

OTHER IMPORTANT DISEASES OF HEVEA RUBBER

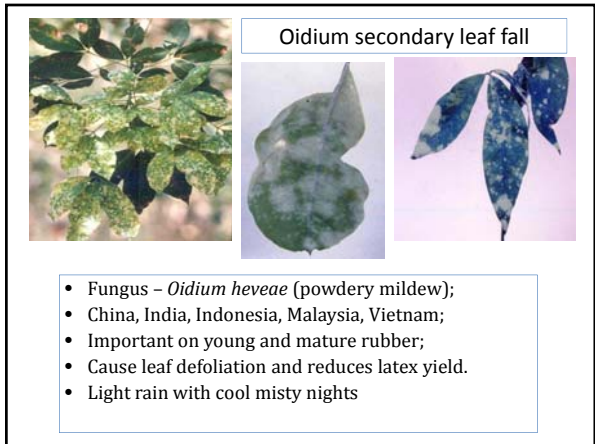
DISEASES OF HEVEA RUBBER

- Leaf diseases;
- Stem diseases;
- Panel disease;
- Root diseases.

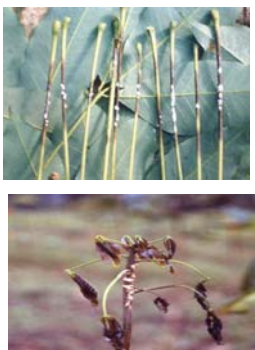
Category	Diseases
Traditional major Diseases	Colletotrichum SLF, Oidium SLF, Phytophthora leaf fall.
Newer Diseases	Corynespora leaf fall, Fusicoccum leaf blight
Minor leaf diseases	Fusicoccum leaf disease Bird's eye spot Cylindrocladium leaf disease
Diseases exotic to Asia	South American leaf blight, Black crust, Target leaf spot

Colletotrichum secondary leaf fall

- Fungus-*Colletotrichum gloeosporioides*
- Occur in Brazil, Cameroon, China, Gabon, India, Indonesia, Malaysia, Vietnam;
- Causes leaf fall and shoot dieback;
- Important in nurseries, young and mature rubber;
- Reduces plant growth and yield;
- Common during annual wintering;
- Needs high rainfall.




Phytophthora abnormal leaf fall



- Fungus *Phytophthora palmivora* or *P. botryosa*;
- Brazil, India, (Thailand, Malaysia, Vietnam);
- Prolong heavy rainfall;
- Infects young and mature leaves, petioles, shoots, fruits;
- Causes leaf fall and shoot dieback

CORYNESPORA LEAF FALL


Pathogen is *Corynespora cassiicola*



SEVERITY OF CORYNESPORA LEAF FALL

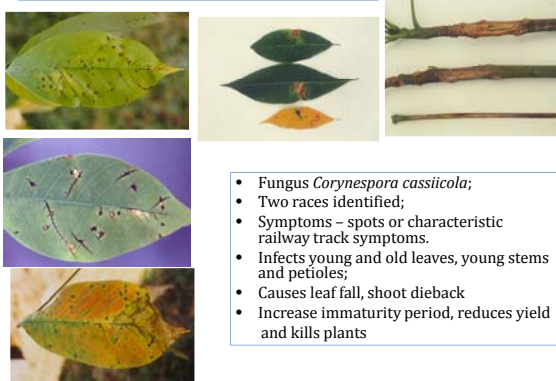
Country	Year detected	Severity (2009)
India	1958	Severe
Malaysia	1960	Severe
Nigeria	1969	Moderate
Indonesia	1980	Severe
Cameroon	1984	Moderate
Sri Lanka	1985	Severe
Thailand	1985	Light
Brazil	1985	Light
Bangladesh	1988	Light
Cote d'Ivoire	1989	Moderate
Vietnam	1999	Moderate
China	2000	Light

CLF in Malaysia



- First detected on nursery plants in 1960;
- Detected on field planted plant clone RRIC 103 in the Exchange Clone Trial in 1975
- Occurred on commercially planted field clone RRIM 725
- A national survey was conducted in 1980
- Disease was severe in Southern states especially on Gt 1 and RRIM 600
- CLF is severe in the southern states (Johor, Melaka, N. Sembilan, Pahang and Selangor).

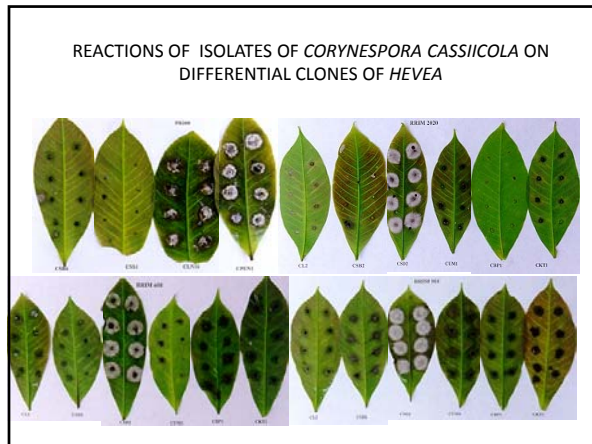
Corynespora leaf fall



- Fungus *Corynespora cassiicola*;
- Two races identified;
- Symptoms - spots or characteristic railway track symptoms.
- Infects young and old leaves, young stems and petioles;
- Causes leaf fall, shoot dieback
- Increase immaturity period, reduces yield and kills plants

PHYSIOLOGICAL RACES OF *C. cassiicola*

- Physiological races of the pathogen exist;
- Two races had been differentiated through traditional as well as molecular methods;
- Both physiological races are present in Malaysia.
- It is important to know the races so as to select proper rubber clones for planting.



EFFECTIVE FUNGICIDES AGAINST *CORYNESPORA*

- There are many fungicides effective against *Corynespora cassiicola*;
- In the earlier days fungicides like thiram, propineb and mancozeb were used;
- Later newer fungicides such as benomyl, prochloraz, hexaconazol and propiconazole were found more effective

Fusicocum leaf disease

- Pathogen is *Fusicocum* sp.
- Occurs only in Malaysia
- First detected in 1988 in a FELDA holding in Johor;
- Earlier outbreak occurred in plantings bordering forest due to existence of alternate host;
- Has spread to other areas until Perak;
- Infects young leaves but symptom is obvious on mature leaves;
- Common on immature rubber;
- Causes leaf fall.

BIRD'S EYE SPOT

- Occur on nursery plants;
- Retards growth and prolong the period of immaturity (budding);
- Symptoms: White dead tissues surrounded by brown necrotic areas

NURSERY DISEASES

- Bird's eye spot (*Drechslera hevea*);
- Dieback (*Colletotrichum*, *Phytophthora*);
- Control with fungicides

IMPACT OF DISEASES


- To the tree:
 - Damage and defoliate leaves;
 - Cause shoot and stem dieback;
 - Damage the tapping panel and affect bark renewal;
 - Kill branches and trees
- Economics:
 - Lengthen the immaturity period (>13 years for SALB);
 - Reduce latex yield (30 to 70% reduction);
 - Increase cost of production;
 - Affect the environment.

Management of leaf diseases


- Enviromax planting;
- Planting of resistant clones;
- Cultural practices:
 - Artificial defoliation to avoid secondary leaf fall and *Corynespora* leaf fall;
 - Increase nitrogen manuring for *Oidium* secondary leaf fall;
- Chemical control.

Methods of applying fungicides

- Dusting;
- Ground spraying;
- Aerial spraying
- Fogging



SPRAYING OF FUNGICIDES




- Portable mist blowers can be used for young trees and smaller areas;
- Larger tractor mounted sprayers are more suitable for older trees and large areas.

- blowers can be used for young trees and smaller areas;
- Larger tractor mounted sprayers are more suitable for older trees and large areas.

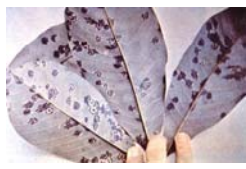
EXOTIC PESTS AND DISEASES OF RUBBER

- South American leaf blight;
- Black crust;
- Target spot;
- Mosca de renda;
- Mosca branca (white moth)

Target leaf spot



Black crust



Thank you

