Management of Parawilt Disease in Cotton

Recognize the problem
The incidence is particularly high in plants with a large canopy and heavy boll load. Leaves of affected plants show wilt like drooping, become chlorotic and turn bronze or red followed by drying. Premature dropping of leaves and fruiting parts may occur. Leaves lose turgidity and become wilted due to increased water loss. Squares and young bolls are shed and immature bolls are forcefully opened. Wilted plants show development of anthocyanin pigment, giving a red appearance. Most of the wilted plants gradually recover and produce new flushes but their contribution to yield is small.

Background
Parawilt causes considerable concern amongst cotton growers across the country. It is also known as sudden wilt. Unlike pathogenic wilt, which occurs in groups in plants in fields, it is difficult to quantify the incidence and the yield loss of parawilt. Detailed investigations on isolation, distribution pattern and pathogen transmission proved that fungi, bacteria, viruses and nematodes were not involved in this problem. The cause of Parawilt could not be proven until recently, mainly because of its random occurrence and inability to simulate the wilt under artificial conditions.

These plants exhibit high photosynthesis and transpiration (water loss) rates. Consequently, for the production of proteins and other food, these plants require a high uptake of nutrients. Nutrient uptake, which is an active process and inhibited under anaerobic (water-logged) conditions. As a result of the feedback inhibition of root respiration, the root system degenerates in wilted plants. Damage to the roots affects their ability to take up and move water to the rest of the plant. This, coupled with higher transpiration in wilted plants due to their insensitive stomata, causes parawilt in cotton.

Management
• Provide adequate drainage to avoid water logging of the fields
• Irrigation may be provided during grand growth phase to avoid prolonged exposure of plants to dry conditions
• Apply 2% urea through foliar spray
• Apply copper oxychloride 25g per 10 litres water by drenching near the root zone of infested and healthy plants
• Apply cobalt chloride 1g/ 100 litres water immediately after the appearance of symptoms

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval.

The recommendations in this factsheet are relevant to: All Countries

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