2nd years, preferably during wet weather conditions. There should be an interval of 4 to 6 weeks between the ground fertiliser application and dolomite application.

2.2 Mixture - T200

2.2.1 Composition

100 parts	Sulphate of ammonia	(20.6% N)
50 parts	Eppawela rock phosphate	(28.5% P_2O_5)
25 parts	Muriate of potash	(60% K_2O)
25 parts	Kieserite	(24% MgO)
200 parts		

The mixture contains approximately 10.3% N, 6.9% P_2O_5, 7.5% K_2O and 3.0% MgO.

2.2.2 Dosage and frequency of application

Approximately two months after planting, apply T200 at the rates of 15 or 21 g per plant per application six or four times in the 1st year, and 21 or 32 g per plant per application six or four times in the 2nd year.

2.2.3 Estimation of T200 requirements

At the above rates of application, the quantities of T200 mixture required per ha (12,500 plants) are approximately:

1100 kg in the 1st year, and
1600 kg in the 2nd year

The quantities of nutrients supplied in the 1st and 2nd year are given below.

	Amount of T200 per plant per application	Number of applications per year	Approximate quantities of nutrients, kg per ha per year			
			N	P_2O_5	K_2O	MgO
1st year	15 g	6				
	21 g	4	113	76	83	33
2nd year	21 g	6				
	32 g	4	165	110	120	48

2.2.4 Time of application

Where favourable weather conditions prevail, frequent applications of fertiliser are desirable, i.e. six doses per year. In areas with prolonged dry periods, four doses per year may be possible.

Application of fertiliser in relation to weather is important. If it is applied during periods of heavy rain, there is a possibility of it being washed away, particularly if the land is exposed. Fertiliser application during long periods of dry weather should be avoided to prevent scorch or even death of young plants.

2.2.5 Method of application

In the early stages, fertiliser should be applied in a ring round the plant, at a radius of 15 to 20 cm (6 to 8"). Care should be taken not to apply fertiliser too close to the base of the plant as this would result in bark scorch. In steep areas, fertiliser should be applied in a semi-circle on the upper slopes.

Fertiliser should be dibbled into the soil to a depth not exceeding 7.5 cm (3").

2.3 Foliar applications

Foliar applications of fertiliser should be made with knapsack sprayers.

2.3.1 Zinc sulphate

Zinc sulphate is recommended at the rate of 4 to 6 kg per ha per year, in four to six applications in the 1st year, i.e. 1 kg in 100 l of water per ha per application, within 7 - 14 days after ground fertiliser application. The quantity of $ZnSO_4$ and water should be doubled for each of the four to six applications in the 2nd year, i.e. 2 kg in 200 l of water per ha per application.

2.3.2 Nitrogen and magnesium

If deficiency symptoms of nitrogen (general yellowing) and/or magnesium (interveinal chlorosis in lower maintenance foliage) are observed, apply 1 to 2 % of urea and/or 1 to 2% of commercial Epsom salt. Apply 1 to 2 kg of urea and 1 to 2 kg of commercial Epsom salt per ha in 100 l of water in the 1st year, and 2 to 4 kg of each per ha in 200 l in the 2nd year, as and when necessary.

Zinc sulphate, urea and commercial Epsom salt can be mixed together and applied as a single foliar spray, when required. However, do not exceed 5% total salt concentration in the final spray solution.
(N.B. Zinc sulphate and Epsom salt are both salts)

2.3.3 Sulphate of potash to mitigate drought effects

Sulphate of potash is recommended for application prior to dry spells.

A 2% solution of sulphate of potash (i.e. 2 kg in 100 l of water) is recommended at fortnightly intervals, at least a month prior to the onset of the dry period. Urea (2%) may be included in the spray solution to enhance absorption of potassium. No benefits could result from this foliar spray, if carried out after dry weather has set in.

Zinc sulphate should not be mixed with sulphate of potash in the spray solution.

3 Application from commencement of plucking to the 1st prune

3.1 Correction of soil pH with dolomitic limestone

Check the soil pH when the tea is brought into bearing.

If the pH is below 4.5, apply 750 kg of dolomite per ha. The next dolomite application should be carried out at the time of the 1st prune, preferably a few weeks before pruning.

3.2 Mixture - T750

3.2.1 Composition

500 parts	Sulphate of ammonia	(20.6% N)
100 parts	Eppawela rock phosphate	(28.5% P_2O_5)
100 parts	Muriate of potash	(60% K_2O)
50 parts	Kieserite	(24% MgO)
750 parts		

The mixture contains approximately 13.7% N, 3.7% P_2O_5, 8.0% K_2O and 1.6% MgO.

3.2.2 Dosage and frequency of application

Apply T750 at the rate of 1,750 kg per ha per year from the 3rd year onwards until the 1st prune, in four or more applications.

The quantities of nutrients supplied are:

Nutrient (kg per ha per year)

N	P_2O_5	K_2O	MgO
240	65	140	28

3.2.3 Method of application

At the end of 2 to 3 years, the tea should normally have been brought into plucking and should by then form a good cover. The fertiliser could therefore be broadcast.

3.3 Foliar applications

3.3.1 Zinc sulphate

Zinc sulphate is recommended at the rate of 6 to 9 kg per ha per year until the 1st prune. It can be applied in four to six applications, at 1.5 kg in 300 to 400 l of water per ha per application, within 7 – 14 days after ground fertiliser application.

3.3.2 Nitrogen and magnesium

If deficiency of nitrogen (general yellowing) and magnesium (interveinal chlorosis in lower maintenance foliage) are observed, apply 2 to 4% of urea and 2 to 4% commercial Epsom salt at the rate of 8 to 12 kg of each per ha in 300 to 400 l of water until the 1st prune, as and when necessary. The quantity of urea and commercial Epsom salt could be adjusted depending on the severity of deficiency symptoms. However, do not exceed 5% total salt concentration in the final spray solution.

3.3.3 Sulphate of potash to mitigate drought effects

A 2% solution of sulphate of potash (i.e. 6 to 8 kg in 300 to 400 l of water) is recommended at fortnightly intervals, at least a month prior to the onset of the dry period. Apply the solution after harvesting to ensure its proper deposit on the mature foliage. Urea (2%) may be included in the spray solution to enhance absorption of potassium.

Zinc sulphate should not be mixed with sulphate of potash in the spray solution.

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