Symptoms and Management of Iron Deficiency Chlorosis

Iron deficiency chlorosis (IDC) can be a serious concern for soybean producers. Reduced plant growth due to IDC symptoms can have a negative impact on yield potential.

What to Consider

Iron (Fe) is one of the essential micronutrients for soybean plant growth and development. It is needed for the development of chlorophyll, which is the green pigment in the plant and is critical for photosynthesis. If soybean plants cannot absorb enough Fe, chlorosis (yellowing) can develop, which can lead to a potential reduction in yield. Iron deficiency does not affect whole soybean fields at a time, but the areas where IDC is present could show a 20 to 30% yield loss (Figure 1).

Scouting

IDC symptoms typically occur between the first and third trifoliate stage. The initial, most common IDC symptom in new leaves is interveinal chlorosis (yellowing between veins), while the veins remain dark green (Figure 2). Under severe IDC stress, leaf edges may become necrotic (turn brown). Necrosis may progress and eventually leaves may die. In severe cases, leaf growing points may be killed as well.

Because IDC symptoms are similar to that of manganese (Mn), only soil and tissue analysis can confirm the deficiency. If the deficiency is not too severe, plants may recover from IDC symptoms and if soil and environmental conditions improve and root system is able to absorb sufficient Fe.

Management Options

It is difficult to correct IDC, but there are several management options to consider. The most important management consideration is product selection. Select soybean products with a relatively higher degree of tolerance to IDC, especially for fields with a history of iron chlorosis. Product selection can also be an important factor in minimizing plant stress, such as disease or nematode issues.

Using a seed placement of iron chelate product. Maximum return on investment has been found to occur when these products are used in areas moderately to severely affected by IDC. Other management options to consider include planting cover crops, minimizing compaction, and reducing operations that may damage soybean roots.


Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower’s fields. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. All other trademarks are the property of their respective owners. ©2018 Monsanto Company. All rights reserved. 130712023035 061018AMH

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