

Nitrogen excess



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What it does

When plants receive too much Nitrogen (N), they become more attractive to insects and diseases. It can also cause excessive growth and reduce the strength of the stems. This cause lodging of the crop and yield reduction.

Why and where it occurs

Problems of excess N happens when fertilizer prices are relatively cheap and farmers do not understand the correct amount of N required relative to their yield goals, and the right time of N application.

How to identify

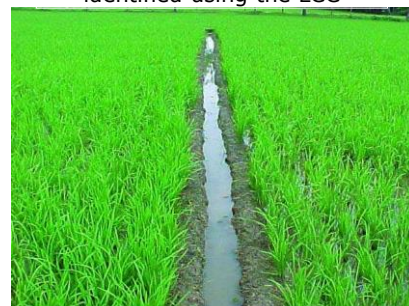
Fields with excessive N have plants that:

- Look overly green
- May be healthy, but also may be lodged at maturity (especially in direct-seeded rice)
- May have thin stems
- May have increased disease (e.g., bacterial leaf blight, sheath blight, blast) or insects (leaf folder)

There can also be patchy patterns resulting from uneven application across the fields. Similar symptoms can be caused by Phosphorus (P) deficiency where plants have dark green leaves. However, P deficient plants produce less tillers and have stunted growth. To confirm cause of problem, check the field and/or ask farmer about the rate of N applied.



Nitrogen amount in field can be identified using the LCC



Plants with too much nitrogen become overly green

Consequences of excess N application:

- Excessive vegetative growth resulting in mutual shading and unproductive tillers;
- Increased number of unfilled or chaffy grains;
- Increased incidence of disease and pests; and

More lodging due to excessive plant growth or production of long and weak stems.

How to manage

- Apply sufficient N to meet the plants' needs (10.5 kg N uptake for each ton of grain produced).
- Identify how much N is coming from the soil and other sources (e.g., water or bacteria in the soil or water) and then apply the additional N to meet the yield goal.
- Nitrogen is best applied in two- or three-split applications including basal during *Sali* season and two- or three-splits during *Boro* season. Depending on the establishment technique and local environment, a basal application of at least 10–20% N should be applied at planting or early establishment. Another 30–40% should be applied 30 days after establishment or at tillering stage, and the remaining at panicle initiation or just before flowering.

