T.R.I. ADVISORY CIRCULAR No.DM 4

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PROTECTION OF TEA FROM RED RUST DISEASE IN THE LOW COUNTRY

(This Advisory Circular supersedes the Advisory Circular DM 4 Serial No 13/03 issued in August 2003 and related previous Advisory Circulars and links with Advisory Circular PU 2)

1. Introduction

The Red Rust disease is caused by an alga *Cephaleuros parasiticus* Karst. Red Rust attacks both young and mature teas in the low country up to an elevation of 600 m (2000 ft) amsl. Though this can be encountered above 600 ft, it does not cause any economic damage. The disease is usually more severe on teas that grow under sub optimal growing conditions. But occasionally vigorously growing, high-yielding tea cultivars too have been found to be badly attacked. Diseased branches have also been seen on old seedling bushes growing in fields with a good cover of tea. On mature tea the disease is particularly bad on the peripheral branches, which show marked chlorosis at certain times of the year.

By and large, the main predisposing factor appears to be shallow, quartzy soil, often accompanied by an underlying hard pan of kabook and gravel. The disease is also severe on tea growing on ill drained and alkaline soils. A gradual neglect of cultivation practices is also responsible for disease outbreaks. Frequent spells of drought predispose young tea to Red Rust, especially in the early years. Inadequate or complete absence of shade is another factor favouring the disease.

2. Symptoms and Diagnosis

Red rust causes severe damage to young tea by attacking and killing stem tissues in patches. Affected patches on the stem become most noticeable when the alga produces its fructifications, which appear during the month of April to July on stems up to about two years of age. These patches appear brick-red or orange in colour. The patches are oval to oblong in shape. During August to March, the lesions appear purplish in colour; there are no fruiting hairs at this time, but longitudinal cracks may be seen on the surface. Severely affected stems on weak bushes die back. The leaves produced above affected regions show a characteristic variegation with yellow or white patches, which mimics discolourations caused by mutations that are more common at higher elevations.

The disease is also common on the older leaves. Affected patches are usually circular and are usually about 5-7 mm in diameter. In some instances, they can be long and oval, running along the entire length of the midrib. The damage caused to the plant by the leaf spots is negligible.

Infection takes place mostly during the fruiting period by means of spores, which are dispersed by wind or rain. Repeated attacks gradually weaken the bush with a consequent reduction in crop. Bushes that are severely attacked by Red Rust can be easily recognized by their scanty appearance. Such bushes recover poorly after pruning.

3. Management of Red Rust

3.1 Cultural Methods

As Red Rust is more often serious only on weak plants, strengthening the host by good agricultural practices should help minimize the damage caused by the disease. This could be achieved by one or more of the following approaches.

a. By improving soil condition: If drainage is the main limiting factor, improve drainage to promote deeper rooting. If the conditions are limited due to an underlying hard pan, deep forking will

help breaking it for the deep penetration of roots. During dry weather, thatch new clearings with suitable mulching materials such as loppings of Guatemala or Mana Grass.

b. By improving soil fertility: Soil fertility should be improved by addition of organic amendments and proper fertilizer applications.

3.2 Chemical Methods

Fungicidal spraying is recommended for Red Rust control. Copper fungicides have provided very good results. For effective control, spray a fungicide as recommended in Advisory Circular PU2 about three rounds during the year. It is suggested that for young tea, the first spray be applied in late April, the second about four weeks later in May, and the third, in June. For good control, it is essential to wet the green stems and the older wood with the spray solution, on which the alga is sporulating.

For mature tea, the first spray application should be given soon after pruning, the second at tipping and third about four weeks later. It is advisable to remove all the trailing peripheral branches during pruning. Full benefits of spraying can be achieved only if spraying is continued for two to three successive years.

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