



IRON DEFICIENCY CHLOROSIS (IDC) IN SOYBEANS FACT SHEET

This is one in a series of fact sheets from the Mississippi Soybean Promotion Board and the soybean checkoff. Each sheet presents a brief overview of a topic important to Mississippi soybean production. More information on each topic can be accessed through the link at the bottom of the sheet. To see other fact sheets, click [here](#).

Iron Deficiency Chlorosis (IDC) can occur in soybeans that are grown on high pH soils such as those in the Black Belt region of Mississippi.

IDC is not caused by iron deficiency in the soil, but rather by the plant's inability to extract it from the soil because of iron's lower solubility in high pH soils. This makes it relatively unavailable to plants that readily uptake iron in a soluble form.

Soil pH is not a good predictor of where IDC will occur and does not correlate well with IDC. However, there is a direct correlation between IDC and high concentrations of calcium carbonate and soluble salts in soil. Thus, levels of these materials should be determined in soil on sites that have the potential for or a history of IDC occurrence so that remedial actions can be taken.

The best strategy for managing IDC is to select a soybean variety that has tolerance to the malady. Ratings of soybean varieties against IDC are available from private seed companies. However, rating for IDC is not available for all varieties.

Iron chelate fertilizer (Fe-EDDHA) placed close to the seed at planting can be effective for getting needed iron into the plant and thus alleviating iron deficiency in the plant. However, its cost should be considered vs. the expected or estimated yield increase from its use.

Yields of IDC-sensitive varieties that receive an iron treatment are no better than yields of IDC-tolerant varieties. This means that growing IDC-tolerant varieties on soil sites that are known to promote IDC is the best management option for avoiding IDC in soybeans.

Applying iron as a foliar fertilizer to soybeans will not correct the problem; leaves may regreen, but soybean seed yield will not be improved.

There is evidence that using a cereal cover crop prior to soybean planting can reduce the severity of IDC on high-pH soils. This may be tied to the reduction in soil nitrate and drying of soil prior to soybeans being planted.

Iron-efficient and iron-inefficient soybean varieties have seed iron contents that are distinctly different from each other. Thus, seed iron content is useful for identifying soybean genotypes that have resistance to iron deficiency, and this is equivalent or superior to using visual chlorosis ratings as an indicator of resistance to iron deficiency.

The best strategy for managing IDC in soybean is to select varieties with tolerance. The IDC condition in the soybean plant may be alleviated by iron seed treatments that result in increased yield, but their cost may be greater than the return from the yield increase.

Click [here](#) for a detailed discussion of this topic, along with appended visual ratings of IDC in selected soybean varieties grown in Miss.

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