If your bank is within 68 miles, CLUB CAR will drive you there—without a stop for recharging batteries. CLUB CAR will go 2 1/2 times further between charges than will any other golf car and the batteries in a CLUB CAR will last 2 1/2 times longer than they will in any other golf car. This will enable you to use the car from sun-up to midnight (if you have a lighted course) without taking it out of service for recharging. Since golf car rentals are the largest source of income for golf courses we think it makes sense for you to use the one which will make you the most money—and then take you and your profits to the bank. CLUB CAR will save you at least $50.00 per golf car per year in batteries and $33.75 per golf car per year in electricity. Over a four-year period this is a savings of $83.75 per year or $335.00 per golf car in nothing but batteries and electricity. That's why we call it a "Blue Chip Investment". If you want these extra profits and savings call or write us for a demonstration.

For more information circle number 229 on card
"Nearly 9,600 pounds—and not a mark on the turf!"

"I could hardly believe it when they tested a loaded Champion Doo-All Trailer on our No. 11 fairway," said Steve Zappe, Greens Superintendent at the Springfield (Ohio) Country Club.

"We had about 12 inches of rain in three weeks. The morning before the test, the course was closed because of standing water.

"I let them run the trailer only in the rough at first, then down the edge of the fairway and, finally, right down the middle. There was not a mark on the turf—you couldn't even tell where the Terra-Tires had passed. My shoe heels were actually doing more damage than the Doo-All loaded with two yards of sand."

Could you use this gentle work-saver on your course? Models in 3/4, 1, 1 1/2 and 2 cubic yard capacities, convertible to flatbeds, and all with Terra-Tires.

ORDER FROM CHAMPION OR YOUR EQUIPMENT JOBBER
THE CHAMPION COMPANY
Springfield, Ohio 45501

DOO-ALL TRAILERS—WHERE FINE TURF NEEDS EXTRA PROTECTION
Great greens are great equalizers

They'll putt straight and true for anyone who starts the shot out that way.

In fact, professional turf takes a lot of excuses out of the game all the way from tee to green.

Getting, and keeping, tournament quality turf on greens and tees is something every course superintendent strives for.

And more and more of them are getting it with Vertagreen Tee-Green professional turf food.

Tee-Green is formulated expressly for beautiful, durable tee and green surfaces. It includes very special organic and chemical plant foods including long-lasting, steady feeding nitrogen.

Tee-Green is part of the total Vertagreen program for professional turf which includes a full line of turf fertilizers and dependable Vertagard turf protection products. They're getting a big play around the country. Try them and see why.

Vertagreen Professional Turf Products from Agri-Chemicals, Inc.
a Subsidiary of United States Steel Corporation
P. O. Box 1685 Atlanta, Georgia 30301
Fifty years of experience are behind the grounds care system that keeps that turf vigorous. Fifty years of research. Fifty years of testing.

That’s how National Chemsearch developed the new Gemini Grounds Care System. Here’s how it works: First, feed the turf with TRIPLE “N”, the liquid high-nitrogen fertilizer that promotes top growth and greening. One gallon covers 10,000 square feet, and it’s easily applied with the new 4-cycle Gemini sprayer. Then use VINA CHLOR, the long-lasting concentrated insecticide that kills even on DDT-resistant bugs.

To stamp out weeds and all vegetation for a season or longer apply DK-80, the non-selective weed killer. Just spray it on with the Gemini. Deepenol 60, an additive in DK-80, soaks it down to root level. For selective weeding, there’s APOLLO #45; broadleaf weeds, wild onion and wild garlic go! And the grass stays vigorous and green.

Ask your man from National Chemsearch about our complete line of turf-care products. Fifty years of experience is hard to beat. We’re not green when it comes to turf.
Swinging around golf

by Herb Graffis

School is for all seasons

Now we’re about in the middle of school days in golf business. Far gone is the time when “b’ guess and b’ god and let nature take its course” was adequate operating policy for any department of the now billion-dollar-plus golf business.

The United States Golf Assn. as usual got off with the correct keynote, “Economy in Golf Course Maintenance,” at the Green Section annual conference on Golf Course Management, January 24, which preceded the USGA annual meeting by a day. Who would have thought 20 years ago that the Green Section in any of its high-level deals would star superintendents such as Tom Sams of Audubon and Ray Hansen of Essex County? And the way superintendents now stand up and sound off with considerable sense in these meetings is worth millions to golf clubs.

If you want to see how far golf course maintenance has come as a business operation, read “Turf for Golf Courses” by Piper and Oakley, published in 1917 by The Macmillan Company. In it Dr. Walter S. Harban of the U.S. Department of Agriculture and Columbia CC at Washington, told the history of starting course construction in 1909, and how many things got screwed up because of ignorance and economy. I have seen, maybe 1,500 golf courses burdened with extravagant maintenance costs because of so-called construction economies. I’ve belonged to some of those clubs and saw fellows who didn’t know what it was all about try to save construction money and end up costing the club heavily in corrective alterations, several years of satisfactory play and temporary loss of superintendents’ reputations.

You’ve got to give Henry Russell, USGA Green Section chairman and his predecessors credit for seeing that superintendents get spotlighted because they are the guys who lose their jobs or go on to better ones depending on how the course is. Green Section staff for years has been far more valuable than it has been rated publically for its scientific leadership, its working guidance and coordination of superintendents and their employers and for its amazing correlation of the state experimental work on golf turf.

The Golf Course Superintendents Assn. of America’s annual conference and exhibition of equipment, although always trying to focus on a phase of course management as a convention theme, seldom hits a subject as sharply as the Green Section.

The conference program at Miami Beach did have a questionnaire which asked men attending the sessions the size of their maintenance budgets (under $50,000 . . . $100,000 . . . over $100,000), whether the course has an automatic or manual irrigation system and whether the superintendent is

Continued on page 69
10 BLADE HIGH SPEED REEL: For the finer groomed creeping Bent in the North and the new improved fairway Bents and Bermudas in warmer climates.

EVEN DISTRIBUTION OF CLIPPINGS: With new scraper-deflector, grass clippings are evenly distributed, eliminating bunching, dropping and windrowing.

PREVENTATIVE MATTING AND THATCH CONTROL: Presents a preventative control of thatch and matting by cutting as low as \( \frac{3}{4} \) inch with a \( \frac{1}{2} \) inch frequency of cut.

ELIMINATES SCALPING ON MOUNDS: The 26 inch cutting swath of each unit gives greater flexibility. No "ribbed appearance." Smoother, more uniform cut.

AVAILABLE in Hollow Roller or Rear Wheel Drive. 3, 5, 7 and 9 gangs.

Gives Putting Green Appearance to Fairways, Aprons and Tees!
Winter fertilization: a new concept

Effect of Nitrogen on Winter Root Growth of Bentgrass.

The objective of this investigation was to study the effect of fall and winter nitrogen fertilizations on root growth of bentgrass maintained under putting green conditions. Root growth during the winter was ascertained by the placement of Penncross bentgrass cores in aluminum cans four inches in diameter and seven inches in depth. These containers were placed in holes in a Penncross putting green and were removed at periodic intervals throughout the winter and spring periods to ascertain the amount of root growth achieved.

One pound of nitrogen per 1,000 square feet was applied in the following monthly treatments: (a) October, (b) October-December, (c) October-December-February, (d) October-December-February-April. In addition there was (e) a check treatment receiving no fertilization during the winter period and (f) a two pound per 1,000 square feet rate applied in the months of October, December, February and April.

In these experiments conducted in Virginia latitudes the root growth was greatest during the fall and spring and minimal during the winter period. Regardless of what month the nitrogen application was made, there was an immediate affect in reducing root growth of the bentgrass maintained under putting green conditions, but root growth was actually enhanced on a long term basis. The best root growth throughout the winter and spring period was achieved with an initial nitrogen application in October or with one or two additional bimonthly applications made following the October fertilization. Monthly applications of nitrogen at one pound per 1,000 square feet throughout the winter period retarded root growth. Bentgrass which received no fall or winter nitrogen fertilization had substantial fall root growth but resulted in minimal root growth during the spring period.

The authors concluded that bimonthly applications made during the fall and winter period in Virginia latitudes resulted in improved winter color, turfgrass quality and root growth of cool season turfgrasses. These responses were evident throughout the early spring growing season and resulted in a reduction in the amount of nitrogen which must be required during the spring period. This in turn decreased the problem of excessive top growth during the spring period.

Comments: The concept of late fall or winter fertilization to maintain better winter color and root growth is relatively new. As a result the spring fertilization requirement is reduced or eliminated. By avoiding the need for spring fertilization, the increased mowing resulting from the stimulated top growth during the optimum moisture and temperature periods of spring and early summer are avoided. This response is now documented by several universities and confirms the reports from Virginia. This concept of late fall and winter fertilization may prove to be one of the most striking changes in turfgrass fertilization principles developed in several decades.

The question arises as to how wide a range of latitudes and winter climates this concept can be applied. Observations in regions where severe winters occur and low soil temperatures are common are that it has not been possible to maintain a green color through the winter period. Also, it has been shown that excessive late fall fertilizations applied during the period when the grass is still making some vegetative growth can result in decreased low temperature tolerance. More studies comparable to the Virginia studies need to be conducted throughout the climatic zones of the cool-humid region in order to ascertain how widely the concept of fall and winter fertilization can be employed.
Sign of the times

Continued from page 31

determination to continue this policy.

It will take a while for Golfcraft to rid itself of its business that is not pro-only, but once reaching that status here are some of the benefits the pro can expect from the merger. For the first time in the history of golf says parent firm Acushnet, golf professionals will have a complete line of golf equipment—golf balls, clubs, bags, gloves and headcovers—with no competition from any other outlet by goods from the same company under a different brand name. For the first time, states Acushnet, pro shop sales "will be protected 100 per cent against downtown competition."

Another wedding within the leisure field has seen Shakespeare acquire Plymouth Company, a golf ball manufacturer. Shakespeare hopes to be a prime manufacturer of all the products it sells and hopes to eliminate the middle man in many cases.

MacGregor has acquired The Hinson Company, a golf bag maker. MacGregor is expanding and will take over the entire production of golf bags now being manufactured by Hinson, hoping to accomplish this by 1970.

The most recently announced merger is the acquisition of Harley-Davidson into American Machine & Foundry Company, AMF is interested in leisure time activities (it is a prime supplier of automatic bowling alleys and owns famed golf equipment supplier Ben Hogan) and feels the wedding to Harley a natural for this side of its business.

Harley will operate as a wholly-owned subsidiary of AMF. AMF told GOLFDOM it is reviewing all its golf-related activities which may mean that they will be able to offer more to the pro. Harley is, of course, the well-known manufacturer of both gas and electric golf cars, as well as utility cars.

For a fitting cap, it might be well to mention that the Wilson Sporting Goods Company has operated as a subsidiary of the giant Texas-based conglomerate, Ling-Temco-Vought. LTV has become known in industrial and financial circles as a company that moves to where the action is, fundamentally interested in acquisitions that link them to firms doing business in solid growth fields. There can be little doubt that leisure is one of these fields.

A national financial newspaper recently pointed out that the financial community is looking for a sharp rise in the revenues that are forthcoming through golf as increased leisure time attracts a growing number of golfers, both young and old.

Mergers may start with a conversation on the golf course, or perhaps end with such a conversation, but it must not be forgotten that mergers also effect the golf course.
continued from page 65

responsible for golf cars and swimming pools.

Informal sessions at GCSAA where superintendents get together and discuss their baffling troubles often seem to me to be the conference feature that offsets the amount that most clubs spend in sending their men to the meetings. The intimacy, close cross-examination by various superintendents and suggestions and citations by material and equipment men such as Charley Wilson, Leo Cleary, Stan Frederiksen, Bob Miller, Tom Mascaro, Jim Watson and the Green Section and state agriculture experts have solved more problems than chairmen or course owners or other executives realize.

There's a tremendous geographical factor in course management problems that, despite programming efforts, forces a general view in GCSAA schooling. The association does as well as can be expected in moving around its annual meetings to meet operating problems in turn at short range. GCSAA 1970 annual conference will be at Houston.

Club Managers' Assn. annual convention at Dallas, February 11 to 15 is pretty much a review of the CMAA workshops in which almost 800 managers attended last year. The managers' study program presents financial, building and property management, food and beverage management and personnel management study with an overall plan of certifying graduates of the three-year organized schooling as club managers. There have been about 5,000 enrollments in the CMAA study programs since they were started in 1955.

Club financial management is accentuated in the CMAA courses. Club books are kept in the clubhouse and not too often can club officials or members get a clear idea of what the club's financial score is.
Now Warren brings you
Warren's A-20™ Bluegrass

The ideal grass for tees, approaches and collars. Takes short cut. Grows upright, gives better support to ball. Resistant to leaf spot, mildew, rust and stripe smut. Develops less thatch. Greens up earlier, stays green later.

Golf courses from coast to coast for years have planted Warren's Creeping Bent stolons for the finest greens in America. Clean, pure strain Warren's stolons provide perfect, even texture and color. Greens planted with seed do not hold their uniformity of color and texture as well as greens planted with stolons.

And Warren research has now made available the new grass, A-20, with the same high quality, for tees and aprons of greens. A-20 has been tested and rated by leading universities.

Write for specific information about A-20 Bluegrass and Warren's stolons.