



SOME INVESTIGATIONS ON THE CONTROL OF YELLOW SPOT IN NURSERIES

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It has been observed in the years 1959, 1960 and 1961, in the arecanut seedling raised in the bulk nursery at this station that the young seedlings showed characteristic yellow spots on their lamina. The diseased spots in some cases tend to coalesce. In a number of cases, the tips of the affected plants showed necrosis, lamina shredding at a later stage. Fungi isolated in connection with this were imperfect fungi, *Phyllosticta*, *Pestalotia*, *Hormodendron* and *Botryodiplodia*. These fungi are saprophytic and as such do not affect the living cells normally. The only parasite isolated from living leaves, showing yellow spots is *Curvularia* sp., maintained in pure culture at this Station.

Experiments have been tried at this station to control the disease these three years. It is to be noted that in the palms raised from the spotted seedlings, the disease

does not occur in a virulent form; the spots also disappear in 2 to 3 years.

In the seedling stage, the disease by *Curvularia* causes a heavy mortality.

Experimental layout

Plot size	15 ft. x 3 ft.
No. of plants treated	28
Design	Randomised with 4 replications.

The following treatments were given.

Sl. No.	Treatment	Dosages
1.	Wettable sulphur	1 Lb. in 30 gallons of water.
2.	Dithane	1½ Lbs. in 100 gallons of water.
3.	Spersul	1 Lb. in 15 gallons of water.
4.	Fytolan	1 Lb. in 25 gallons of water.

Plot II

I Set.

II Set.

Replication 4.

Plot size
15' x 3'
Number
of plants
treated 28
(middle
row) fun-
gicides.

Kriti-copper	Dithane	Wettable sulphur	Spersul	NaCl ₂							
Fytolan	Copper sulphate	Kriti-copper	Dithane	NaCl ₂	NaCl ₂				NaCl ₂	Trace elements	
Dithane	Fytolan	Spersul	Kriti-copper	FeSO ₄	Boron	MnSO ₄	NaNO ₃	ZnSO ₄	CaCl ₂	MgSO ₄	IV
Spersul	Wettable sulphur	Copper sulphate	Fytolan	MgSO ₄	ZnSO ₄	NaNO ₃	Feso ₄	Boron	MnSO ₄	CaCl ₂	III
Copper sulphate	Spersul	Dithane	Wettable Sulphur	Boron	NaNO ₃	MgSO ₄	CaCl ₂	MnSO ₄	FeSO ₄	ZnSO ₄	Replication 4 II
Wettable sulphur	Kriti-copper	Fytolan	Copper sulphate	NaNO ₂	CaCl ₂	Boron	ZnSO ₄	FeSO ₄	MgSO ₄	MnSO ₄	I
I	II	III	IV								
Fungicides											

- | | |
|--|--|
| 5. Kriticopper | 1 Lb. in 30 gallons of water. |
| 6. Copper sulphate. | 5 gms. in 5 litres of water. |
| 7. Boric acid. | " |
| 8. Zinc sulphate | " |
| 9. Ferrous sulphate. | " |
| 10. Manganese sulphate. | " |
| 11. Magnesium sulphate. | " |
| 12. Sodium nitrate. | " |
| 13. Calcium chloride. | " |
| 14. Sodium chloride | " |
| 15. Tannin | 150 cc. in 5 litres of water. |
| 16. Glucose. | " |
| 17. Sugar. | " |
| 18. Farm yard manure <i>plus</i> Muriate of potash <i>plus</i> suyer phosphate <i>plus</i> Ammonium sulphate <i>plus</i> lime. | 20 lbs. F. Y. M. plus 1/2 m. of K ₂ O plus 1/2 Lb super phosphate plus 1/2 Lb. Ammonium sulphate plus 1/2 Lb. lime. |

(Statement Plot II - I Set II Set)

SET III.

Plot size 15'x3' nutrients and other miscellaneous chemicals	F. Y. M. plus K ₂ O plus NH ₂ SO ₄ Lime	Sugar
Glucose	F. Y. M plus K ₂ O plus NH ₂ SO ₄ Lime	Tannin
F. Y M plus K ₂ O plus NH ₂ SO ₄ Lime	Tannin	
Sugar	Tannin	Glucose
Glucose	Sugar	F. Y. M. plus K ₂ O plus NH ₂ SO ₄ Lime
Tannin	Sugar	Glucose
I	II	III IV

Results

The experiment was commenced on 1-11-1959 in detail and continued till the sale of the seedlings after exploratory trials in preceding years. A few seedlings have been left in each bed for further observations. Records have been taken by counting the number of yellow spots on the diseased leaves and roughly dividing the diseased plants into 3 categories—1. partially diseased where $\frac{1}{3}$ of the lamina has been involved; 2. diseased where half of the lamina has been involved; 3. completely diseased where more than half of the lamina has been involved. Records were taken every 3 months.

Percentage of diseased plants after treatment

1. Wettable sulphur		
1st	47%	
2nd	39%	
3rd	37.8%	Decrease 9.2%
2. Dithane		
1st	44.3%	
2nd	39.4%	
3rd	38.5%	
3. Spersul		
1st	43.9%	
2nd	34%	
3rd	37.4%	
4. Fytolan		
1st	44.7%	
2nd	38.6%	
3rd	37.4%	
5. Kriticopper		
1st	49.8%	
2nd	34.6%	
3rd	40%	
6. Copper sulphate		
1st	43%	
2nd	34%	
3rd	37.1%	
7. Boric acid		
1st	45.1%	
2nd	40%	(3) Decrease 10.6%
3rd	34.5%	
8. Zinc sulphate		
1st	44.7%	
2nd	35.6%	
3rd	41.9%	
9. Ferrous sulphate		
1st	44%	
2nd	33.6%	
3rd	35.3%	
10. Manganese sulphate		
1st	42.7%	
2nd	33%	
3rd	39.8%	
11. Magnesium sulphate		
1st	44%	
2nd	35.5%	(2) Decrease 11.5%
3rd	33%	
12. Sodium Nitrate		
1st	44.5%	
2nd	33.7%	
3rd	34.8%	
13. Calcium Chloride		
1st	44%	
2nd	35.9%	
3rd	38%	
14. Sodium chloride		
1st	46.2%	
2nd	38.7%	(1) Decrease 11.2%
3rd	35%	
15. Tannin		
1st	41%	
2nd	38.9%	(4) Decrease 10%
3rd	30%	
16. Glucose		
1st	39.8%	
2nd	37.7%	
3rd	32.6%	
17. Sugar		
1st	43.1%	
2nd	35.5%	
3rd	33.9%	
18. Farm yard manure plus Ammonium sulphate plus Lime plus Muriate of potash.		
1st	41.2%	
2nd	37.1%	
3rd	31.9%	

Conclusion

It has been found from the treatments conducted that the disease can be controlled by providing good shade to the seedlings and application of manures and fertilizers. Two sprays of magnesium sulphate, boric acid, tannin and dithane as a proprietary fungicide may further decrease the yellowing and fungal attack.

Acknowledgement

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privilege to thank Dr. E. Muller of Zurich for identifying the fungi associated with the diseased leaves.

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