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### Causal agent: Bacteria



Fig 1. Colony morphology of X. oryzae on Peptone sucrose Agar plate (source: Ranjan et al. 2018:

Microbiology & Biotechnology Letters)

# Favorable conditions for disease development

- Disease development is favored by temperatures between 26-34°C. (optimum temperature for initial infection is 20°C) and a relative humidity (RH) above 70%.
- The bacteria infects rice and many grasses (such as Barnyard and Bermuda grass).
- Under high RH the bacteria oozes from leaf lesions and is spread by wind, splashes of irrigation or stormy rains.
- Upon landing on susceptible host, bacteria germinates and penetrates through wounds and natural openings (such as stomata).
- The bacteria can multiply and survive in other host grasses and infected rice stubbles between seasons.
- The infected rice materials became source of inoculum in the subsequent seasons.
- The inoculum lasts for about two weeks on bare soil.

## **Geographical Distribution**

 The disease has been reported in some rice growing area of Kenya, Uganda and Tanzania.

# **Crop Damage and associated loss**

- The bacteria invades and blocks the water conducting vessels of rice.
- The infected leaves turn grayishgreen and roll up. Later, the leaves turn yellow to straw-color and finally wilt which may lead to death of the plant.
- Damage in seedlings are characterised by a yellowish ooze which comes out when basal end of the plant is squeezed.
- On mature plants the symptoms appear as water-soaked lesions, yellow-orange stripes on leaf blades or leaf tips.
- Yield loss of up to 100% have been reported in West Africa.



Fig 2. Bacterial blight



Fig 3. Bacterial ooze



Fig 4. Dried up bacterial

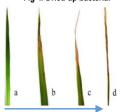


Fig 5. Blight progression on leaf

## **Management Strategies**

#### Cultural control

- Enhance general crop health through application of fertilisers at recommended rates (refer to Agronomic Practices Factsheet).
- Enhance unfavorable RH for the bacteria by adoption of alternate wetting and drying of tilled plots.
- Prevent multiplication of the bacteria in alternate hosts by maintaining a clean rice field through timely removal of weeds, rice stubble, straw, rice ratoons and volunteer seedlings.
- Break the disease cycle by drying up the bacterial inoculum, leave the fields fallow for a season.

#### Resistant cultivars

 Some African cultivars ( such as NERICAs 1, 4, 10 and 11, and Dourado Precoce) possess resistance to blight disease. However, this trait has not been bred into the most preferred cultivars.

Contact experts: Mutiga, S, (Mutiga@uark.edu), Mwongera, D; Kirigua, V; Otipa, M; Kimani, J; V. Mugambi, C; Ngari, B; Ochieng, V; Wasike, V; Wandera, F, Wasilwa, L; Too, A; Nyongesa. O. (IRRI); Zhou, B (IRRI)); Mitchell, T. (OSU); Wang, G. L (OSU); Were, V. (TSL); Ouedraogo, I. (INERA); Rotich, F. (UoEm); Correll, J. C. (UARK) and Talbot, N. J. (TSL). E-Guide for Rice Production in East Africa (2019)

