

# ICAR-CENTRAL INSTITUTE FOR COTTON RESEARCH, NAGPUR

## BOLL ROT DISEASE COMPLEX AND IT'S INTEGRATED MANAGEMENT

### Common symptomatology of boll rot disease complex caused by boll rot pathogens

#### Symptoms: (Internal/bacterial boll rot)

- The developing fibers and immature seeds in locules of green bolls were discoloured with light yellow to brown coloured, occasionally with slimy appearance
- In some cases, seeds were swollen, discoloured with necrotic patches and rotted
- Mechanical damage or feeding sign of sucking pests and/or stink bug were rarely noticed externally on most of the developing green bolls
- In most cases, infections were restricted to one or two locules of diseased bolls



#### Symptoms: (External/fungal boll rot)

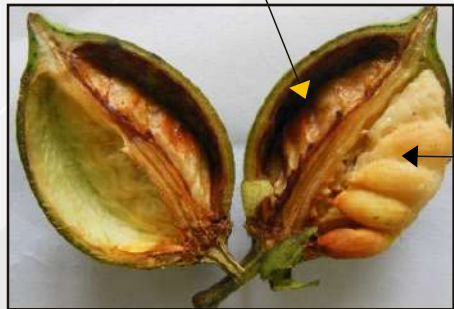
- Several type of disease symptoms occurs by complex of phytopathogenic fungal and opportunistic microbe infections
- Generally, the bolls are with light brown to grey coloured spot/lesions noticed, that further extend and covers whole boll that results in rotted and decayed bolls with mycelial growth
- Fructifications and/or mycelial growth ranged from white, brownish purple to blackish colour on bolls
- Water soaked, oily spots may appear on surface of bolls, further develop necrotic patch, later enter internally in bolls



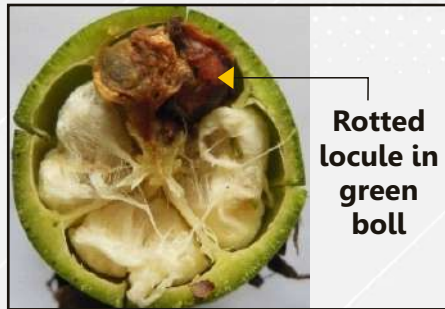
# Internal Boll Rot Disease and Pink Bollworm Infestation: Identification and Technical differences

## 1) Internal/Bacterial Boll Rot Disease

Lint staining



Swelling and rotting of seeds

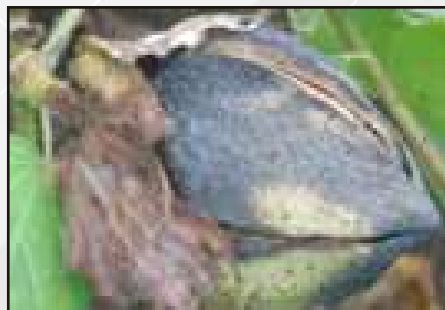


Rotted locule in green boll



Mark of sap sucking insect on the surface of a green boll

## 2) External/Fungal Boll Rot Disease

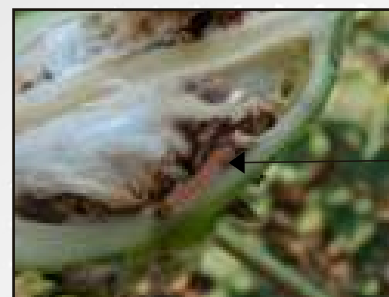


Dark spots on the bolls, blackened bolls and fungal growth on bolls

## 3) Infestation of Pink Bollworm



Exit hole of pink bollworm larvae on the boll



Eaten or damaged seed by larvae



Observed Pink bollworm larvae in boll



Faecal pellets of pink bollworm in infested boll



Injuries caused by sap sucking pests and bacterial infections on the inner layer (carpel layer) of the green boll

## Favourable conditions for boll rot disease complex

- Frequent and drizzle rain during rainy season
- Continuous cloudy weather
- High atmospheric relative humidity (RH)
- Warm and humid climate
- Water logging condition in field
- Stormy and higher wind speed
- Infestation of sap-sucking insects and bugs on buds and developing bolls
- Susceptible cultivars of cotton
- More number of rainy days

## Integrated Boll Rot Disease Management Strategies

- Collection and destruction of diseased bolls from the fields
- Erect to semi-erect plant type, medium height, sucking pests tolerant and medium crop duration for BG-II hybrids
- Excessive use of nitrogenous fertilizers should be avoided
- Adopt optimum spacing for planting as per soil types
- Restrict rank or overgrowth of crop by good management practices
- Avoid stagnation of water and remove excess water from the field
- Infestation of piercing-sucking bugs/insect (Thrips, jassids, stink bugs and red cotton bugs) should be monitored during squaring, flowering and boll

development stages and their management as follow:

(60-120 days crop stage): Flonicamid 50 WG @ 4 g or Dinotefuran 20 SG @ 4 g or Diafenthiuron 50 WP @ 12 g in 10 litres of water

(After 120 days crop stage): Fluvalinate 25 EC @ 4 g in 10 litres of water (especially for red cotton bugs)

- As precautionary measure, prophylactic spray of copper oxychloride 50 WP/WG @25-30 g followed by foliar spray of propiconazole 25 EC @10 ml or carbendazim 50 WP @4 g or carbendazim 12%+mancozeb 63% WP@ 30 g or Propineb 70 WP @25 g or mixed in 10 litres of water after seven days of first spray is suggested to manage internal/bacterial boll rot disease in cotton (especially during 60-90 days and as per weather condition)

## To manage external/fungal boll rot and leaf spots (Any one of fungicide)

Fungicide	Dose (Per 10 litres of water) Foliar spray
Propiconazole 25% EC	10 ml
Carbendazim 12%+Mancozeb 63% WP	30 g
Propineb 70% WP	25-30 g
Pyraclostrobin 5% + Metiram 55% WG	20 g
Carbendazim 50% WP	4 g
Azoxystrobin 18.2% w/w+Difenoconazole 11.4% w/w SC	10 ml
Pyraclostrobin 20% WP	10 g
Kresoxim-methyl 44.3% SC	10 ml
Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC	6 g

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**Published by :** Dr. Y. G. Prasad, Director, ICAR-Central Institute for Cotton Research, Nagpur

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