

Are you  
aware of this  
**BANANA  
DISEASE?**





# BUGTOK or TIBAGNOL Disease of Banana

## Scientific Name:

*Ralstonia solanacearum* race 2

## Local Name:

- Bugtok (Mindanao)
- Tapurok or Tibagnol (Visayas)



**Bugtok is a bacterial disease** widely distributed and endemic in the Philippines, reducing yield from 26.61 to 38.53 percent and affecting cooking banana cultivars like the cardaba and saba. It is called bugtok in the Southern Philippines, used to describe the infected fruit, which is discolored, hard even when ripe and is systemic in nature.



## Distribution:

- Bugtok diseases is found in some parts of Mindanao and Visayas. Recently, the disease was detected in ten municipalities of Cavite by Regional Crop Protection Center affecting 17 barangays covering 133 hectares (as of April 2023).



## Host Plants:

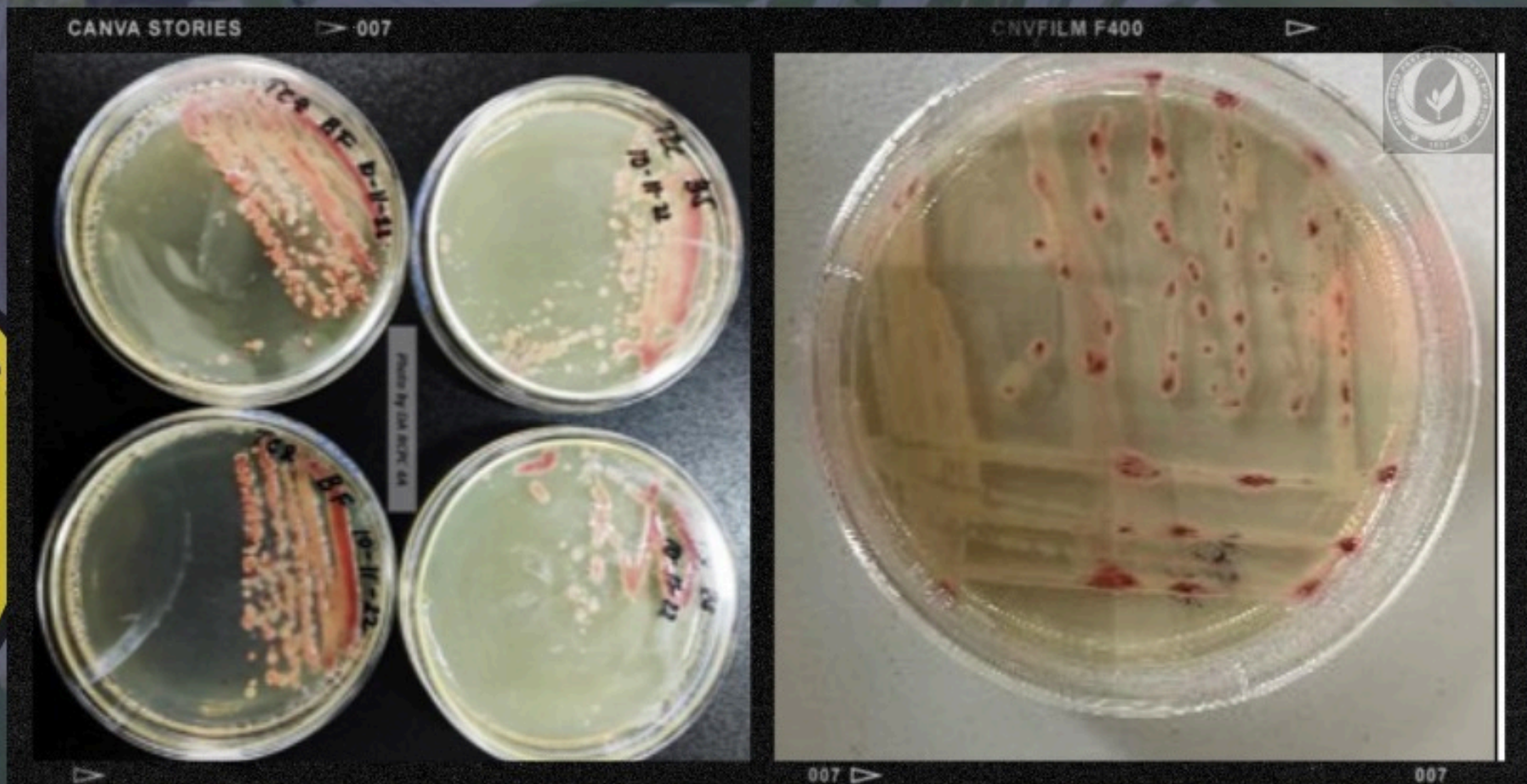
- The disease has a very wide host range and has been reported to infect more than 200 plant species in over 50 families. Some of its alternate hosts are eggplant, peanut, chili and potato.





## Biology and Life Cycle:

- Bugtok is caused by a soil-borne pathogen (bacterium) that gains entry through insects that feed on the nectar-like sap in the male inflorescence. The pathogen is not seed-piece borne but infected fruits were found to be infective. A seasonal fluctuation in the incidence of the disease was recorded with no incidence in some months. This could possibly be brought about by the absence or reduced number of insects carrying the pathogen and sources of inoculum.



*Ralstonia solanacearum*, the causal bacterium in Tetrazolium Chloride Agar



# Examine the Damage Symptoms



**B. Discoloration  
of fruit pulp**



**A. Brown  
Streaking**



**C. Male bud or  
"Puso" are dry and  
loosely attached**



## Transmission and Spread:

- The spread of the pathogen can occur from tree to tree or between fields. Insects or birds that feed on flowers or into the inflorescence (thrips and other pollinators) and alternative hosts transmit the disease.

## Monitoring/Assessment:

- Surveillance of disease occurrence in the field is done once there are mature fruits. In each of the fields, select five spots randomly (four in the corners, at least 5 feet inside of the field borders, and one in the center). Select twenty random plants diagonally for recording the incidence of pests and diseases (NIPHM, 2014).





## Pest Management Recommendations:

- Monitor the fields regularly for any sign of the disease for early detection and prompt eradication of infected mats.
- Bagging the inflorescence at the bending stage just after emergence using a polyethylene bag, muslin cloth, or a fine nylon mesh bag with an open end
- Early debudding or removal of male buds as soon as 'false hand' appears
- Maintain proper field sanitation by removing old and dead hanging leaves
- Use of healthy planting material from certified sources or uninfected farms.
- Implement control measures to restrict the movement of infected banana.
- Awareness campaign through information dissemination (leaflets, poster) and training





## References:

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- <https://farmer.gov.in/imagedefault/ipm/banana.pdf>
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## Photo References:

- BPI-Crop Pest Management Division Credits to Mr. John Paul Maminta, Senior Agriculturist
- Damage of Bugtok in Puso of Banana - Bing, n.d.
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