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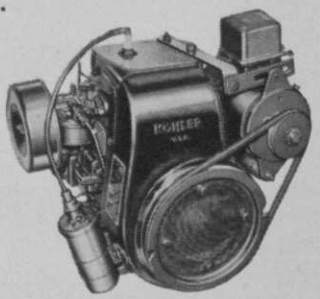

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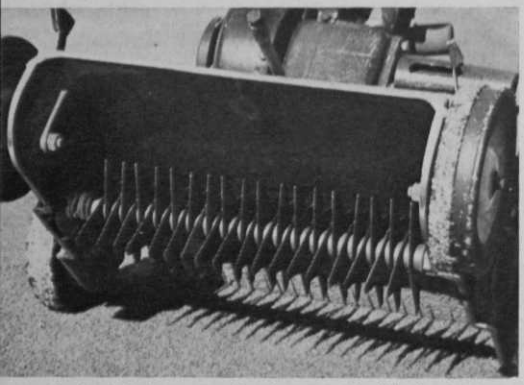
Turf is verticut in two directions to remove thatch and surplus grass.

Rye is being crowded out of the overseeding picture as other grasses give better results

Winter Green Preparation



Verticut knives are closely spaced with short spacer washers.

Light topdressing following seeding and matting completes the overseeding job.

By O. J. NOER

When greens in the south were planted to common Bermuda, putting surfaces were not the best at any time of the year. During the summer, the problem was to prevent steminess and to keep the Bermuda vegetative and leafy. Stemmy runners greens were top dressed frequently to keep the stems buried. Leafiness was obtained with a minimum amount of phosphate and potash, and by applying nitrogenous fertilizer liberally.

Common Bermuda greens were overseeded everywhere with rye grass. At first, so-called Italian rye, a perennial type from Europe, had a considerable following. Then seed of annual rye, harvested in the Pacific Northwest, replaced Italian rye. The domestic seed was much cheaper and there was not enough difference in behavior between the two grasses to justify the price differential.

Several Serious Faults

The common Bermuda-rye combination has had a number of serious faults. Greens are very bad during transition in the fall and even more so in the spring. It takes several weeks in the fall for rye to be-

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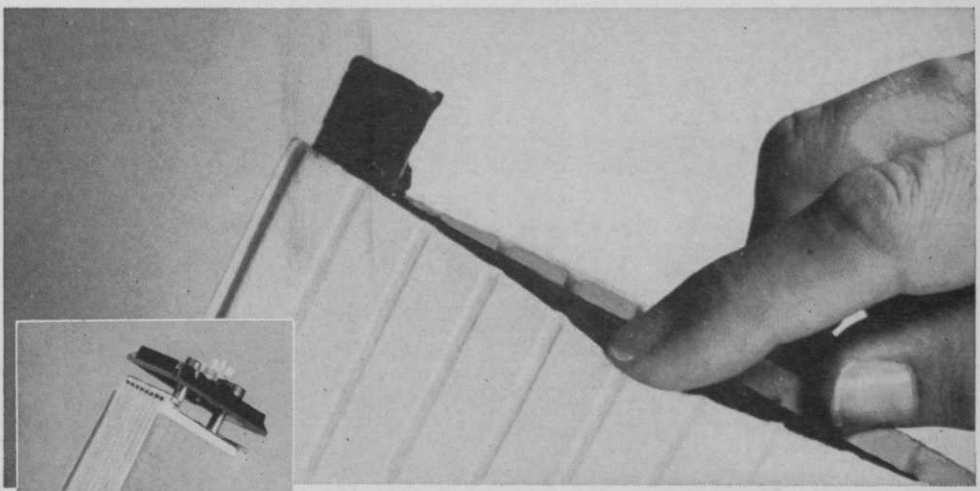

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come fit for play. Surfaces may be poor for up to a month in the spring.

Rye has a very bad effect upon the recovery of Bermuda in the spring because of the heavy seeding rate. Generous seeding is imperative to crowd the grass plants and create fine texture turf. Otherwise, grass is coarse. Rye greens are slower than bent greens because of the heavy seeding rate. Local golfers adjust to this, but it annoys many northern vacationers.

The switch from common Bermuda to finer texture Bermuda grasses, Gene Tift first, and subsequently, Everglades, and now to Tifgreen (328) has been a tremendous forward step. Although the greens are not exactly like bent they are a vast improvement over those with common Bermuda.

Putt More Like Bent

During the winter of 1963-64 Florida's best greens were the overseeded ones. The weather was too cold for satisfactory Bermuda growth. In a normal winter, golfers prefer to play on greens that have been overseeded. These greens putt more like bent turf.

Rye did not seem like the best grass to use on fine texture Bermuda greens for winter play. Trial plots comparing rye grass with other cool season grasses, alone and in combination, have supported this contention. These plots have been in operation for five to six years. They have provided very useful information.

Overseeded grasses, must provide coverage quickly and must survive until Bermuda revives in the spring. It must not retard Bermuda recovery. Where poa trivialis is troublesome, the overseeded grass must mask it. Otherwise, putting surfaces can be bad during flowering and seeding of poa annua.

Best Single Grass

Where a single grass is used poa trivialis has been best. Seeding rates have been 6 to 8 pounds per 1000 square feet when used alone. An 18 pound rate at Longboat Key in Sarasota produced a dense, pleasing turf. It did not retard recovery of Tifgreen in the spring. The purchaser must insist on pure seed, free of shepards purse type weeds, and chickweed. Poa annua should be absent in it, and in Kentucky bluegrass when it is one of the grasses in the seed mixture.

Seaside has been the best bent grass followed by Astoria and Highland in that order. Low cost is the big advantage of Highland. Red top is a poor fourth in rank and is falling into disfavor. Pennlawn, Illahue and creeping red fescue are good grasses. They do best as a part of a mixture rather than as the sole grass.

Merion Kentucky bluegrass is too coarse. Common Kentucky is as good as any. The bluegrasses are slow starters but they improve with the season.

Two-Grass Combinations

For two-grass combinations, poa trivialis and seaside bent grass have provided good turf. The poa trivialis is best at the start. The seaside comes into its own during the latter part of the winter. Seeding rates have been in the range of 6 pounds poa trivialis and 3 pounds seaside bent per 1000 square feet.

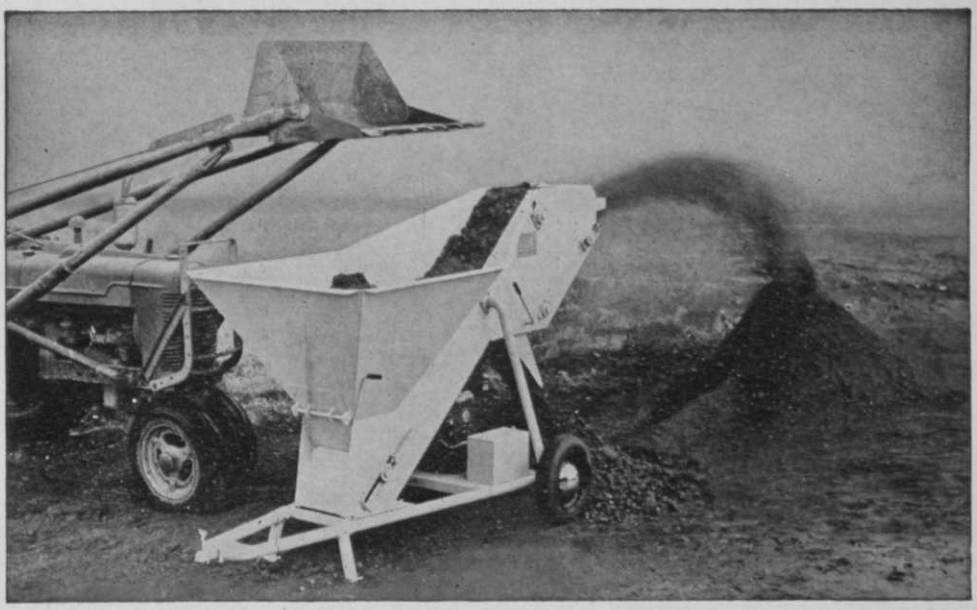
Combinations of these two grasses with Kentucky blue and Pennlawn or creeping red fescue, alone or together, provide good playing turf. Some of the combinations have been 3 to 4 pounds Kentucky blue, 4 to 5 pounds poa trivialis, 8 to 10 pounds fescue and 2 pounds seaside bent per 1000 square feet. The cost is not much

(*Continued on page 70*)

Capsule Calendar

Probably nobody ever has summarized the calendar as succinctly as Bill Smart, supt. of Powelton CC, Newburgh, N.Y., did in the July issue of the Hudson Valley GCSA Newsletter. Here is how Bill wrapped up the entire year:

January — Budget — Don't fudge it
February — Greetings — At meetings
March — Snow — She go
April — Hopin' — To open
May — 24D — For you and me
June — Fungus — Among us
July — Hotter — Water!
August — Fryin' — Diein'
Sept. — Got it made — Downgrade
October — Rakin' — Achin'
November — Frozen — Closin'
December — P.M.A.S. for XMAS



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GRAU'S Answers to Turf Questions

BY FRED V. GRAU

Food Reserves for Survival and Re-growth

During the waning days of summer and the early days of autumn nature provides conditions whereby plants start to prepare for winter. Some plants will go into dormancy so deep that no growth will be evident. Others simply slow their growth processes while retaining green color in leaves. One of the important factors that influences winter survival and successful re-growth in the spring is that of *food reserves* in various plant parts.

Scientists freely admit to an incomplete knowledge of how and in what form the food reserves are stored in various plants. One point of agreement is found in the role played by nitrogen. Every known organic compound found in food reserves in plants is associated with the nitrogen supply, supplemented by other essential nutrient elements.

Encourage Fall Fertilization

For many years, agronomists have encouraged fall fertilization of turfgrass areas even though they have not always spelled out how the plants benefit. Basically, we try to provide *adequate* supplies of nitrogen, phosphorus and potash at the time when grasses most effectively can use these "building blocks" for the creation of food reserves. Nature, in her own way, builds the proteins and amino acids which will assure winter survival and vigorous new growth in the spring. Apparently the process is virtually identical in both warm-season and cool-season grasses.

Weeds Can't Use Nutrients

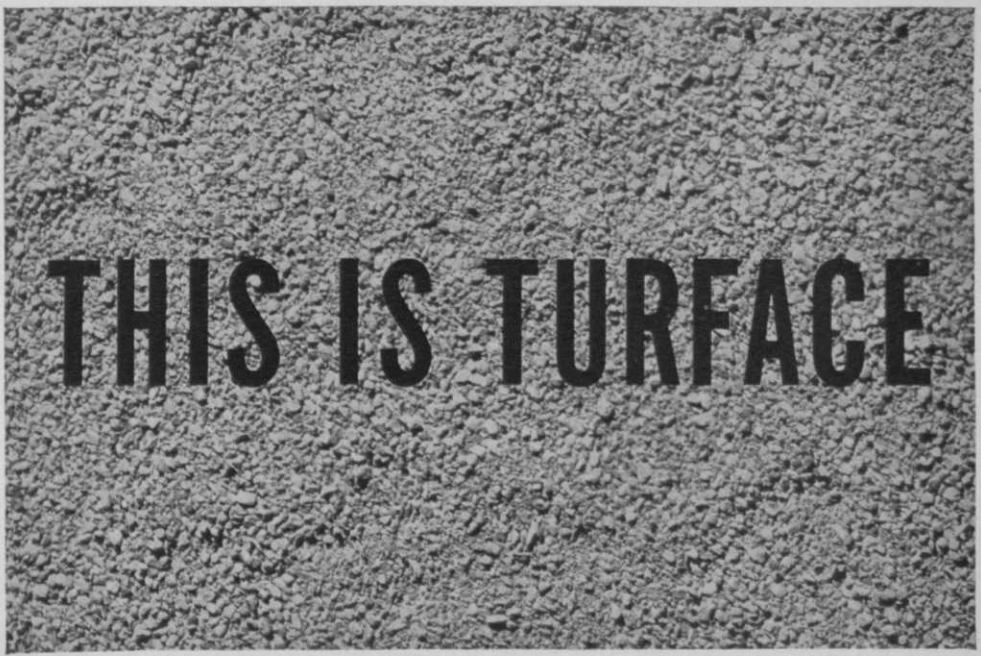
Aside from the highly-essential factor of building needed food reserves, fall fertilization is good practice because annual summer weeds have run their course and thus can't utilize the nutrients designed for the grass. Cool nights and warm days favor food formation in leaves and subsequent transfer to storage organs. Rainfall can be expected to be more favorable for grass growth and utilization of fertilizer. Most turf species tend to produce less topgrowth and denser bottom growth during the fall period. Seedhead formation has occurred weeks before so there is less tendency to produce upright growth for seedhead support.

When we stress fall fertilization we do not mean to imply that some feeding at other times of the year is unimportant. The high rate of nitrogen consumption by many turfgrasses demands fertilization other than in the fall.

May Need Complete Feeding

On some turfgrass areas soil tests indicate that complete feeding is required. By this is meant N-P-K. The proportions of N to P to K should be adjusted according to the need as indicated by the soil test results. The guiding principle should be adequacy, not excess.

Soil tests may indicate that on some areas only one or two nutrient elements



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Mercury: Symbol, Hg. (Often called quicksilver.) Atomic weight 200.61 (compared to hydrogen, atomic weight 1.008). It is said to be the most unpredictable element in kinds and properties of compounds it forms. Hg played an important part in the alchemy of the Middle Ages. It is a potent poison. Pure Hg is a silvery liquid at ordinary temperatures. "Quick-silver" means "alive and moving silvery metal." It conducts electricity, is used in thermometers, barometers and in alloys with other metals. Gold and silver dissolve in mercury.

In nature, Hg is found as cinnabar, a red sulfide associated with drops of native metal. Most mercury is produced in Italy, Spain, Calif. and Tex. It is marketed in iron flasks of 75 lbs. each. Annual production is about 24,000 tons. The United States produces 9 per cent of the world total.

Mercury long has been used as a fungicide. Bichloride of mercury ($HgCl_2$) is used as a vermicide (worms) as well as a control for brown-patch. Calomel (HgCl) is used in human medicine and is a widely-used fungicide (dollarspot). Calomel goes into water solution with great difficulty, is helped by the addition of an equal amount of common table salt.

Solubilized organic forms of mercury are used to reduce bacteria, slimes, algae and other organisms in paper making. Phenyl-mercury acetate is used for certain weed as well as disease control.

Best-known antidote for mercury poisoning is white of egg (albumin) with which it combines directly. Action of Hg may be so fast that no antidote may be entirely successful.

Primers for cartridges are prepared with mercury fulminate, an extremely explosive substance, made from mercury and nitric acid in the presence of alcohol.

are needed. If, for example, P and K are shown to be adequate, then nitrogen only need be applied for satisfactory preparation for winter. If P is adequate, with K deficient, then N and K should be used. Potash is especially important in preparing for winter because of its influence on the winter hardiness of plants.

Kind, Amount Important

Fall use of nitrogen deserves careful consideration. Both the kind and the amount of nitrogen are important. Soluble sources (urea, nitrates, sulfates) must be used with discretion since their complete, immediate availability may force grasses into undesirable rapid growth, causing them to become so "soft" at the onset of winter that winter survival will be poor. One wonders if this may not have been partially responsible for recent wide scale loss of many warm-season grasses.

Organic sources of nitrogen (ureaform, natural organics) do not force rapid growth by virtue of their manner of release to the plants. Nitrogen release from organics is controlled by soil organisms which are extremely sensitive to environmental changes. In effect, the grass plants will be furnished nitrogen in amounts that closely parallel the needs of the plants.

For this reason then, fall fertilization should be concerned primarily with organic sources of nitrogen (plus P and K as needed) to give grasses the best chance to develop winter food reserves in accordance with their needs. Another sound reason is that fall applications of insoluble nitrogen create a reserve of residual nitrogen which, unleached, unused and unchanged, will be there in the soil ready to be released as soon as microbial

(*Continued on page* 73)

Rawls Leads Ladies PGA All-Time Money Winners

Betsy Rawls, who has been playing the circuit since 1951, is the Ladies PGA all-time money leader. According to figures released by Nan Ryan, publicity director for the women's pro organization, Betsy passed Louise Suggs by tying for second in the recent Lady Carling Open and adding $1,085 to her earnings. That brought her winnings to more than $165,000.

Right behind the top pair is Mickey Wright, who is in her tenth year as a professional. On the basis of past performances, she probably will move into the lead within the next few weeks.

All of the Ladies PGA money winners have spent ten or more years on the circuit with the exception of Fay Crocker. Now a resident of South America, Miss Crocker retired from the circuit in 1961 after winning more than $73,000 in eight years.

Here is the list of leading money winners from 1948 through June 28, 1964:

Betsy Rawls, since 1951	$165,437
Louise Suggs, since 1949	163,584
Mickey Wright, since 1955	160,324
Patty Berg, since 1948	158,604
Marlene Hagge, since 1950	122,096
Marilynn Smith, since 1950	103,233
Betty Jameson, since 1948	92,134
Mary Lena Faulk, since 1955	88,665
Beverly Hanson, since 1951	75,898 *
Fay Crocker, since 1954	73,410**

*Hasn't competed since 1962

**Hasn't competed since 1961

Southern Turfgrass Sets Up Scholarship at Miss. State

The Southern Turfgrass Assn. has established a scholarship at Mississippi State University to encourage and assist young men interested in turfgrass management careers. The $300 scholarship will be renewable for three years, provided satisfactory academic progress is maintained. The holder of the scholarship will be exempt from all out-of-state fees at the University. The recipient will be selected from applicants in the seven states served by the association.

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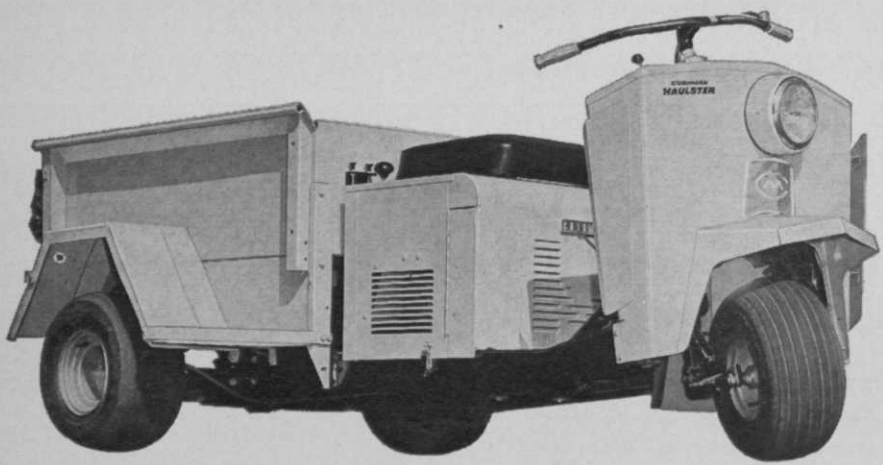

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CARRY GREENS MOWERS. Greens mowers fit easily into large pickup box. There's no time lost between greens; just roll the mowers up into the Truckster bed and go on to the next green.

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Bob Moses Dreams Up World's Fair to Pave Way For More Courses

By JOHN M. BRENNAN
President, Metropolitan
Golf Writers' Association

As we were sipping coffee in the fabulous restaurant atop New York's colorful World's Fair on opening day, the No. 1 man of Queens, Borough President Mario J. Cariello, nominated Bob Moses as golf's outstanding benefactor.

The boss-man of the billion-dollar Flushing Meadow extravaganza has done more for the golfer than any man since

Moses

Cariello

the game was developed. "He brought the game to the masses and created the finest municipal chain of courses in the universe," suggested Cariello, himself a low-handicap player at nearby North Hempstead CC.

Bossing the eye-filling fair is merely a small part of Moses' daily routine. "He's a young 76, you know," said Cariello, who has played a major role in the development of the second fair. "I well remember the day, some 30 years ago, when we came out to Corona GC, which was built on an enormous garbage dump maintained by the Brooklyn Ash Removal Co. Bob Moses, Mayor Fiorello La Guardia, Grover Whalen and other city bigwigs were in the conference that made the decision to create the so-called World of Tomorrow, the first fair built on an unsightly garbage heap. The fair opened a few years later — on April 20, 1939."

Developed Subway Circuit

Cariello recalls that Moses reluctantly agreed to raze the picturesque Corona course, which fringed Flushing Creek, inasmuch as he was commissioner of parks of New York City at the time and was in the process of developing the Subway Golf Circuit that now accommodates more than a millon rounds a year.

Ask Moses, a man who possesses an unique faculty of being able to transform dreams into reality, why he developed this second giant show in Flushing Meadow and he's got several stock answers — some surprising.

The most unusual retort — and probably the most logical — is "to get a park and more golf." Moses, a Rhodes scholar at Oxford in 1923 and graduate of Columbia University, is sincere in his park development dreams. In his philosophy, nothing impermanent, such as fairs, are vitally important.

Those few intimates of Bob Moses will concede he is extremely proud of the fair, but he doesn't worry about it. Certainly, not like his worries over golf expansion and creation of new parks and parkways.

Fill from the Ocean

His current worries are about the development of new Marine Park course in Brooklyn. This facility is uniquely built with the use of synthetic topsoil and fill from the ocean. He, too, is concerned with the newly acquired Douglaston Park course, formerly North Hills CC, for which Father Knickerbocker paid $6,000,000, the largest sum ever paid for a course in this country.

When Moses took over as city parks commissioner, the golf courses, like Van Cortlandt and Pelham, built before the turn of the century and Forest Park, Dyker Beach, Mosholu and the two 9-hole layouts in Richmond, La Tourette and Silver Lake, were essentially cow pastures.

The magic touch of Moses has transformed all of these courses into 18-hole municipal layouts that compare favorably with private club facilities. Under his regime, Clearview in Queens was purchased for $940,000 during the depres-