

Iron — Symbol *Fe* for Latin *Ferrum*. A silver-white metallic element, it is malleable (can be worked) and ductile (can be drawn as into a wire), is strongly attracted by magnets and is readily oxidized (rusted) in moist air. Found almost universally in combination with other elements, it constitutes about 5 per cent of the weight of the earth's crust.

Iron is essential to the manufacture of food in green leaves but is not a part of the chlorophyll molecule. It acts as a catalyst (helper).

Iron deficiency symptoms in green plants are associated with chlorosis (loss of green color). Young leaves are first affected. Deficiencies rarely occur in acid soils; frequently in alkaline soils. Iron is more available in poorly aerated soils.

Iron can be supplied to the plant through roots and through foliar sprays, either as inorganic salts (ferrous sulfate, called copperas) or as chelates (pronounced Kee' — lates). Chelates are more expensive but are more efficient at lower application rates.

Ferrous ammonium sulfate, a good source of iron, often is used in premium mixed fertilizers. It also can be used in sprays with other forms of nitrogen, soluble and insoluble.

Yellowing of turf usually is associated with iron deficiency which may be induced by high pH (lime chlorosis), excess phosphorus (phosphorus chlorosis), by poor weak root systems, or by actual lack of iron in the soil. Some grasses are notoriously susceptible to iron chlorosis (centipede, zoysia, bahia).

areas that are neglected.

We can guide them to authentic sources of information. One problem, however, is that of getting the attention of those who need the help.

Clover Control

Q. My greens were Seaside bent but are being converted to Penncross by overseeding. Several greens have patches of clover the size of a saucer. What do you suggest for control? (Virginia)

A. Send a man out with a rubber glove and some arsenate of lead in a bucket. Have him wear the glove and, with it, rub arsenate of lead into the clover patches. Results will not be immediate nor dramatic but the clover will be discouraged.

Two suggestions: (1) pay closer attention to disease control, especially snowmold. Clover is a common invader in snowmold spots; (2) check the watering schedule. Clover thrives with an excess of water which also favors disease. Anything that thins turf will encourage disease invasion.

Bermuda Thins Out

Q. We are right in our transition period between rye and Bermuda in the fairways. Where we had the heaviest rye and the most beautiful winter turf, we now have virtually no Bermuda. In a few areas where an experimental thatching machine was demonstrated

we have excellent Bermuda. What is your explanation? (North Carolina)

A. Thinning the winter grass let the sun warm the soil which gave the Bermuda a big boost. Bermuda needs heat to get started. The dense mat of cool-season grass, further cooled by frequent light watering, prevents Bermuda from getting life-giving heat. As a result there is little good Bermuda turf until June or July.

Back to Cool-Season Turf

Q. Our club, located in the transition zone, has Bermudagrass in the fairways. Because of heavy winter and spring damage in 1963 the stand is patchy. The members are determined to return to cool-season grasses for the sake of appearances. How can we best revert to cool-season grasses? (Maryland)

A. The most helpful procedure in developing better cool-season turf will be generous fall fertilization to build a good reserve of nutrients. Roots, rhizomes and turf density can most effectively be developed by fall feeding.

Bermuda will tend to be smothered. Avoid spring soil cultivation which would help the soil to become warmer and thus encourage Bermuda. Reserve all aerification for fall at which time additional seed of a mixture of bluegrasses and creeping red fescue may be planted if needed. If patches of Bermuda are heavy be sure to use a thatching machine to remove debris and get seed and fertilizer into the soil. The best time to build residual nutrients in soil is immediately after fall aerifying.