

MANURING OF NURSERIES:

2. T.R.I. NURSERY MANURE: A COMPLETELY SOLUBLE INORGANIC MIXTURE

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The foregoing paper by T. Visser and F. H. Kehl together with experience gained by the co-author of this note, has established beyond doubt that frequent and generous manuring of nurseries is beneficial. Further, that a solution of an inorganic mixture can be as efficient as an organic manure. Observations elsewhere have shown that manure scorch in nurseries is not uncommon, and therefore we feel that an effort must be made to find the simplest and safest method of manure application.

A disadvantage of superphosphate, in a mixture which is to be watered on, is that this manure always leaves a bulky, insoluble, residue of calcium sulphate. This in itself is harmless and is not needed as a plant food but it makes it difficult for the labourer to decide if he has expended enough energy to dissolve the mixture as far as it will go. Insufficient stirring will mean that undissolved sulphate of ammonia, etc. will remain in the drum, either to be wasted or to be poured out from the last few canfuls as a damaging syrup.

Mixture

To overcome this difficulty we suggest a *provisional Nursery Manure* which is completely soluble and reasonably balanced in N, P, K and Mg.

T.R.I. provisional Nursery Manure

- 15 parts sulphate of ammonia (20.6% N)
- 20 parts ammonium phosphate (20% N; 35% P_2O_5)
- 15 parts potassium sulphate (48% K_2O)
- 15 parts Epsom salts (16% MgO .)

Containing: 10.9% N; 10.8% P_2O_5 ; 11.1% K_2O ; 4.0% MgO (approx.).
The extra cost of the less common components of this mixture is not great and will be repaid by greater convenience.

ALTERNATIVE COMPONENTS

Ammonium sulphate/nitrate would be a suitable source of nitrogen. Urea is probably too soluble to stand up to heavy watering in nurseries, and is not recommended.

Muriate of potash carries more risk of leaf scorch than the sulphate, but is otherwise a possible alternative.

Kieserite, (24% MgO) being the dehydrated form of Epsom Salts is the less soluble of the two forms of magnesium sulphate, but is otherwise suitable.

Warning: Tea seems to be readily damaged by *sodium* (Tolhurst, unpublished data). Therefore no sodium manures, e.g. Chilean nitrate, should be substituted.

Application

A coarse rose is needed, as all manures contain a certain amount of sand and threads of jute from the bags.

The soil should preferably not be too wet before the solution is watered on, otherwise there will be a risk of the plant foods washing straight through. A second watering is recommended, sufficient to wash the manure solution from the leaves. As polythene sleeves are becoming increasingly popular, the following rates should be taken as giving the maximum volume of water.

Starting from the time of rooting of the cuttings:

1. 1 oz/gallon/square yard/fortnight
2. As growth becomes vigorous, this may be increased to:
—2 oz/gallon/square yard/fortnight.

If monthly manuring is desired, these concentrations should be doubled, and in the event of weekly manuring the concentration should be halved. The stronger the solution, the more care is needed to wash the leaves immediately with clean water.

Further Experiments

A variety of suggestions can be offered, regarding the types of plant food and also methods of application. Soil type and nursery technique vary enormously, and are bound to influence the reaction to manuring. Experiments are planned to examine these details, and the *T.R.I. provisional Nursery Manure* will be subject to change whenever improvement can be made.