

## FARM: Chlorosis of alfalfa leaves

By Oli Bachie, Special to this Newspaper | Posted: Thursday, February 1, 2018 12:10 am

Alfalfa leaf chlorosis, also known as leaf yellowing, can be caused by many factors. Some of the factors that may cause leaf yellowing on alfalfa are;

1. Disease, particularly alfalfa mosaic virus (AMV)
2. Root Knot Nematodes (RKN)
3. Nitrogen deficiency
4. Micronutrient deficiency (Fe)

With this issue, the kind of chlorosis that is present is unique to Iron (Fe) deficiency. Chlorosis due to soil iron deficiency of alfalfa field is often localized to water logged (standing water) areas of the field following heavy irrigation. Some sources suggested that Imperial Valley soils with irrigation water stands (water logged) often become iron-deficient. Water logging causes a lack of oxygen and makes iron and other micronutrients unavailable, leading to iron chlorosis. Saturated soil with high soil pH above 7.5 may exacerbate or worsen Fe deficiency.

It must be noted that iron is important for crop seedling vigor, root development, and early season growth of crops. But, it is the most commonly deficient nutrient for heavy soils with high pH, such as the low desert region, and symptoms are more pronounced after irrigation. Iron deficiency may also occur in fields with high concentration of CaCO<sub>3</sub>. Iron deficiency may be difficult to diagnose with visual aids as it can be mistaken for effects of excessive water, although plants suffering from iron deficiency are in general, stunted. Under normal field conditions, alfalfa iron deficiency is a rare phenomenon as the deep roots of alfalfa can extract iron from deeper sources.

Iron deficiency management options — some sources suggest that nothing is needed, and that the situation will improve on its own. As the soil dries, and aeration improves, the problem will most likely amend itself. As alfalfa requires a well-drained soil for optimum production, it is important to improve drainage wherever excess water stands. Poor soil drainage may reduce movement of soil oxygen to roots, cause soil crusting and micronutrient toxicity or deficiency. For persistent alfalfa leaf chlorosis, growers may want to send soil and plant samples to a laboratory for accurate diagnosis of the problem. Soil or tissue sampling is also reliable to assess iron deficiency. If soil – plant tissue confirms iron deficiency, apply iron-containing fertilizers at a recommended rate. For



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Areas of the field showing more chlorotic symptoms. Courtesy Photo

alfalfa, the normal is in the 100 ppm. At higher soil pH, iron deficiency can be controlled by lowering the soil pH using high rates of elemental sulfur. In special situations where iron deficiencies are suspected and for any other related issues, growers are encouraged to contact local UC Cooperative Extension advisors or their respective PCAs.

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