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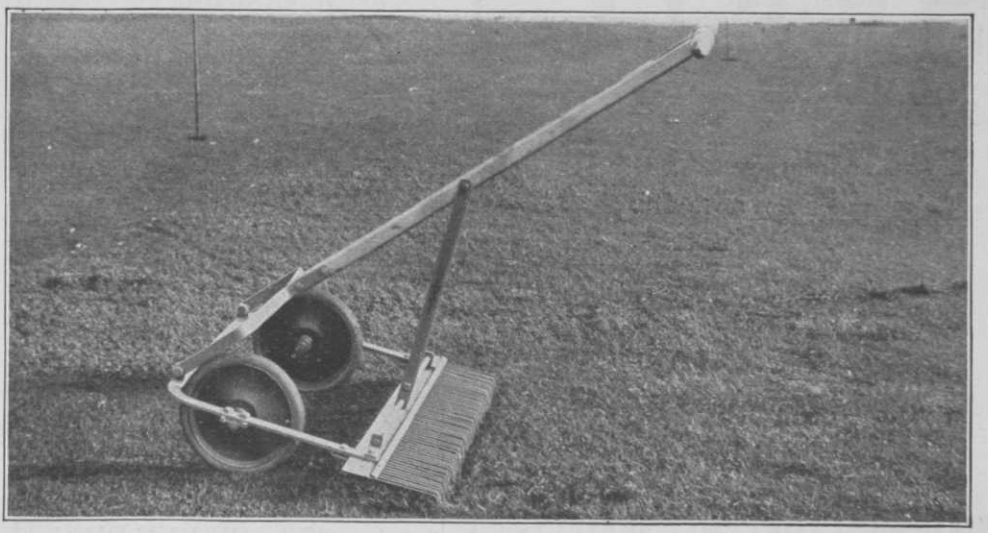

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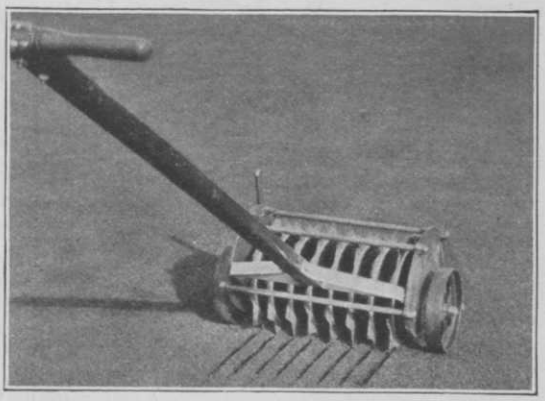

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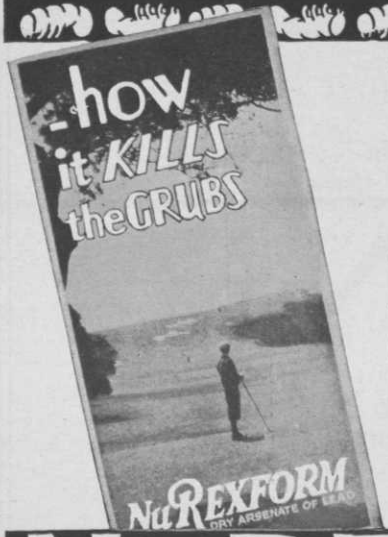

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VOL. 4 AUGUST, 1930 NO. 8

A beautiful short hole on a private estate course. It is the third at the course owned by James J. Lynn at Kansas City, Mo.

Feeding Hungry Fairways Right Diet for Better Turf

By O. J. NOER

WITH the approach of fall, many clubs are confronted with a turf improvement problem on established fairways. In most instances poor fairways are the result of plant food deficiencies, for an impoverished soil cannot yield sufficient nourishment to maintain satisfactory turf. On the older courses where fairway fertilization has been neglected over a period of years, the fairway grasses gradually disappear, and in extreme cases objectionable weeds finally predominate. Where other conditions are favorable clover flourishes and becomes a serious problem on soils deficient in nitrogen. In these extreme cases, turf renovation not only becomes difficult, but usually necessitates large expenditures and is rarely accomplished short of at least two to three years.

On the newer courses disappointing turf results from failure to apply ample phosphorus and nitrogen prior to seeding, where a good bed is prepared, weather conditions are favorable, and if seeding is completed sufficiently early to obtain a good growth before the advent of unfavorable weather. There are plenty of notable

examples to substantiate this, yet each year adds to the number of "sadder but wiser" clubs. Seed purchases and some sort of soil preparation are countenanced because their need is so obvious. Why clubs neglect to give serious thought to the soil, which after all is the medium where the turf develops, is an unsolvable mystery. The usual procedure is to decide on building today and insist on playing yesterday. Huge expenditures usually follow haste and unwise economies in construction.

Condition Ahead of Seeding.

Those in authority charged with turf improvement are always burdened with the problems of method, and are confronted with a multiplicity of procedures. Seeding alone is effective only where soil fertility is satisfactory. Under favorable conditions existing turf spreads and gradually occupies adjacent bare areas. If the established turf struggles to survive it is folly to expect the young seedlings to successfully compete for the limited supply of plant food. Where turf is uniform but thin, fertilization alone effects the desired improvement, but where reseeding is necessary, fertilization should precede seeding on impoverished soil. Another difficulty arises on the heavy compact soils where the young seedling finds it difficult to obtain a foot hold and become rooted. The seed is often washed away from bare areas and becomes lodged in adjacent tufts of turf.

Topdressing with soil has its staunch advocates. The huge expenditures involved can be justified only on light sandy soils to improve waterholding capacity, and where uneven surfaces must be leveled. Plant food can be supplied cheaper in other materials. In the past manure was a standard fairway fertilizer. It is almost unobtainable in the metropolitan districts and is falling into disfavor because the debris interferes with play. There is the added danger of introducing weed seeds. Manure when applied to established turf exerts little effect upon physical soil condition because it does not become incorporated with the soil. These effects are only obtainable prior to seeding when the manure can be worked into the soil. There are a number of materials which surpass manure as sources of plant food for use on established fairways.

Fertilizers can effect turf improvement only where deterioration or failure to obtain desirable turf is the result of plant food deficiencies. Where grubs destroy extensive areas of turf their control must precede fertilization. Likewise, it is a waste of money to fertilize poorly drained fairways, unless an effective drainage system is installed. On light sandy soils insufficient water usually restricts turf growth and seriously reduces the efficiency of fertilizers even though marked plant food deficiencies exist.

Make Grasses "At Home."

Several interesting failures of fairway seedings occur in southwestern Connecticut, apparently due to the exclusive use of Kentucky bluegrass and redtop on soils which are extremely acid and almost devoid of available phosphorus. Under these conditions, the bluegrass is gradually disappearing with the result that the only good surviving turf consists of bents native to this area. It is the writer's opinion that the soil should have been made favorable for bluegrass by the generous use of phosphate possibly supplemented with some lime, or sufficient bent seed should have been included in the mixture to permit eventual development of a bent sod. This local soil condition must be recognized in any plan of turf improvement, and the procedure modified, depending upon the club's desire to secure bluegrass or bent fairways.

Time Is Needed.

Obviously the success of any fertilizer program can be nullified by limiting factors other than plant food deficiencies, and satisfying results can be expected only when they are eliminated. Satisfactory fairways are the reward of courage to embark upon a sensible plan of improvement, and patience to see it through to the end. Members often fail to realize that grass will spread only so fast, and no amount of additional fertilizer will produce quicker coverage. Their impatience and vain desire for revolutionary results may defeat an otherwise sane program of fairway improvement.

Once fertilization is decided upon, ultimate success depends upon selecting suitable materials containing adequate quantities of those plant food elements which are deficient in the soil. Rate, time, and method of application are also important contributing factors.

That the growth element nitrogen is the key to fairway improvement is generally accepted. Aside from calcium, leaching losses from the soil are confined almost entirely to nitrogen, and under certain

conditions additional losses may result from denitrification. The first effect of nitrogen is to enhance green color, and is followed almost simultaneously by more active vegetative growth which encourages existing turf to spread and form a denser sod. In excess, nitrogen produces such rapid growth that weak tissues, unable to withstand adversity, may result. Disaster following abuse of nitrogen materials does not justify their wholesale condemnation. Properly used they simplify turf maintenance.

There are two broad groups of nitrogenous materials depending upon whether the nitrogen is in organic or inorganic form. The organics include such materials as dry blood, tankage, cottonseed meal, fish scrap, castor pomace, dried animal manures, activated sludge, guano, bone meal, etc. These materials differ in total nirogen content, and also the portion which is water soluble. There are a few completely soluble organic materials on the market, notably urea and calcium cyanamide. The commercial inorganic nitrogen fertilizers include sulphate of ammonia, ammo-phos, nitrate of soda, calcium nitrate, Leuna saltpeter, ammonium nitrate, etc. The nitrogen is all water soluble.

Greater the Haste, Less Results.

The true organics undergo transformation in the soil, and the nitrogen is converted first into ammonia and finally into nitrates. The rapidity of ammonia formation largely controls the time required for results to become apparent and affects the period over which they are obtained, for conversion of ammonia into nitrates is a rapid process. A high nitrogen content, and large proportion of water soluble organic nitrogen, favor rapid liberation of ammonia so these products resemble the water soluble sources of nitrogen in producing quicker effects which are of shorter duration. Where lasting results are desired, materials which provide for gradual release of ammonia should be selected.

Moisture conditions and temperatures influence liberation of ammonia from organic materials by affecting the activity of soil organisms. Low temperatures during winter inhibit bacterial activity and thus avoid leaching loss of nitrates by preventing their formation. This is one reason why organics are excellent materials for fall use.

The inorganic materials produce almost immediate results with a minimum quantity of water, but do not possess the sustaining qualities of the organics. Ammonium sulphate and ammo-phos tend to repress weeds and gradually made the soil acid, while nitrate of soda and calcium nitrate have the opposite effect on soil reaction. Where immediate results are needed, these are excellent products. Many clubs use a combination of organic and inorganic nitrogen. Immediate response is obtained from the inorganic nitrogen, and as the effects wear off, growth is sustained by the nitrogen from the organics.

Differences of opinion regarding the supplementary use of phosphoric acid and potash exist even among those who devote their entire attention to fertilizer practice. We speak of balanced rations and complete fertilizers referring to mixtures containing nitrogen, phosphoric acid, and potash. This is based upon the accepted theory that soils contain ample amounts of all the essential plant food elements except these three. Recently some notable results have been obtained in agricultural fields. In the tomato district south of Miami, Florida, common practice was to place a handful of manure under each plant and subsequently fertilize with commercial fertilizer. Crop failures resulted from the use of commercial mixtures alone. Investigations by the U. S. Department of Agriculture demonstrated that minute amounts of manganese, an element previously considered non-essential, was the limiting factor. It was shown that commercial fertilizers alone produced good crops if manganese was added. In some districts the need for supplementary applications of magnesium to tobacco have been shown. These examples are not cited to advocate the use of additional plant food elements, but simply to point out the necessity of supplying soil deficiencies, whatever they may be.

Field for Research.

The effectiveness of phosphoric acid prior to seeding has been demonstrated frequently. It insures a more uniform stand and aids in root development. On established turf, results are rarely as striking. Part of its greater efficiency on seedings probably results from the fact that surface applications can be incorporated and thoroughly mixed with the soil by discing prior to seeding. One of the chief difficulties confronting phosphate use on established turf is to insure movement down into the soil, for both phosphorus and potash are fixed and held by the soil.

This is a problem deserving of investigation. It may be that some of the new phosphate materials are superior in this respect.

It must be recognized that fairways differ from pastures and ordinary farm crops. Greens resemble these more closely than fairways for plant food is constantly removed in the clippings. On fairways the clippings remain and the mineral elements are restored to the soil and converted into forms which can be utilized. When need for phosphoric acid exists it may be better to use heavier applications at infrequent intervals, rather than use small quantities regularly. There is very little danger of loss from leaching, and the phosphorus may penetrate to greater depths. Some of the new ammonium phosphates deserve consideration. They contain at least 45 per cent phosphoric acid and 11 to 13 per cent ammonia in addition.

It is very doubtful if fairways on ordinary loam soil require potash if excessive nitrogen applications are avoided. These soils are normally high in this element, and all the potash contained in the clippings is returned to the soil. Furthermore, potash tends to accentuate clover growth. Placing grass on a high nitrogen feeding plane, undoubtedly, accentuates the need for mineral elements, but unduly encouraging vegetative growth is not good practice. It necessitates more frequent mowing and produces weak leaf structures and turf unable to withstand severe wear.

Application Rates.

Rates of application depend upon turf and soil condition. Extremely poor soils require more fertilizer than those on which turf is just beginning to show need for plant food. Under such conditions, it is advisable to make both fall and spring applications, until the desired turf is obtained and then reduce the amount of fertilizer and confine applications to one a year.

Ordinarily fertilizers should be applied in spring and fall seasons, when rain is most abundant and turf grows best. In areas where crab grass is troublesome, late spring applications are detrimental. Fall applications have produced excellent results, for the effects of the fertilizer are largely dissipated before the crab grass season begins the following year.

It hardly seems necessary to call attention to the importance of uniform application, yet innumerable examples point to carelessness on the part of workmen. Plant food does not move laterally in the soil, and spotty turf follows, good in fertilized areas and poor on the skipped areas. Any club will find the purchase of a good fertilizer distributor a worth while investment. Most satisfactory results are obtained with the two-wheel hopper type fertilizer and lime spreader. The hopper should never be filled on the fairway, and a man should ride the machine to close the outlet spouts when stopping. Failure to do so results in burned areas, especially if water soluble materials are used.

Spalding Issues 1930 Golf Guide

SPALDING'S Golf Guide for 1930, edited by Grantland Rice, needs no review. The jury comes in unanimously every year, passing a 100 per cent O. K. verdict on this complete and valuable reference work. The results of a vast number of tournaments of even sectional importance, records of the game, roster of hole-in-one shooters and a fund of playing and gallery information is presented in such shape that the book should be in the hands of every golfer of any more than casual interest in the game.

A collection of weird golf news during 1929 is an interesting feature providing competition for the most talented golf liars.

The rules of golf are carried as a detachable feature of the book. The price is 35 cents and the book is on sale at all Spalding stores.

Springfield (O.) Boasts Prize Public Course

SNYDER PARK course at Springfield, Ohio, continues its program of improving with the ambition of becoming recognized as one of the country's finest municipal golfing plants. The 1930 season finds the course with 14 new greens, an extensive watering system, and 54 well located sandtraps. J. W. Brandenberg, supervisor of the course, expects a record play this year. In 1929 the play increased from 12,000 to almost 24,000.

The course has a replacement value of $50,000. In maintenance equipment the Snyder Park course has more than $5,000 invested, making it possible to keep the course in good condition with a staff of seven men.