

Rice Bacterial blight

C/O: *Xanthomonas oryzae* pv *oryzae* (Xoo)

Bacterial blight is one of the most serious diseases of rice, which is known worldwide. It is common in both tropical and temperate countries. It is one of the most economically serious diseases of rice and can cause yield losses up to 50%. The bacteria attack the leaves giving a reduction in photosynthetic area resulting in a reduction in 1000-grain weight and empty grains.

SYMPTOMS

• Leaf Blight

- Water-soaked to yellowish stripes on leaf blades or starting at leaf tips then later increase in length and width with a wavy margin
- Appearance of bacterial ooze that looks like a milky or opaque dewdrop on young lesions early in the morning
- Lesions turn yellow to white as the disease advances
- Severely infected leaves tend to dry quickly
- Lesions later become grayish from growth of various saprophytic fungi

○ Seedling Wilt

- Observed 1-3 weeks after transplanting
- Green water-soaked layer along the cut portion or leaf tip of leaves as early symptom
- Leaves wilt and roll up and become grayish green to yellow
- Entire plant wilt completely

• Yellow Leaf or Pale Yellow Mature Plants

- Youngest leaf is uniform pale yellow or has broad yellow stripe
- Older leaves do not show symptoms
- Panicles sterile and unfilled but not stunted under severe conditions

EPIDEMIOLOGY OF DISEASE

- Presence of weeds
- Presence of rice stubbles and ratoons of infected plants



- Presence of bacteria in the rice paddy and irrigation canals
- Warm temperature (25-30° C), high humidity, rain and deep water favor the disease.
- Over fertilization
- Handling of seedlings at transplanting.
- Irrigation water and splashing or windblown rain can disseminate the bacterium from plant to plant.

DISEASE CYCLE

The bacterium or pathogen enters the leaf tissues through natural openings such as water pores on hydathodes or stomata on the leaf blade, growth cracks caused by the emergence of new roots at the base of the leaf sheath, and on leaf or root wounds. Once the bacterium enters the water pore or any opening, it multiplies. When there is sufficient bacterial multiplication, some bacteria invade the vascular system and some ooze out from the water pore.

MANAGEMENT

1. Lesion enlarges and leaves die faster at high temperature. High rate of nitrogen fertilizer increases development thus to control the disease effectively, balanced use of nitrogen is necessary.
2. Application of Streptocycline @ 0.6% for spray.
3. Use seed from disease free crop.
4. Treat the seeds by soaking it for 12hrs in a mixed solution of streptocycline (0.15%) and wettable Ceresan (0.05%) followed by hot water treatment at 52°C-54°C for 30 minutes.
5. Drain away the water from fields as frequently as possible.
6. Grow resistant varieties such as IR-20, IR-54.