

Fungicides Are Indispensable to Prevent Fungal Blisters on Tea Leaves in Asia

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About one-half of the tea exported around the world comes from Asia with the most important producing countries being Sri Lanka, India, China, Vietnam, and Indonesia. Tea is an evergreen perennial kept in a juvenile state for nearly 80 years. The plants are hard-pruned once in five years. Tea plants are pruned and trained so that all the young leaves are confined to the top of the bush. The young tea leaves are plucked once every ten days all year round.

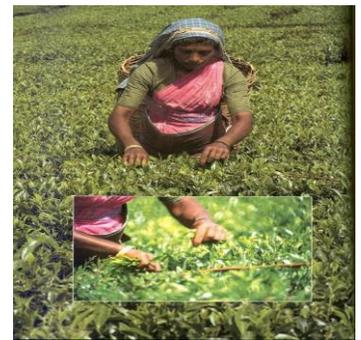
Leaf diseases are very important in tea production since the plants are grown for their young leaves. The major foliar disease of tea in Asia is blister blight which is caused by a fungus that can infect only young leaves. As the leaves mature, they become immune to infection. The disease occurs all year in almost all tea growing areas of Asia. The disease is not present in Africa or the Americas. Wind-borne spores germinate on the leaf in humid conditions and the leaf surface is penetrated. Further growth presses out and eventually bursts a blister on the underside of the leaf. Each blister is capable of producing up to 20 million spores. The pathogen is an obligate parasite without any alternative hosts and it completes its life cycle in 11-28 days and many disease cycles occur throughout the year. During the formation of blisters, a portion of the photosynthetic area of the leaf is consumed by the fungus which can lower yield [1]. The disease also affects quality and tea prepared from blistered leaves is weak, with poor color, aroma, brightness, and briskness [2].

Blister blight was known to occur in India since 1855. However, for nearly a century, only two major outbreaks of blister blight went on record. A third outbreak of the disease occurred in 1946. Beginning in 1946, the disease caused staggering crop-losses annually; in the first six years when plant protection measures were either lacking or diffuse, the loss totaled 180 million pounds of tea in S. India alone [3]. In Indonesia, tea production dropped by nearly 20 million pounds between 1951 and 1952 i.e., the year preceding the blister blight epidemic and the year of its outbreak [3]. Inorganic fungicides were tested for blister blight control and copper formulations were found to be effective. Studies consistently showed that a crop loss of 30-50% occurred in unprotected areas compared to fields that were sprayed with fungicides [4]. Protective copper sprays have been a mainstay of tea production in Asia for the past 60 years. Control efficacy was improved and fewer applications were required when the protectant copper sprays were combined with synthetic chemicals with curative properties.

In India, research has determined that organic tea yields are 12-26% lower than conventional tea yields with nutrient deficiency and profuse weed growth being the main causes of reduced yield [5]. Blister blight is not a serious problem for organic growers since they are permitted the use of six kg/ha of copper oxychloride [5].

References

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Plucking Tea



Fungicide Spraying: 1950s



Blister Blight