

## What it does

Boron (B) toxicity inhibits the formation of starch from sugars and affects the formation of B-carbohydrate complexes.

## Why and where it occurs

B toxicity is a rare condition, especially in irrigated rice systems, that usually occurs during dry season when there is high boron content in groundwater.

B toxicity is most common in arid and semiarid regions, but has also been reported in rice in other areas. Soils prone to B toxicity include the following types:

- Usually associated with the use of irrigation water pumped from deep wells containing a large B concentration
- Some coastal saline soils

## How to identify

Plants affected by B toxicity exhibit:

- Chlorosis of tips and margins of older leaves as initial symptoms
- Dark brown elliptical spots on discolored areas two to three weeks later followed by browning and drying up
- Necrotic spots on leaves prominent at panicle initiation
- Brownish leaf tips and dark brown elliptical spots on leaves

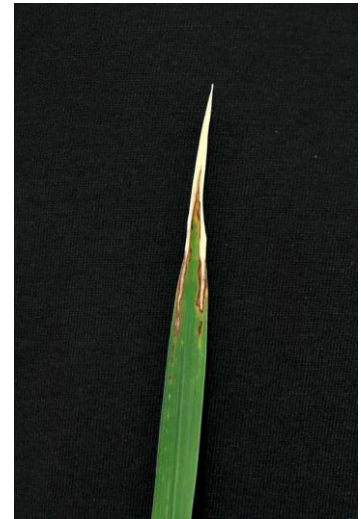
To confirm B toxicity, bring soil and plant sample to the laboratory for testing.

## How to manage

- Plant B-toxicity tolerant varieties. Contact your local agriculture office for an up-to-date list of available varieties.
- Use surface water with a low B content for irrigation. Groundwater must be tested and monitored regularly if used for irrigation.
- Plow when the soil is dry so that B accumulates in the top soil. Leach with water containing a small amount of B.



Large brown elliptical spots are visible on boron toxicity infected leaves



Affected plants have yellowish and discolored leaf



Affected plants have yellowish and discolored leaves



Field damage caused by Boron toxicity

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