THE TREND IS TO SOUTHWESTERN PLASTIC PIPE... and HERE'S WHY:

**LOW INITIAL COST**
By comparison with most other piping materials for permanent sprinkler systems, SOUTHWESTERN Plastic Pipe is measurably less expensive. This economy is made even greater by the drastically reduced cost of installation.

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Water losses are minimized when you install SOUTHWESTERN Plastic underground sprinkler pipe. Power requirements are generally lessened, due to lower friction loss.

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Resistance to most chemical and soil elements protect SOUTHWESTERN Plastic Pipe against the damaging attacks of corrosive elements that sometimes rust and destroy other piping materials. Shifting soil has little effect on semi-rigid or flexible plastic pipe.

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Southwestern's Plastic Pipe is guaranteed against rot, rust, and electrolytic corrosion, and to be free from defects in manufacturing.
Personnel Management
(Continued from page 80)

greensmen and foremen, golf professionals or managers, and stimulate their best efforts toward the pride in authorship necessary to the realization of predetermined goals.

To lead is to work longer and harder than anyone who follows. It is to exhibit boundless initiative and creativity. It is to establish just and equitable work loads and payrolls. It is to communicate with laborers, foremen and executives. It is to follow through on orders given, to be on the job at the right place at the right time. It is to set an example of personal qualities as well as professional knowledge. It is to know much personal satisfaction.

Terry Van Gorder besides being the general manager of Peacock Gap G & CC in San Rafael, Calif., is designing a 9-hole course in Sonoma that will soon be constructed. He studied turf management under his father, E. W. Van Gorder, at the Stanford University course. He was graduated from Yale University in 1955 and served four years in the Navy. Van Gorder was a construction supt. for Architect Bill Bell on several California course jobs and, after completing work on Peacock Gap, stayed on as manager.

Extend the Season
(Continued from page 82)
of their youngsters to school. In many cases, the fall offers an opportunity for them to play more golf than they did through the summer.

Full Maintenance Provided
The Supt. and his crew provide course maintenance in the fall just as in the summer. This season I plan to hold a tournament as late as Oct. 15. This, of course, would be impossible if a full maintenance crew wasn’t on the job.

I have mentioned that it takes some competition to keep the members coming out to the course after Labor Day. Speaking of competition, I think that Northern pros have to take a second look at the word and consider what “the competition” is doing if they go out of business at the end of summer. In the seven month interval between the close of one season and the beginning of a new one in the spring, “the competition” can make great inroads in our business.
There now are hundreds of courses all over the United States with CRESline Plastic Pipe sprinkler systems. The low cost is a big attraction — 50% less installed than galvanized pipe. But the payoff is the complete dependability. All CRESline Plastic Pipe meets or exceeds all industry standards. It is guaranteed right in writing. You get low initial cost, low installation cost, and complete dependability. And your entire job is delivered at once, so you waste no time when you're ready to start. We will be glad to send you a list of CRESline installations, so that you can check any of them yourself.

WE WILL MAKE A COMPLETE ENGINEERING LAYOUT FOR A SPRINKLER SYSTEM FOR YOUR COURSE. WRITE FOR DETAILS . . .

CRESCE NT PLASTICS, INC.
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Equipment Calibration

(Continued from page 73)

use equipment for purposes other than which it was originally designed. However, occasionally there is a machine, the cost of which cannot be justified by its single design intent.

Observation of Results

Correct use of equipment is noted by the "observation of results". Even though the supt. has read most available literature the fact still remains that a complete understanding of the characteristics of the machine is necessary before it can be used properly.

Height of Cut: — All the books say that bentgrass greens should be cut at 5/16" maximum in mid summer and at ½" minimum in spring and fall. The most common way to arrive at this height is to set the mower in the shop by use of an adjustment bar and precision scale. Generally, however, with the same setting on four different greenmowers, there will be four different heights of cut. Starting with manufacturer "A" who manufactures the lightest mower and progressing through "D", the heaviest, each mower will cut progressively lower in proportion to its weight and the many variations in the firmness of the soil, the presence of vegetative matter and the pressures exerted on the supporting medium by the wheels, rollers, skids, etc. Engineers refer to this height as "effective cutting height". A supt. must learn to recognize the "effective cutting height" of his mowers. The "effective cutting height" should be observed on all cutting equipment whether they be fairways, greens or triplex units and adjusted to fit the situation.

Something Gone Wrong

Skips or Incomplete Application: These are evidence of "something gone wrong". A solution can be arrived at much sooner if the fundamentals of the operation are understood and the computations or use factors are re-checked. Physiology of the plant is of prime consideration in trying to arrive at a solution. Many ingenious devices have been invented to prevent "skips" or untreated areas in making fertilizer and chemical applications. Use of a marking device which clearly defines the treated zone is quite essential. Dyes and dragging weights are most commonly used.
Courses with A Profit Motive
(Continued from page 22)

planning with the owner and his associates.

Nine or 18 Holes: While it is better to build nine good holes initially than 18 mediocre ones, it is of the greatest importance to control sufficient real estate so that the course can be expanded to 18 when additional funds become available. This is true whether the layout is a regulation course, a Par 3 or a pitch and putt.

The net profit from 18 holes can be three times that from nine. This is because 9 holes have less than half the capacity on crowded days; the overhead per hole is higher; and nine holes are seldom as popular as 18 with today's golfer.

Accountant and Legal Advice: Elaborate layouts well located and with high maintenance standards and effective management and promotion are grossing well over $100,000 annually from green fees alone. With operating expenses of $45,000 to $60,000 the net before taxes is high. But net after taxes can be another story. With so much involved it is important that accountancy and legal advice on corporate structure be obtained in the earliest stages. The corporate structure can have a bearing on the tax bite.

Non-Equity Clubs: Another type of golf course built with a profit motive is the non-equity club where memberships are sold by the owner who does not part with any equity in his property or facilities. The facilities are operated as a private club with fee players allowed only through member invitation. Members pay annual dues.

Members Spared Assessments
Many of these clubs have been highly successful because the operation can be run most efficiently and the members are spared annual assessments that so often are the curse of member-owned clubs.

One drawback, however, is that it may take several years to obtain a full membership of 300 to 400 adult members, plus families. Therefore the course may be operating at partial capacity for years. On the other hand, if the owner operates the course partly on a fee type basis, he may find it difficult to sell memberships to people who are seeking the privacy of a country club.

Conditions vary so greatly that it is impossible to make a recommendation in this regard. Sometimes it is best to open the future non-equity club initially as a fee
AT LONG LAST THE 
combination 
TOP DRESSER- SPIKER 
PLANTER 
Will spike and topdress in one operation. 
Also an ideal stolon planter. 
Dressing Capacity 4 cu. ft. 
3 Foot Spread 
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type course without members. Memberships are then sold to patrons over the years until there are enough to warrant restricting the course to these members. 

In several cases I have noted that groups of the patrons have gotten together to form a club and have then arranged with the owner to close the course to the public. This has spared the owner the tremendous promotional campaign needed to put the non-equity club over. It has also provided the owner with profitable initial years when the course was still operated as a fee-type venture. In other instances, owners have been well advised to open initially as a private club. Accordingly, each situation is different and must be thus judged. 

Adequate Initial Financing: As in any other new business, adequate financing must be arranged for initially. Obviously insufficient financing can lead to disaster. Troubles in this regard usually arise from costs that are overlooked. The most noteworthy of these are the first years carrying charges on borrowed money for fencing, leach fields, maintenance equipment, equipment building, parking and entrance road and utilities. Everyone appears to budget quite adequately for course, club house and real estate, but some are inclined to forget the other outlays. 

What of the Course of the Future? Courses of the future will no doubt be essentially the same as those of today. But as the fee golfer becomes increasingly sophisticated he will, like his close relative, the country club golfer, demand more refined and elaborate facilities. 

There is a trend towards a large number of holes such as we know at St. Andrews, Pinehurst, Bethpage on Long Island and other golf centers. These can be termed golf complexes and already we see several of these 54-or-more hole layouts in the drawing board stage with portions floodlit for night play. There are advantages businesswise to these gigantic golf ventures. Not the least is the fact that a complex can pay top money for the best supt., professional and manager, who in the final analysis constitute the key to continuing success of any golf operation. 

While this article has perhaps served to introduce some considerations to be made in early planning of a golf course built with a profit motive, it is emphasized that any individual or group contemplating
such a venture should first contact the National Golf Foundation for its valuable assistance in providing data upon which intelligent initial decisions can be made.

**Business Is Production; Pastime Is Research**
(Continued from page 30)

nois Crop Improvement Association and Purdue University.

One or the other of the nurserymen will tell you that the bent plots are kept mowed so that they don’t re-seed, and that errant blades are removed so that the purity of strains isn’t disrupted. It is pointed out that the progeny of a single plant always has different characteristics than its parent, but that doesn’t necessarily mean that it is weaker.

Trying to explain this genetical fact in terms that are understandable, Ben Warren puts it this way: “You can never tell about the offspring. He may resemble the parent very closely, or he may differ completely. You might put it in terms that are familiar to golfers. The progeny that is produced may have its mother’s power and it’s father’s finesse.”

Although bents produce offspring of amazing variability when they go to seed, bluegrasses aren’t similarly affected. So far as people who grow Merion on a wholesale scale are concerned, this is a blessing. If they had to worry about the purity of strain in acre after acre of turf, they’d never get into the nursery business.

In recent years, the Warren company has developed what it calls “backyard putting green bluegrass” for golf buffs who want to take the game home with them. This is a refined grass that is kept under close watch for vigor in encroachment and disease resistance. And, like any favored project, it receives special fertilization.

**Shade Tolerance**

In the shadehouse at Palos Park, bents and bluegrasses are constantly checked to see how much sunlight they must have to survive. There is considerable variability in the shade tolerance of the two strains, but it is agreed that each must get at least 35 per cent of available sunlight if it is to thrive. When either bents or bluegrasses receive less than 25 per cent of available sunlight, they simply refuse to grow, according to Gaskin.
One sleeper in the shadehouse is a bluegrass known as A34. It requires a good deal less sunlight than Merion and only shows sign of fading or becoming dormant when it receives as little as 30 per cent of available sunlight.

Extensive observations of bents, fescues and bluegrasses are made in the Warren greenhouse. All are pure strains and great care is taken in keeping out foreign seeds or plants. The test for the vigor of these various species is made through observation of their leaves, color and density. Diseases are induced in some of the flats to find out more about resistance and control of the different types of turf, and some cross-breeding experiments are carried out.

POA Has Potential

Ben Warren and Tim Gaskin have studied poa annua long enough to feel that it has much potential. Like all bluegrasses, cross breeding is difficult but they are of the opinion that its longevity can be extended. They reason that this species doesn't actually die of old age, but year in and year out is the victim of disease. Thus, through selection and proper management, its perennial characteristics may emerge.

In addition to the experimental activity that is carried on at the Palos Park nursery, the Warren company maintains bentgrass test plots at Huntley, Urbana, Springfield, Ill. and St. Louis, Mo. Selections under observation come from three Chicago area golf clubs — Bob O'Link, Northmoor and Twin Orchard.

**Grau's Questions & Answers**

(Continued from page 58)

A. Your aerifying program is sound. Filling aerifier holes with calcined clay. Next time I would like to use coarse sand. Just what is "coarse sand"? We have Pennlu greens. Should this grass be kept somewhat dry? We have much poa. Is there anything much we can do but try to get a good turf? I know we should mow 3/16 of an inch or less at least four times a week but we are not given enough help to do it. We are furnished some very good black dirt which comes from low ground and has just a few weed seeds in it. (Indiana)

B. Your aerifying program is sound. Filling holes with a 50-50 mixture of coarse sand and calcined clay has worked out well on many courses. Your dilemma is a common one. Your grass needs to be kept on the dry side which, of course, makes the greens feel harder. Grad-
ually the cultivation and 50-50 mixture will give the greens a softer feel, even when dry.

Coarse sand officially has these designations: Tyler scale (A.S.T.M. — 32 mesh); U.S. Number (N.B.S. — 35 mesh); Millimeters, sieve opening — 0.50; Inches, sieve opening — 0.0197.
Coarse sand should contain about 80 per cent of the particles of the above size class, some of the remainder may be larger, some smaller.
Poa will have to be battled for years to come. One good approach to the solution of the problem is to keep phosphorus low and continue to use lead arsenate. Your fertilization program is important. This should be outlined at an early date.

Use very little of the black dirt in your topdressing, say about 10% by volume. No doubt it will test high in silt and clay, causing the greens to become hard.

Report on Experimental Green
According to Ray A. Keen, Kansas State U. Agronomist, the severe, dry, open winter of 1962-63 probably did a great deal of damage in the Central Plain States. On the University's experimental green, turf in sections with coarse sand mixes died. Turf in pure, fine sand suffered more than that where the sand was mixed with some soil and peat.

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Fourth World Senior Tourneys to be Played in August

The fourth World Senior Golf championships will again be played at Broadmoor GC, Colorado Springs. They are scheduled for Aug 24-31.

Individual and team competitions are scheduled. It is expected that eight countries will send four-man teams to the Broadmoor event. India, New Zealand, Italy, Mexico, Venezuela, and Great Britain already have signified intent of sending teams and Japan and Australia or Peru are expected to.

Charles (Chick) Evans, former U. S. Amateur and Open champion, was instrumental in getting the World Senior started in 1960 as a contribution toward promoting world peace.

Countries that take part in the Team Challenge match compete for a $10,000 perpetual trophy donated by Francis Brown.

The individual championship is limited to 176 participants.

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HIGHLAND COLONIAL BENTGRASS FOR FAIRWAYS ROUGHS TEES GREENS

Highland Colonial Bentgrass is ideally suited for the entire golf course. It features vigorous growth and excellent color, thrives on close mowing, withstands heavy use well, and with minimum care, resists disease.

Highland Colonial Bentgrass can be used alone, or in mixture, both for year-round turf and for overseeding southern warm season grasses. Write for further information on the use of Highland Colonial Bentgrass in your area.

HIGHLAND BENTGRASS

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June, 1963
Swinging Around Golf
(Continued from page 18)
Denny Champagne and his committee are organizing calls for a great deal of hard, smart work and financial sacrifice by pros without the warming sunshine of the publicity spotlight, but it can be one of the best things the PGA ever did for its members and for all golf.

Harry Messinger has been named manager of the Green Knoll GC in Somerville, N. J. . . . Three Ring Intersectional PGA tournament, to be played Sept. 5-6, will offer $10,000 in prizes where last year the ante was $6,000 . . . The intersectional matches pit selected eight-man teams from New Jersey, Westchester and Long Island in best ball and individual competitions . . . It is sponsored by P. Ballantine and Son . . . Construction has started on Edgmont GC in the Philadelphia area . . . Designed by Tony Pedone, a well known pro and part owner of the club, the course will be an 18-hole semi-private.

The South Course, 18-hole addition to the Champions GC in Houston, to be completed by November . . . Like the North Course, opened in 1958 by Jimmy Demaret and Jack Burke, Jr., the new layout will swing through heavy timber and there will be sufficient traps and water hazards to give it a tournament-tested rating . . . Greens on the new course will be more tilted and rolling than those on the older one . . . George Fazio assisted Demaret and Burke in the design . . . Semi-private going in near Richboro, Pa. . . . To be known as Northampton Valley GC, it will play to 6,800 yards and par 71 . . . Edmund Ault is handling the design.

R. Albert Anderson, Sarasota, Fla. golf architect, reports he has handled the design of the following Florida courses in the last year or so: 18-holes at Rocket City in Orlando with two to come in the future . . . 9-hole Par 3 Heather Hills in Bradenton . . . Futurama, 18 hole Par 3, in Sarasota . . . 9-hole regulation Harbor City in Eau Gallie . . . John Darrah, Matteson, Ill. architect, is handling plans for expanding Hopkinsville (Ky.) G & CC from 9 to 18 . . . Some of the present holes will be re-routed and play won't be interrupted when construction starts on the added nine.