



First women's golf class at Harlem G. C. in the free golf school conducted by Chicago Tribune at courses of the Chicago Daily Fee Golf association. There are approximately 300 women in this Harlem class. Almost 16,000 pupils registered at all the courses. William Philpot is the Harlem professional in charge of this record-size class.

an unlimited amount of evidence indicates that the general type of injury is not "over-feeding" but rather "improper feeding" or "unbalanced feeding."

Unbalanced feeding is very easily accomplished and is one of the most important mistakes to be guarded against in fertilizing. To this end it must be recognized that there are at least 13 elements necessary to normal development of plants. The majority of these are sufficiently abundant in most soils to meet normal requirements. But three of them, —nitrogen, phosphorus, and potassium—are frequently so deficient that unless they are supplied plant growth will be restricted. In most soils it is possible to add such amounts of any one of these that either of the other two will become definitely too deficient to meet the needs of the plants. When this occurs an undesirable type of growth will result and unbalanced feeding has been accomplished. The extent to which this type of feeding is objectionable usually depends largely upon whether external growth factors are favorable or unfavorable. It is common knowledge that extremes of temperature, unfavorable moisture conditions, diseases, and the like are generally more injurious to such improperly nourished plants than to others.

Nitrogen is the one most generally used improperly. This has been aggravated by the emphasis which has been placed upon the importance of nitrogen in the growth of grass and by the fact that an over-feeding of nitrogen produces an undesirable type of growth more readily than is the case with other elements.

### Too Much Nitrogen Is Bad.

There is no denying the value of nitrogen in the diet of grass plants. It is used

in large amounts by them and should be provided in abundance, but it should be recognized that phosphorus, potassium and other elements are equally important and should also be present in abundance. If nitrogen is present in the diet in excess, there almost certainly will be produced a soft type of growth and the vigor of the grass will be impaired.

An excess of nitrogen in the diet of grass plants produces a soft type of growth because this element is so important in the production of protein, the compound making up the bulk of new and living cells of the plants. But in the production of these proteins it is necessary that a supply of sugar also be present that it may combine with the nitrogen and such other elements as sulfur and phosphorus. If an excess of nitrogen is present it may encourage the production of new cells more rapidly than sugar can be manufactured and this results in a depletion of any reserve of this or closely related compounds which may have been built up previously. In addition, it prevents plants from producing compounds responsible for hardening and making them more resistant to unfavorable conditions.

In order to prevent this unbalanced feeding of grass it is generally desirable to use a complete fertilizer, or in other words one containing compounds of all three of the elements, nitrogen, phosphorus, and potassium. These complete fertilizers vary considerably in the proportions of nitrogen, phosphorus, and potassium they carry, making it possible to select one which provides the quantities desired. Selection should depend upon the nature of the soil in which the grass is growing, upon external conditions to which the grass is subjected, and upon the type of growth desired.