will try it, they will see that it is not toxic, it does not layer; and I feel they eventually will incorporate it into a part of their routine program.

References:

"The Soil and the Microbe"—Waksman and Starky; John Wylie and Sons, New York, 1931.


POTASSIUM CYANATE

(Continued from page 40)

strength, improved the kill in most all cases—without injury to turf grasses.

Home-owners can use their small hand sprayers or sprinkling devices and greenkeepers their power equipment with equally satisfactory results. Sprays applied with 30 or more pounds pressure gave slightly better results. Solutions sprinkled had to be maintained at ½ to ¾ % strength to equal the kill obtained by spraying.

The best time to apply potassium cyanate is in the spring, late summer and early fall. Poorest results were obtained during periods of extreme drought.

Principal turf varieties of both the north and south withstood extreme doses in tolerance tests. Bluegrass, Bermuda, St. Augustine, bents, fescues and others withstood as much as 64, 128 and 256 pounds of potassium cyanate per acre. This is 4, 8, and 16 times the amount required to kill crabgrass. Grasses growing under favorable conditions were not injured other than tip discoloration and many recovered within 5 to 10 days. Bents and fescues required 20 to 30 days for full recovery when extreme doses were used, but were not permanently injured, indicating a wide range of tolerance for many principal grasses commonly used as turf in the United States and Canada. With normal doses of 8 and 16 pounds, discoloration cleared up within 10 days and only discoloration from dead crabgrass, other weeds and the dead tips, was noticeable after the first cut following treatment.

Negotiations with several leading firms interested in formulating potassium cya-
LAWN MOWER STATIONARY BLADES

We make these blades in several styles to fit the different makes and types of Lawn Mowers—including the small Hand Trimmer—Hand and Tee Mowers—Putting Green Mowers—Power Mowers and the large Gang or Fairway Mowers. Best quality knife steel, electric furnace heat treated to insure long wear and fully guaranteed to give complete satisfaction. You save important money buying direct from manufacturer.

Price sheet on request or we will quote price for your blade order.

JONES MOWER & EQUIPMENT CO.
2418 Grasslyn Avenue, Havertown, Pa.

PROS HELP LAPORTE
(Continued from page 37)

Exhibition July 2 involving Pros Jimmie Thompson and Marilyn Smith of the A. G. Spalding and Bros., Inc., staff. Also in the exhibition were Herman (Sonny) Uebele, son of the Beechwood pro, and Rudy Boyd, son of the junior program's initiator.

Young Uebele and Boyd, age 15 and 16 respectively, are topflight golfers in their own right and it was felt that interest in the program could be greatly stimulated if people could see how well junior golfers go around with pros. A $1 admission charge was made for adults while children were admitted free to the exhibition.

The two young stars didn't disappoint the crowd of more than 500 which turned up to watch the show. Uebele and Thompson beat Boyd and Miss Smith by 14 points in a low-ball, low-aggregate match but Boyd's medal was 75, just three over Thompson's par-equaling 72. Uebele had a 77 while Miss Smith carded an 85.

Both Thomson and Miss Smith endeared themselves to LaPorte area fans with their willingness to demonstrate shots, sign scorecards and answer questions.

What pleased local fans, though, was the high praise the pros paid to the junior program.

"You have a fine program here," Thompson said. "I know of no finer thing you could do for your youngsters."

Miss Smith, who readily confessed a fondness for juniors, echoed his words.

The money raised by the exhibition was put into the fund to purchase clubs for the junior players. These clubs plus the renovated ones are placed in a pool and those wishing to use them for practice play or lessons may do so on a "library" plan—the youngsters sign for their clubs and then turn them in following play.

Under such a system a number of sets can be made available and should last for several years before replacements are needed.

A yearly exhibition series is planned for the future to help maintain a fund for equipment.

Mayor Taylor Ray of LaPorte and Sheriff Norman Reeg of LaPorte county have backed the program enthusiastically. Both have recognized its contribution to the fight against juvenile delinquency—an important part of any community's program.

Experience has shown that the children have learned a healthy respect for the golf course. The local pros say they are easier on the courses than the novice adult. With such encouragement, Boyd plans to lower
the age requirement to nine next year which will give the youngsters an even earlier start in the game.

If the program is a success in LaPorte, a city of 17,000, it should be a success in larger cities. The combination of play on a municipal and private course was not hard to establish since Boyd is an Elk. The program has the backing of local people and schools because it is open to all youngsters regardless of race, color or creed. Above all it is self-supporting—an important consideration in these days of high prices.

**Fertilizer Solution**
(Continued from page 33)

Fertilizer in Terms of Weight

Being accustomed to handling dry fertilizers by unit of weight it may become confusing when we start dealing in terms of quarts, gallons and barrels. Thinking in terms of liquid measure we may lose track of our old friend—The Unit of Plant Food. One simple solution to this problem is to disregard the liquid measure and continue to think in terms of weight, which is still the only official and practical method of specifying quantities of fertilizers whether they are in gas, liquid or solid form. The water in fertilizer solutions is only used as a carrier of our old friend—The Unit of Plant Food. The approximate weight of one gallon of a 20% concentrated fertilizer solution such as a 10-6-4 or 5-10-5, is 10 pounds. If we dilute one gallon of a 10-6-4 solution in 50 gallons of water we are mixing 10 pounds of 10-6-4 fertilizer in 400 pounds of water. The matter then becomes simplified to determine the rate of application of the diluted solution. If we wish to make an application of 2 pounds of 10-6-4 fertilizer per 1000 sq. ft., the 10 pounds of fertilizer in the 50 gallons of water will be applied on 5000 sq. ft. of turf, at rate of 20 gallons per 1000 sq. ft. This will give us an application of .2 lb. of nitrogen, .12 lb. of phosphoric acid and .01 lb. of potash per 1000 sq. ft. A rather light application but in most cases sufficient during summer months.

We must always bear in mind that the plant food in fertilizer solutions is quickly available to plants. Where we would normally apply 1/2 lb. of nitrogen per 1000 sq. ft. and this nitrogen is derived from a fertilizer containing a substantial amount of water insoluble organics then it would
be advisable when applying fertilizer solutions to limit the nitrogen to about one-half that amount or \( \frac{3}{4} \) lb. per 1000 sq. ft. The other \( \frac{1}{2} \) lb. can be applied later as needed.

**Calculating Dilute Solutions**

Sometimes it becomes necessary to know the analysis of the dilute solutions we use, to determine a safe concentration that can be applied to turf without injury. This can be easily calculated as by following example. We shall dilute 1 gallon of concentrated solution analyzing 10-6-4 in 50 gallons of water. Converting liquid measure to weight, we have 10 lbs. of 10-6-4 fertilizer or 1 lb. N, .6 lb. P\(_2\)O\(_5\) and .4 lb. K\(_2\)O in 400 lbs. of water. One lb. N is \( \frac{25}{100} \) of 400, .6 lb. P\(_2\)O\(_5\) is \( \frac{15}{100} \) of 400 and .4 lb. of K\(_2\)O is \( \frac{1}{100} \) of 400. So the analysis of the solution would be 25-15-1.

Knowing the safe strength of a solution that can be applied to turf without injury we can calculate the amount of water soluble fertilizers or concentrated solutions to add to any quantity of water by knowing the analysis of the materials. For instance, it has been observed that a solution of sulphate of ammonia analyzing 25-0-0 has a burning effect on turf if applied during hot weather. A solution of urea of same strength can be applied to turf anytime without injury. Urea solutions of .45-0-0 have been used during summer months in combination with mercurial fungicides without any turf injury, however it is safer to stay below this figure.

One disadvantage of fertilizer solutions is the relatively high cost of materials prepared specially for solutions. One of the reasons for the higher cost of solution materials is that technically clean chemicals are used in their formulation to make solutions free of insoluble impurities. In cases the higher cost of solutions can be offset by the saving on cost of application, especially when only light applications of plant food are needed. The greenkeeper can ascertain what the comparative costs of fertilizer applications are in using either solutions or dry applications by comparing costs of materials and expenditures in labor in applying them.

Fertilizer solutions may some day have an important role in our turf fertilization programs but as it appears now their use will be limited; one reason being that water insoluble organic fertilizers, well recognized as being essential to the production of fine turf, cannot be applied in solution.

The use of fertilizer solutions in turf...
maintenance is a field that should warrant more study and experimental work from our Experiment Stations, especially in how the more soluble phosphate compounds used in solutions compare with the calcium phosphates commonly used in dry fertilizers in phosphorus availability and phosphate fixation in soils. Also more study could be given to developing more efficient and economical ways of preparing solutions as it is apparent there are great labor saving possibilities in the use of solutions.

**NEWS from the MANUFACTURERS**

**TO ED SULLIVAN FROM WALTER HAGEN**

Ed Sullivan (left), newspaper columnist and star of the television show, "Toast of the Town," receives a set of golf clubs from Walter Hagen (right), during a recent visit to Detroit. In the center is Benson Ford, vice-president of Ford Motor Company and general manager of the Lincoln-Mercury Division. The clubs were the gift of the Detroit Lincoln-Mercury dealers and were presented to Mr. Sullivan at a dinner given in his honor during his visit to Detroit.

**WALL SHOOTS 30th ACE**

Arthur Wall, Jr., asst. to Tom Kerrigan at Siwanoy CC, Bronxville, N.Y., holed his 30th ace, July 18 on Siwanoy's 197-yd. third. Wall hit the shot with a Bristol No. 4 iron. The same round he was 4 inches from the 183 yd. 13th with his tee shot. The 28-year-old sharpshooter won the national intercollegiate driving championship in 1948 with bangs of 290, 288 and 278 yds. He was capt., of Duke university's golf team in 1949, the year of his graduation. He's won two Penn State amateur titles, the Pan-American Open and three times was runner-up in the Southern Conference.
championship. He spent three years in the Air Force. Horton Mfg. Co. has signed him on its Bristol advisory staff figuring, with plenty of foundation, that Wall is due to be one of the game's shining stars.

ALLIS-CHALMERS REAR ENGINE TRACTOR

A rear engine mounted farm tractor with an industrial mower has proved to be economical for the Raymondville (Tex.) CC. By concentrating 79.2 per cent of its weight on the drive wheels this Model G Allis-Chalmers tractor delivers maximum power to the drawbar.

ON SPALDING PRO RUNS

Bobby Litton, well known in pro golf in Pacific Northwest, and with Spalding's Portland and Seattle stores from 1938 to 1941, has returned to the Spalding staff as pro representative for the Pacific Northwest. Bobby was born in Kansas and went to the Pacific Northwest to become a caddy, and eventually a master pro, shortly after Lewis and Clark explored the rough in that territory, according to local legend concerning the likeable and lively Litton.

Aaron W. Jackson, capt. of Tennessee University golf team in 1939 and '40, now is representing Spalding in northern Georgia, Alabama and Tennessee.

OKLAHOMA-TEXAS TURF MEET COMPILED BY WEST POINT

Addresses by the 26 speakers at the latest Oklahoma-Texas Turf Conference were recorded by Tom Mascaro of the West Point Lawn Products Co., West Point, Pa., as one of the company's very valuable jobs in reporting short courses, and now are available in a limited edition from the West Point company.

The West Point company also has issued recently an exceedingly interesting and
helpful bulletin of Aerifier research work on turf at experiment stations in Florida, Georgia, Indiana, Kentucky, Maryland, Missouri, New Jersey, Oregon, Pennsylvania and Texas, which is required reading for the superintendent who keeps up to the minute.

NEW BAG SUPPORT IS STANDFAST

Walton Associates, PO Box 561, New York 8, N.Y., have a new lightweight all-steel, cadmium plated golf bag support which is easily attached to almost all shapes of bags. The Standfast support is streamlined for easy storage and cannot become detached or fold up accidentally in use. It has a convenient tee-holder. Metal eyelets (grommets) are supplied for neatly and firmly attaching the Standfast device to the bag in a manner to protect the bag material.

Retail price of the Standfast is $3.25.

AL LINK WITH BURKE

Al Link, widely known for his successful work in golf club design and construction, has joined Burke Golf, Inc., and will have his base at Burke’s Chicago office, 188 W. Randolph. Link will be in sales engineering with Burke’s Chicago and Illinois sales force and spend time at the Newark, O., factory in work on designs of new Burke club models.

Link has been especially close to pro model design and construction in his previous connections with Wilson Sporting Goods Co., L. A. Young Golf Co. and Hillerich and Bradsby and has been responsible for numerous big-selling models.

Burke also announces that George Gelhar of its sales staff has a new assignment and will intensively cover the Wis. area.

LOWER OPERATING COSTS with RANGE BUILT PRODUCTS!

New Painless Ball—White For Life
Also in Colors
NOW Available in Limited Quantities
NEW — Dow Metal — Long Life Range Driver
TEE MATS — 4’ x 5’ — Golfer Approved — No black smudge on clubs or balls. The only Trouble Free Mat in the business.
NEW — TEE QUEEN — Foolproof “Automatic” Tee
NEW — LOW PRICE Automatic Ball RETRIEVER
Get on our mailing list (We will save you money)
(Write for circular)

Witteh GOLF RANGE SUPPLY CO.
5128 W. North Ave.
Chicago 39, Ill.
DAVE LILLY, new head of Toro Mfg. Corp.

July 1 David M. Lilly became pres., Toro Mfg. Corp., Minneapolis, Minn., succeeding Kenneth E. Goit who retired after 27 years with the company. Goit started with the company in Kansas City and has worked in building Toro from its original factory force of 4 men to its present normal roster of 103, and in developing the Toro distribution from 5 outlets to 88. Goit remains associated with Toro as a member of the board of directors and in an advisory capacity.

Dave Lilly heads the energetic younger group that came into the Toro organization in December, 1945. With him in the new executive line-up of Toro are C. Whitney Miller, vp in charge of manufacturing and gen. mgr., Minneapolis plant; W. Fenton Miller, vp in charge of engineering; E. S. Conover, sec.-treas.; and C. E. Ostberg, asst. sec.-treas.

SPALDING SPORTS BOOK FREE


BELMAR LITTER PICKER

A light weight mechanical hand picker for debris and litter around clubhouses and golf courses designed to pick up small elusive bits with a minimum of effort at maximum speed. It's made of aluminum with 12 chrome-plated steel prongs and plastic grip. Close up shows litter about to be ejected. When not in use head can be locked in safety position. Replaceable heads containing the steel prongs are available at small cost. Further information can be obtained by writing Belmar Wheel & Machine Co., 1707-F. St., Belmar, N. J.
Buyers' Service

Check off your Supply & Equipment Needs. Tear out and mail this sheet to Golfdom, 407 S. Dearborn St., Chicago, Ill., or use convenient card. You'll get prices and literature direct from the sources of supply.

Golf Course

Aerifiers: fairway □ green □
Architects (course — house)
Arsenate of lead
Ball washers
Bent grass stolons
Brown-patch preventives
Compost mixers
Compost spreaders
Crabgrass control
Cultivators: f'way □ green □
Drinking fountains
Electric Plant (Portable)
Fencing
Fertilizers
Flags (greens) □ Flag poles □
Flood lights

Pro Shop

Bags: canvas □ leather □
Bag carts, for players
Bag covers (overall)
Bag Support (Individual)
Ball cover stock
Balls: Regular □ Range □
Ball markers □
Ball retriever
Ball vending machine
Bandages, adhesive
Buffing motors
Calks, for shoes
Cops and hats
Club cleaning machine
Clubs: Woods □ Irons □
Putters □
Club display racks
Club head covers

Club House

Air conditioning equip.
Athletes foot preventives
Bath mats
Bath slippers
Bars
Charcoal cookers (outdoor)
Deodorants
Disinfectants
Fire protection equipment

Fungiicides
Fungicide applicators
Gasoline engines
Golf Course Const’n Engineers
Hedge trimmers
Hole cutters
Hose, ½” □ 1” □
Humus
Insecticides
Lapping-in machine
Leaf burning cart
Leak roke & pulverizer (power)
Miniature Course Const’n □
Miniature course matting
Mowers: putting green □
whirlwind □ tee □
fairway □ rough □ hand □
Mower grinders
Peat Moss
Pipe
Playground equipment

Pumps
Putting cups
Refuse containers
Rollers: power □ water-filled □
Scythes (motor driven)
Seed: fairway □ green □
Sod cutter
Soil cond. material
Soil screeners □ Soil shredders □
Sprayers: power □ hand □
Sprinklers: f’way □ green □
Stiles (over fence)
Sweepers (power or hand)
Tee markers
Topdressing
Tractors
Tractor wheel spuds
Turf Pluggers
Water systems, fairway
Weed chemicals

Pencils
Portable motor tool
Practice driving nets
Practice golf balls
Preservative wiping cloth
Preserver for leather
Pro accounting book
Range ball washer
Rubber-spiked overshoes
Score cards
Shoe spike wrench
Sportsweat: Shirts □ Socks □
Sport jackets □ Rain jackets □
Windbreakers □ Slacks □
Tees (wood) □ plastic □
Tee mats □
Tees (rubber) for driving mats
Teening device (automatic)
Tennis nets
Trophies

Slicing machines
Link Type Mats □
Lockers
Movies of golf subjects
Outdoor grills (portable)
Runners for aisles □
Rugs □
Showers □ Shower mixers □
Step treads
Towels: bath □ face □
Uniforms

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Send information to: Name ____________________________
Club ____________________________ Address ____________________________
Town ____________________________ Zone (_________) State ____________

August, 1960
Each month GOLFDOM presents the latest, most practical ideas on golf club administration, management, upkeep and service ... for time, labor and money-saving guidance of your officials and department heads. Help the right men at your club do the job right. Send in the form below so we can get them "on the beam".

FILL IN THE FORM BELOW — THEN MAIL THIS PAGE TO —

GOLFDOM, 407 SOUTH DEARBORN STREET, CHICAGO 5, ILLINOIS

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Manager's:

name (Zone...)

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Greenkeeper's:

name (Zone...)

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Professional's:

name (Zone...)

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