THE BULL SHEET, official publication of THE MIDWEST ASSOCIATION OF GOLF COURSE SUPERINTENDENTS.

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1818 — 177th Street
Hammond, Ind. 46324

Thanks to Oliver Miles for composing the following seri-humorous advice.

GREENER PASTURES

Have you ever felt that you had reached the maximum potential of your existing job or were becoming bored, complacent, dissatisfied or had "itchie feet"?

Need a new challenge?

If you have a need for "greener pastures" **now** is the time to review the fundamental principles involved in making a change, reality.

The acqisition of a new job consists of three basic parts — (1) Application, (2) Interview, (3) Resignation.

APPLICATION

This initial effort should consist of an (a) "Introductory Letter" which would state your purpose and interest in an interview, (b) a complete "Resume" (See example (A) listing your — vital statistics — qualifications, which include your educational background and work experience — character references — optional inclusions could be a recent photo, statement of hobbies and interests and possibly a summary of your expectations and abilities.

INTERVIEW

When invited by club officials for a personal interview, take along some information about your past performance, either a slide presentation or records of past operations. By having something to show "in black and white or living color" can go a long way toward selling you and your capabilities.

Rather than the interview period being a haphazard discussion, by having a prepared "Job Interview Questionnaire" (See example (B) the conversation can be directed toward supplying you with vital information about the Golf Course and **club policies.**

During the interview inject copies of a "legal" Contract or Working Agreement which will serve as the foundation of any possible employment relationships, and note: any reactions pro or con.

RESIGNATION

Suppose the club offers you the job and after some degree of deliberation you accept and come to terms.

Do you have any obligations to your former employer?

A formal "Letter of Resignation" should be in order plus your "Post Tenure Recommendations", (See example (C) if you have established any sound agronomic, maintenance or improvement programs that should be continued.

Finalize your association with the club by supplying copies of all records to them (also self) for future reference and be available to answer any questions pertaining to past operations.

SUMMARY

Although opinions should not be formed on first impressions, it is human nature that we do.

A comprehensive typewritten resume and letter will create a favorable first impression.

Being prepared is the key to a successful interview.

Thorough preparation will also enhance your image of professional competency.

The resignation procedure will sever all ties with honor and preserve your integrity as a Superintendent.

Club policies usually fit into one of three categories **— whimsical, conservative** or **progressive.**

Whimsical — no sound planning, do as I say — "yes man" fits the role.

Conservative — behind the times, penny wise and dollar foolish — a "leader" can promote change.

Progressive — want the best, have the means to provide same — a "top man" leads the way.

Within the limits of human errors, have you ascertained that their policies concur with your ideals?

Via Con Dios and may the pasture be greener.

"Green Phantom"

(EXAMPLE A)

RESUME
A. PAULITICAL PAWN
GOLF COURSE SUPERINTENDENT

STATISTICS

Height — 4 ft. 7 in.
Width — 5 ft. 3 in.
Weight — xxxx lbs.
Hair — Green
Eyes — Bloodshot & crossed
Age — Old enough to know better
Married — 12 children, cheaper by the dozen
Health — A physical "specimen"
Address — 12 Dependents Lane
Promised Land, Illinois
Phone — 007

QUALIFICATIONS

Graduate Education

Some High School
Majors — Wheels, Girls, & Pinball Physics
No All State University
Ex**Tension** Courses in A**grow**culture
Botany — Sexual VS. Asexual
Propagation of Plants — Knotweed, Poa Annua & Crabgrass

Soil Fertility and Management — Advantages of Clays & Manures
Soil and Water Conservation — On Flood Plains & Other Marginal Land
Home Lawns and Landscaping — Pros & Cons of Artificial Turf

Sheepskin Ewe
Turf Management School
Turf — Give 'em what they want, not what they need
Soil Science — Should have been Political
Irrigation and Drainage System Design — Advanced hose and sprinkler combinations and the wonders of an open ditch
Trees and Shrubs — Identification and Maintenance for Winter work — Brrr
Entomology — Identification and Control of Gnats Flies and Other "Human Pests"
Golf Course — Architecture, Construction and Caitooning

P. U. City College
Landscape Management
Turfgrass — Fundamentals, more of the same
Floriculture — Herbaceous Plants for delicious salads
Trees and Shrubs — Woody Plants for dense shade and root competition
Landscaping — Design and Maintenance or anything goes

Experience

Crabgrass Golf Course, Quackville, Illinois
Ballhawk & Caddy, Age 11-23, Grounds Laborer, Age 23-25
Knotweed Knoll Country Club, Homeland Illinois
As Supt. trainee and serving as Asst. Supt. from — to
Crabfree Golf Course, Quackville, Illinois
As Supt. from — to .
Big Spenders Country Club, Big Valley, Illinois
As Superintendent from — to .
Poa Paradise Country Club, Smogville, Illinois
As Superintendent from — to .
Swamp Valley Golf Course, Fool City, Illinois
As Superintendent from — to .
My grounds maintenance experience at these clubs is my life.

ORGANIZATIONS

Crabgrass Growers Association of the Midwest
Northland Association of POA Annua Cultivators
Great White Hope of American Association.

SUMMATION

With your thorough working experience and study, you have acquired the technical knowledge and wisdom for a complete golf course and grounds-maintenance and improvements operation second to none.

In closing, if given full cooperation, which includes adequate financial support and basic understanding by **your** club, you can promise organized maintenance and improvement programs with the end result being as fine a golf course and country club club grounds as is possible.

REFERENCES

Father and Mother	Bread Snatchers
Cabinstill Trail	12 Dependents Lane
Boondocks, U.S.A.	Promised Land, Illinois

P.S. — Sorry, could not include my wife as she knows me too well.

(EXAMPLE B)

JOB INTERVIEW QUESTIONNAIRE

BUDGET

Labor
Salaries
Wages
Scale
Payroll Taxes
Key Personnel
Seasonal
Fringe Benefits

Material
Fertilizer
Chemicals
Repairs
Petroleum
Miscellaneous
Other Details

Capital Improvements
Equipment
Golf Course and Grounds

GENERAL INFORMATION

Turf and Area
Greens
Tees
Fairways
Rough
Property

Irrigation System
Type
Pump Capacity
Water Source
Age

Trees
Planting
Care

L. R. Program

Shop Conditions
Office

Club Policy
Whimsical
Conservative
Progressive

MISCELLANEOUS

Members
Dues
Assessments
Indebtedness

PRELIMINARIES

Previous Superintendent
Management Desired

PREVIOUS SUPT. COMPENSATION AND CONSIDERATIONS SALARY

Duration

Fringe Benefits
— Conference Expenses etc. —
— Vacation
— Club Privileges —
— Meals—
— Transportation —
— Insurance —
— Moving Expenses —
— Retirement —
— Bonus —

(EXAMPLE C)

POA PARADISE COUNTRY CLUB
Smogville, Illinois

POST TENURE RECOMMENDATION

1. Continue established programs.
2. Pursue equipment expansion and depreciation schedule.
3. Follow jobs pending outline for existing course and new development.
4. Promote rebuilding and improvement plans.
5. Hire a qualified Superintendent to insure membership satisfaction.
6. Revise and improve your club organizational structure to encourage individual "involvement" and incorporate common "realistic" business practices.

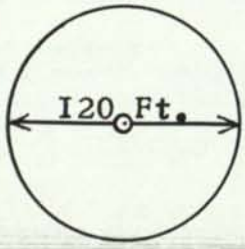
The preceding information was listed as important considerations for you to make in order to continue the progress that has been made during my tenure as your Superintendent.

Sincerely,

Green Phantom
Superintendent

SPRINKLER PRECIPITATION FORMULA

Formula for finding the precipitation in inches per hour from any sprinkler when the discharge in gallons per minute and the diameter of coverage in feet is known.



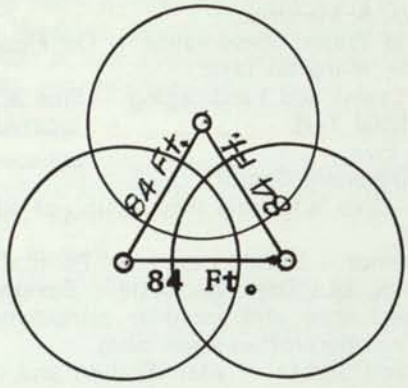
Precipitation in inches per hour =

$$\frac{122 \times \text{G.P.M.}}{\text{Diameter in feet squared}}$$

EXAMPLE: Where a sprinkler discharges 25 gallons per minute and covers a circular area of 120 ft. in diameter the precipitation in inches per hour is: —

$$\frac{122 \times 25}{120 \times 120} = 0.21 \text{ inches per hour.}$$

Formula for finding the precipitation in inches per hour from identical sprinklers located in an equalateral spacing when the discharge from any one of the sprinklers and the spacing between the sprinklers in feet is known.



The precipitation in inches per hour **within the triangle** is:

$$\frac{111 \times \text{G.P.M.}}{\text{Spacing in feet squared}}$$

EXAMPLE: If each of the above sprinklers discharges 25 g.p.m. and they are spaced 84 ft. apart in an equalateral position the precipitation in inches per hour **within the triangle** is:

$$\frac{111 \times 25}{84 \times 84} = 0.39 \text{ inches per hour}$$

C. E. (Scotty) Stewart

It wasn't easy. But we made the Greens King even better.

How do you go about improving upon a greens mower that is the standard of the industry? That has five years of gruelling testing and two years of customer use on the greens behind it? That already cuts fine, cuts smooth, cuts even?

It wasn't easy. But we found 24 ways to make it even better.

Now it cuts finer. Smoother. More evenly. The increased reel-cutting frequency does that. The new step-cut feature with positive mechanical positioning improves efficiency. Plus, there's a new, optional vertical mower assembly.

And some 1971 improvements for the operator, too. Like a new foot pedal that raises and lowers, engages and disengages the reels, without taking his hands off the steering control. And the new utility carry-all compartment for handy storage of light tools. And a newly designed seat with a back rest and ventilated ribs for cooler driving.

Plus 18 other new improvements.

Of course, it still speeds through 18 greens in less than 4 hours. In short, it's still the king of the greens.

But with 24 more reasons why you should have it.

JACOBSEN®

Jacobsen Manufacturing Company, Racine, Wisconsin 53403
A member Company of Allegheny Ludlum Industries

New Philosophy of Approach to Turf Management on Golf Courses

By V. J. Zolman

Turf management on golf courses has progressed through several distinctly indentifiable stages of developments. Each stage can be characterized according to the basic principles that constituted the dominating philosophy of the approach of the golf course superintendents in achieving their universal goal — a quality turf.

Stage I can be identified by the following relationship:

Rules = Quality Turf

The origins of this approach date back to the origins of golf—a game played on pasture fields. Initially, and even later as golf course gradually gained its own identity, the approach to golf course turf management evolved paralled to the evolution of the husbandry of pastures. The main emphasis in achieving satisfactory turf conditions was on following traditional rules concerning frequency and heights of grass cutting, soil aeration, etc. First natural, and then, increasingly, chemical fertilizers were applied mostly in a haphazard fashion, in accordance to rules that had very little or no relationship to the actual soil conditions and requirements of plant grasses.

This stage came gradually to an end as, with the increasing popularity of the sport, the demand for ever better playing condition increased, and the ability of superintendents to meet the demand decreased. Virgin soils that by its natural resiliancy withstood the indiscriminate onslaught of chemical firtilizers became unbalanced and depleted by monoculture plantgrasses and the golf course turf became increasingly susceptible to diseases, fungi and weeds invasion. These developments set the stage for the inception of Stage II.

Stage II has been characterized by the belief in the success of the following relationship:

Formulas + Chemicals = Quality Turf

It is the approach most prevalent today. To combat problems encountered increasingly in golf course turf management, the superintendents turned to rigid chemical formulas established for all factors believed to influence the conditions of turf. These were applied to soil structure (1/3 peat, 1/3 soil, 1/3 sand), fertilizers (10-10-10 or 12-3-8), pesticides and herbicides.

To the extent that the development of this trend was based on scientific research, combined with conventional soil-testing techniques, the approach has produced good results. In an increasing number of instances, however, problems gradually reappear. Despite systematic application of "proven" formulas of fertilizers and pesticides, attacks of fungi and weeds are becoming more prevalent.

Scientific evidence is coming to light, identifying the problems. For example, in a paper by researcher F. Nicholson of the University of Illinois at the Eleventh Illinois Turfgrass Conference held last December in Urbana, Illinois, presented evidence that favorable results obtained through application of certain pesticides are only temporary and ultimately self-defeating: Plots of turf, after six years of systematic application of a particular pesticide, were more diseased than plots that were not treated. It appears that in this instance, as well as in others, the resulting contamination of soil proved harmful to turf grass, causing it to lose its natural resistance to diseases. Moreover, as was pointed out by Dr. Couch at the same conference, it appears that the laws of "natural selection" apply to grass diseases and fungi just as they do to other organisms: Under the systematic application of pesticides, they probably developed new, more aggressive and immune strains that defy conventional treatment.

Finally, what may be the "closing chapter" of the Stage II of turf management, is being written by lawmakers in form of laws banning, for health reasons to American people, the use of effective pesticides compounds of arsenic and mercury and DDT. Such bans will make it even more difficult to deal with increasing problems encountered in efforts to contain the disease.

Thus, on one hand, the increasing amount of scientific evidence uncovering the shortcomings of the conventional approach, and on the other hand, the increasing dissatisfaction of turf managers with the results obtained through such an approach, are gradually ushering a dawn of a new era in turf husbandry in the United States—the Stage III.

Stage III. The major distinct characteristic of this stage is the emphasis on proper natural soil environment of the turf. In short,

Balanced Soil Environment = Quality Turf

The approach is based on scientific principles and natural laws, stressing structure and physical properties of soil, and chemical interaction of elements as a basis of proper metabolism and diseases resistance of turf grasses.[1]

In this context, the focus is not only on balanced soil environment in respect to basic elements such as nitrogen, phosphorus, calcium, potash, elements whose role in a healthy soil environment has long been recognized and identified through conventional soil testing programs. In addition to these, the approach embraces a broad array of chemical elements—the trace elements such as iron manganese, copper, zinc, boron and molybdenum—that for many years have been recognized in scientific experiments as essential for proper functioning and interaction of elements in grass metabolism. Through the development of more conclusive scientific evidence concerning their significance in proper soil environment on one hand, and on the other hand, through the development of better, more sophisticated soil-testing techniques that permit their identification, the approach focuses upon balancing of these elements as means of achieving a healthy soil environment that is conducive to the production of quality turf.

Identification and proper balancing of these elements within the framework of scientifically designed soil testing programs is proving to be an effective means of dealing not only with the turf problems arising from soil contamination due to indiscriminate application of commercial chemical fertilizers, pesticides and herbicides, but also with problems arising from sources less commonly recognized but nevertheless of an ever-increasing importance in our changing environment—water and air pollution.[2]

Trace minerals are catalists, stimulators and inhibitors of biochemical processes as well as sources for production of enzymes. In proper combination, the same trace elements demonstrate systemic ability and protect turf grasses plant tissue against invasion of virus, bacteria and attacks of fungi on chemical and

physiological bases. Chemical balance of soil, completed by trace minerals, leads automatically to biological balance of microflora (bacteria, fungi, antinomycetes and their strains), and includes small fraction of micro-organism that produces antibiotics. When properly balanced, these elements interact with major and secondary elements, and stimulate and regulate all nutritional system and metabolic processes within plant grasses; when in deficiency, excess or toxicity, they disrupt these processes.

When trace minerals are properly balanced and fit into total chemically balanced soil they can produce almost "miraculous" results in increasing fertility of soil, health and self resistance of turf grasses, eliminating the need for most pesticides.

Balanced Soil Environment approach to turf management is fast gaining broad acceptance not only among turf scientists, but also among enlightened, practicing golf course superintendents. And for good reasons. In many instances the expenses for pesticides and fertilizer have been cut by 30-70 percent, while the quality of turf has been increased spectacularly. Given these results, the new philosophy is gaining new followers among golf course superintendents.

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[1] Several scientific papers presented at the Fifth Annual Golf Turf Symposium held in Milwaukee on December 9-10, 1970 strongly reflected the emergence of this new trend. They stressed quantitative evaluating factors: storehouse of nutrients in the soil (Dr. Love), structure and physical properties of soils (Dr. White), chemical interaction (Dr. Reike), soil testing (Dr. Horn), and effect of Pesticides (DDT, chemical compounds of Arsenic and Mercury (Dr. Newman).

[2] See my articles, "Pollution—Main Problem on Golf Courses," **The Bull Sheet,** March 1970; "The Problem of Contaminated Water," **Turf-Grass Times,** April 1968; "Atomic Turf Maintenance," **The Golf Superintendent,** March 1967.

A Most Unusual Experiment

by Stanley Rachesky
Entomologist, University of Illinois

What's new in the pesticide world? A very interesting experiment will begin this summer at Rockome Gardens, located about 185 miles south of Chicago on Interstate 57.

Thirty-five demonstration plots containing flowers and crops that many homeowners grow in their backyard will be put to the test of how well they produce under different conditions. These plots are being planned by the Arcola Chamber of Commerce and the University of Illinois Douglas County Cooperative Extension Service. The plots will contain corn, soybeans, tomatoes, cabbage, potatoes, muskmelons, sweetcorn, apple trees, broccoli, zinneas, and marigolds. Each crop will be grown with and without insecticides, herbicides (weed killers) and fertilizers.

Each of the 35 plots will be 174 feet long and 30 inches wide—thus each row will equal exactly 1/100 of an acre.

The main purpose of this interesting demonstration is to educate consumers on improving the environmental quality of our country, while at the same time reducing pollution through the use of pesticide.

Quality of the products grown will then be evaluated. Yield production will be an important factor, because it will demonstrate the difference in the amount of food we can grow using insecticides, herbicides, and fertilizers as opposed to varying any of these three factors, or using none of them. Equipment costs, labor, and materials will all be included in the evaluation.

At present it is believed that if pesticides were eliminated altogether our food production would drop 40 per cent in one year. It's not the farmer who would suffer. He will still grow enough food to feed his family. But he still must be paid for the goods and services he produces, whether he produces 50 head of cabbage per acre or 5,000. The ones who will suffer will be the city folks. Demand for food becomes greater each year as the population increases; but food availability and quality would drop, and prices would skyrocket. Foods generally taken for granted would soon be considered delicacies, etc.

If you have a spare weekend the latter part of the summer, take a trip down to the quaint Amish community of Arcola and visit the beautiful flower gardens, the shops, and of course the demonstration plots.

PRECIPITATION DATA

1970 was the wettest year in Chicago history. The U.S. Weather Bureau reported a precipitation of slightly in excess of 46 inches for the year.

Where the boundaries of an 18 hole golf course encompass 150 acres in area the above mentioned precipitation indicates that 187,362,600 gallons of water fell on the 150 acre area; this in turn equals 781,798 tons of water.

The previous precipitation record for the Chicago area was set in 1954 with 45.92 inches.

The average yearly precipitation for the Chicago area is 33 inches.

C. E. (Scotty) Stewart

Night Watering — Calgary Style

Upon his return home after attending the Executive Committee meeting in Toronto in late June, Norm McKinley decided to check the shop to see if the night water boys were on the job. "The phone was busy at 9:30, still busy at 9:40 and again at 9:45. Finally at about 9:50 one of the boys answered. I asked him if it had been a pleasant conversation; he said it sounded O.K. but it was the other boy talking to his girl friend. I asked who was moving the sprinklers while he was talking on the phone and he replied that they were on their first break. I suggested that maybe they should give me a schedule so I might have some idea of what to expect. The next morning the following was pinned to my door written on a long section of a roller paper towel."

NIGHT WATER SCHEDULE

Arrive Promptly at 8:00 P.M.

SET UP

(1st move) 8:00 P.M. - 9:30 P.M. (includes putting clothes and gloves on, starting cushmans and putting pump on)

1st BREAK 9:30 P.M. - 10:00 P.M. (includes taking off clothes, failing to start heater. Terry phoning Louisa, Mike practicing putting, eating lunch and a short nap)

Re-set

SET UP

1st MOVE 8:00 p.m. - 9:30 p.m. (includes putting clothes and gloves on, starting cushmans and putting pump on)

1st BREAK 9:30 p.m. - 10:00 p.m. (includes taking off clothes, failing to start heater. Terry phoning Louisa, Mike practicing putting, eating lunch and a short nap)

2nd MOVE 10:00 p.m. - 11:14½ — (1st complete change)

2nd BREAK - 11:14½ - 11:30 p.m. — (includes drying off, failing to start heater again, Terry phoning Louisa again if necessary, and a short nap)

3rd MOVE 11:30 - 12:46 a.m. — (2nd complete change, includes unplugging 331 sprinkler nozzles)

3rd BREAK 12:46 a.m. - 1:00.01 a.m. — (includes drying off, making a third vain attempt to get heater going, Terry phoning Louisa, Mike hitting drives off No. 15 Tee and a long nap)

4th MOVE 1:00.01 a.m. - 2:15 a.m. — (includes bailing out about 8-10 greens per night which are usually under water, restaking trees knocked over and mowing a few greens)

4th BREAK 2:15 a.m. - 2:30 a.m. — (includes throwing heater out the window, a short game of gin (without mix) up to 300,000 points)

TAKE OFF HOSES 2:30 a.m. - 3:00 a.m. — (includes green and tee hoses being moved away from greens and plugging in those greens forgotten)

3:00 a.m. - 3:00.0001 — Shut off pump

OVERTIME 3:00.001 - 002 — Close doors and leave 4:00 a.m. Come back to close garage doors and lock gate.

P. S. No. 1 Please note this list was written out after 3:00 a.m.

P. S. No. 2 Please note superior job done whenever Oregon skies prevail and it pours.

P. S. No. 3 PLEASE FIX THAT ₸₺/@/&/@½ HEATER!

Thank you,

Your former night waterman,
Mike Zichy, & Terry Langdridge

The above note was printed in the GREENMASTER from the Canadian GCSA. I found it in the Hudson Valley GCSA FOREGROUND. It certainly is popular.
—Editor

MINIMUM PITCH FOR DRAIN TILE

In order for a drain tile to work efficiently it must have a sufficient pitch towards the outlet end. The minimum percentage grade for tile lines is given in the following formula:

$$\frac{100}{5 \times \text{tile diameter inches plus } 50} = \text{minimum percent grade.}$$

EXAMPLE

The minimum percent grade for a 4" tile is: —

$$\frac{100}{5 \times 4 \text{ plus } 50} = 1.43\%$$

i.e. the trench must be grated to have a pitch of 1.43 feet per 100 lineal feet toward the outlet. Where this pitch is not available it will be often necessary to use a larger size of tile, for the larger the tile the lesser pitch is needed.

C. E. (Scotty) Stewart