

Plants are unable to absorb it under the conditions enumerated above. Foliar feeding is the best to stop iron chlorosis. Promptness is important to restore plant vigor and prevent loss of turf. The secret is to deposit a small amount of an iron salt on the grass leaves with a minimum of water. In this way burning is prevented.

Ferrous sulphate (Copperas) is commonly used at not more than 2 oz. per 1,000 sq. ft. with not to exceed 5 gals. of water. On some courses a little ferrous sulphate is used each time fungicide is applied. The usual amount is about  $\frac{1}{2}$  lb. per green of approximately 5,000 sq. ft.

The newer chelated forms of iron have not lasted longer than ferrous sulphate on heavy soils. Several manufacturers claim to have produced longer lasting types. Their development will be a real contribution to turf grass maintenance in many places.

### Warm Season Fertilizer Needs

Bermuda grass has been and is the chief warm season golf turf grass for greens, tees, and fairways. Several other warm season grasses have been used in a limited way or are present on golf courses. The list includes carpet grass, Zoysia, Bahia, centipede, and St. Augustine grass. Information about their fertilizer requirements is less specific than for Bermuda grass because of their limited use.

Some of the carpet grass fairways on low-lying, damp, dark colored soils are good. Carpet grass responds to fertilizer, especially nitrogen, but the amount needed is less than for Bermuda grass.

The Zoysias have received much publicity in recent years. They are shade tolerant and may be the answer to summertime turf on shaded tees in the warm season grass belt and possibly farther north. Slow turf formation is the principal deterrent to fairway use. Generous fertilization after planting is said to hasten turf development. After that Zoysia is presumed to do well with much less fertilizer than other warm season grasses, excepting centipede.

Centipede is called the "poor man's grass" because of its low fertility requirements. It will never find wide use on golf courses where there is an adequate budget for the development of Bermuda grass turf. Centipede seems to require an acid soil. Iron chlorosis appears and persists unless the soil is moderately acid. One course in Florida lost their centipede fairways by applying lime. It proved a blessing in disguise because they now have an excellent

## Looking Ahead on Spalding Line



Spalding executives and pro consultants assembled recently at Chicopee, Mass., factory to work on designs for Spalding's 1957 golf clubs. Top secret features had the experts excited. Among pros at the gathering: Wiffy Cox, Al Watrous, Jimmy Nichols, Jimmy Thomson, Shelley Mayfield, Ralph Hutchinson, Harry Cooper, Jay Hebert and Al Brosch.

cover of Bermuda on all fairways,

St. Augustine grass finds its way into golf course roughs and fairways in the deep South. Its main use has been for lawns because it is more shade tolerant than Bermuda grass. Zoysia is fast replacing St. Augustine on lawns because of its greater resistance to the chinch bug, which ruins St. Augustine turf and is hard to control because of the constant succession of broods.

In Florida and in the Houston, Tex., areas clubs have been successful in eliminating St. Augustine from fairways by using sodium arsenite to kill it. From three to four treatments are needed spaced 7 to 10 days apart. They use 2 to 4 lbs. per acre each time. Fertilizer is applied generously after the first treatment to foster growth of Bermuda. Over-seeding with hulled Bermuda seed is desirable on large bare areas. Seeding is done before spraying the last time.

### Bermuda Responds Quickly

Because Bermuda grass is so common and widespread in the South, many assume it will grow and thrive anywhere without care or fertilization. Nothing is farther from the truth. No other grass responds as quickly to good care and the use of fertilizer. An excellent turf can be developed in a matter of weeks. It takes one to two years or more to accomplish the same result with cool season grasses.

The Bermuda grasses can grow in moderate to strongly acid soil. This fact is misleading and has blinded some to the benefits derived from the use of lime.