

MAGNESIUM MANURING

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Question

Is there no long-term advantage in supplying magnesium to the soil in the form of dolomite or kieserite, which would definitely outweigh the small saving of money by using foliar applications of epsom salts?

Has not dolomite also an advantage from the point of view of other nutrients?

Please reply with reference to new clearings as well as mature tea. In new clearings is not the kieserite in T.200 sufficient to take care of all magnesium requirements? (Manager, Beaumont Group).

Reply

Young Tea

I will deal with the simplest case first. Our observations suggest that generous magnesium manuring is wise for all young tea, and T.200 allows for this by incorporating kieserite. If deficiency symptoms on young plants are severe and if a planter favours foliar spraying, then in addition to using a mixture such as T.200 he can spray a solution of epsom salts. The strength of the solution and the frequency of repetition will depend on the severity of the deficiency. Where plants are small, with little foliage, we suggest adding a wetting agent and spraying until every leaf is just wetted. This is a wasteful operation, although the epsom salts which falls onto the soil will be available to the roots.

Possibly up to 50 lb epsom salts, in 50 to 100 gallons would be needed per acre. One pint of wetter per 100 gallons ought to be sufficient, but some clones are more difficult to wet than others and may need more of the wetting agent. It would be as well to avoid the wettest seasons for this type of spraying.

Mature Tea

Here complications have arisen, with a choice of three manures and three methods of application. It has puzzled me to see that such strong opinions exist on their relative merits, for reasons which sometimes seem to owe little to scientific considerations.

Curative:

Where deficiency symptoms can be described as severe enough to warrant special treatment, we suggest a choice between kieserite and epsom salts; both are forms of magnesium sulphate (24% and 16-17% MgO respectively) and differ in the proportion of chemically combined water.

Kieserite can conveniently be mixed with the NPK manures. A dose of up to 100 lb per acre might be needed to correct the symptoms; in some rare cases we think that more would be required. These heavy doses could be used for one year only.

Epsom salts need only be considered if it is to be sprayed onto the foliage. 50 lb per acre, in one application, ought to be sufficient, with one proviso. Unless you use sufficient water, and care, and ensure that the lower leaves are sprayed then

these leaves will persist in showing the symptoms. This leads some people to doubt the efficacy of this method of application. I see no point in trying to treat the lower leaves; it is the upper layers of foliage which need most attention. Approximately 50 gallons of water per acre, with no wetting agent, should give a good coverage with no run-off of excess solution. Again, avoid the wettest seasons. It is very difficult to damage tea by using high concentrations of epsom salts in these sprays. We have had very slight damage to the youngest leaves when heavy sprays of a 50% solution (5 lb in 1 gallon) were used.

Please note the difference between my suggestions for spraying mature tea and young plants.

Prophylaxis:

This is where magnesium first came to your notice, as a prophylactic manure, and where dolomite comes into the picture. I will summarise my comments on the three possibilities:

Dolomite.—The cheapest form of magnesium; slow acting; long lasting especially in very wet areas or in gravelly soils; easy to distribute—the broadcasting on its own after pruning is readily supervised. To be judged on its magnesium content and not on properties such as alkalinity or calcium content.

Kieserite.—Conveniently mixed with NPK manures; quick acting; readily washed out of the soil; considerably more expensive per unit of magnesium than dolomite.

Epsom salts.—Conveniently mixed with fungicide sprays. It is more expensive per unit of magnesium than kieserite, but it is suggested that a relatively low rate of use would be sufficient. Suggested rates have varied, but about 30 lb per acre per annum is probably enough; we can not attempt to be precise.

Quoting from work done in other countries, it is generally found that soluble fertilisers are not washed off the leaf surface at all readily, and unless heavy rain were falling at the time of spraying you need not fear that the epsom salts would be largely wasted by spraying during the monsoon. Once a solution has dried on the leaf, then the fertiliser adheres even more firmly and is very difficult to wash off.

To summarise:—My preference would be.—

Young Tea:—Kieserite in the manure mixture, with epsom salts sprays to correct severe deficiency.

Mature Tea:—Dolomite or epsom-salts spraying (which must be repeated every year) as a prophylactic, with one or two heavy doses of kieserite or epsom salts (again as a spray) to correct severe deficiency.