

4. Open shut-off control to permit the chemical to flow and make 43 complete revolutions of the drive wheels.

5. Shut off flow from hopper and weigh the chemical delivered during the 43 drive wheel revolutions.

6. Calculate the amount of chemical discharged on a per acre basis with the following formula :

$$\text{Lbs. per acre dry chemical} = \frac{\text{Lbs. discharged} \times 1000}{\text{Spreader width (ft.)} \times \text{wheel circumference (ft.)}}$$

This value will be lbs. per acre of formulated chemical applied. To determine amount of active ingredient applied multiply lbs. per acre above by per cent active concentration and divide by 100, as follows :

$$\text{Lbs. per acre active} = \frac{\text{Lbs. per acre formulated chemical} \times \% \text{ act.}}{100}$$

7. Rate of application is increased by wider delivery openings.

8. Rate of application is decreased by narrower delivery openings.

9. Complete calibration by adjusting unit and testing until desired quantity of material is applied.

10. Check calibration by observing amount of chemical applied to a field of known acreage.

Example: A dry chemical applicator is jacked up and the drive wheel is turned through 43 complete revolutions. The wheel circumference is 9 ft. and the spreader width is 8 ft. The chemical delivered in 43 wheel revolutions is 20 lbs.

$$\text{Lbs. per acre dry chemical} = \frac{20 \times 1000}{8 \text{ ft.} \times 9 \text{ ft.}} = 277 \text{ lb./A.}$$

If the chemical contains 20 per cent active ingredients :

$$\text{Lbs. active ingredients per acre} = \frac{277 \times 20\%}{100} = 55.4 \text{ lb./A.}$$

B. CALIBRATION FOR LIQUID MATERIALS

Table 3.—Sprayer Calibration: General Procedure

1. Adjust nozzles, pressure and tractor speed as they will be operated in field.

2. Fill herbicide tank with water.

3. Operate unit as in number 1 above and spray water over a measured course of several hundred yards in field.

4. Determine amount of water required to refill tank to replace that sprayed over measured course.

5. Calculate area sprayed: Width of boom coverage times distance sprayed equals area of measured course in square feet.

6. From 4 and 5 calculate amount of water applied per acre as follows :

$$\text{GPA} = \frac{43,560 \times \text{gal. sprayed over course}}{\text{area of measured course in sq. ft.}}$$

7. Gallons of spray applied per acre can be decreased by: smaller nozzle tips, less spraying pressure, or faster unit speed.

8. Gallons of spray applied per acre can be increased by: Larger nozzle tips, higher spraying pressure, or slower unit speed.

9. Complete calibration by adjusting and testing unit until it applies desired gallons per acre: Then, add desired quantity of herbicide per acre to amount of water sprayed per acre by the unit.

Example: A sprayer covers a swath 10 ft. wide. When driven over a distance of 435 ft. it sprayed 2 gal. of solution at the operating speed, pressure and nozzle size.

$$\text{Gal. per acre} = \frac{43,560 \times 2 \text{ gal.}}{10 \text{ ft.} \times 435 \text{ ft.}} = 20 \text{ gpa.}$$

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Table 4.—Herbicide Sprayer Calibration Table: Brush Boom for Broadcast Spraying

To use this Table: Have sprayer equipped with proper nozzle tips and with tips, tractor speed and spraying pressure adjusted as for field operation. Then, operate unit in field and collect spray liquid discharged by several nozzle tips over a measured distance of 300 ft.

Average quantity of liquid sprayed per tip in Ounces. Locate this figure in left-hand column of table and read directly the gallons per acre rate under the nozzle spacing column for your boom.

	<i>Amount of Spray Delivered by one Nozzle in 300 ft.</i>	<i>Gals. per acre applied at Nozzle spacings of:</i>		
		<i>15 inches</i>	<i>18 inches</i>	<i>21 inches</i>
	<i>ounces</i>			
	8	7.3	6.1	5.2
	10	9.1	7.6	6.5
	12	10.9	9.1	7.8
	14	12.7	10.6	9.1
PT	16	14.5	12.1	10.4
	18	16.3	13.6	11.7
	20	18.2	15.1	13.0
	22	20.0	16.6	14.3
	24	21.8	18.2	15.6
	26	23.6	19.7	16.9
	28	25.4	21.2	18.2
	30	27.2	22.7	19.5
QT	32	29.0	24.2	20.8

EXAMPLE: When run down the field at operating speed and pressure a sprayer has an average nozzle tip delivery of 26 ozs. of solution in 300 ft. Nozzles tips are spaced 18 inches apart on the boom. The gals. per acre rate is found in the 18 in. column opposite 26 ozs.: 19.7 gpa.

Table 5.—Reduced Dosage Table for Application of Herbicides to Small Areas

Label concentration in active ingredient or acid equivalent *Quantity of liquid herbicide product to add to 1 gal. of water to treat 1,000 sq. ft. at rate of 1 lb./acre*

<i>Per cent.</i>	<i>Pounds/gal.</i>	<i>Ounces</i>	<i>c.c. or ml.</i>	<i>Tablespoons</i>
5	0.5	6.2	174	12.5
10	1.0	3.1	87	6.2
20	2.0	1.5	43	3.1
30	3.0	1.0	29	2.1
40	4.0	0.7	22	1.5
50	5.0	0.6	17	1.2
60	6.0	0.5	14	1.0

To apply $\frac{1}{2}$ lb./A rate use one-half the amounts shown in table. To determine quantity of herbicide for rates greater than 1 lb./A multiply the desired rates times the amount shown in the table for the given concentration.

MISCELLANEOUS

PROFESSIONALS and GREENKEEPERS having stocks of used golf balls contact Sparkbrook Golf Ball Co., 295 Highgate Road, Stoney Lane, Birmingham, with a view to filling export orders.

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THE NORTH WORCESTERSHIRE GOLF CLUB require experienced Greenkeeper. No accommodation available, but good wages. Apply to the Chairman of the Green Committee.

Main laying by Mole Plough. A method of special interest to golf clubs due to the small surface disturbance.



Laying Chemidus 3000 uP.V.C. 3 ins. pipe by mole plough in heavy Oxford clay for the West Wilts. Water Board at Wincanton recently. The 3 ins. Chemidus pipe is attached to the 6 ins. expander by means of a collar adaptor. The mole plough blade was set at a depth of 3 ft., and a 200 yd. length of plastic pipe was drawn underground from a prepared entrance. The blade of the mole plough can be seen at the top of the picture.

(Photo.: Pressmark Ltd.)

News



from the Sections

MIDLAND

By F. Cashmore

Chairman:
G. HART
(Gay Hill)

Hon. Secretary:
76 Four Oaks Common Road
Sutton Coldfield, Warwickshire.

Spring Tournament

THE WEATHER WAS VERY UNKIND to us at Streetley on 4th April. We had a heavy snow shower in the morning and afternoon. Only six players failed to finish the 36 holes, which was very good considering the weather, but the condition of the course was remarkable in view of the fact that a month before it was under frost and snow. Our entry was down on last year, only 20, and results were as follows:—

Best Nett, Ransome Challenge Cup and Coffee Percolator, T. Jones, 153; Best Gross, Sutton Challenge Cup and Set of Carvers, G. Woodward, 162; 2nd Nett, Golf Umbrella, A. Boraston, 154; 3rd, Kitchen Scales, R. Pugh, 154; 4th, Garden Shears, E. Walford, 156; 5th, Cruet, B. Powell, 158; 6th, Pullover, E. Benbow, 161; 7th, Bread Board and Knife, K. Webb, 162; 8th, Bottle of Whisky, W. J. Handy, 163; 9th, 1 doz. Forsums, A. C. Jones, 164; 10th, Golf Bag, V. Smith, 166; 11th, $\frac{1}{2}$ doz. Sixty-Fives, W. Machin, 171; 12th, Set of Table Mats, D. Haynes, 175; Over fifties prize, Leg of Pork, R. Pugh; Best 9 holes, morning: T. Jones, 35 Nett; 2nd at any hole: B. Powell, G. Woodward, A. Boraston,

2 Sixty-Fives. Visitors, R. Parker, 80 Nett, 4 Sixty-Fives; B. Baxter, 83 Nett, 2 Sixty-Fives.

The prizes were presented by the Captain of the Sutton Coldfield Golf Club, Mr. C. Hope, who was introduced by our President, Mr. Carl Bretherton. The Captain said how pleased they were to have us at Streetley and spoke very highly of Jack Toy, who had been with the club for 48 years. Owing to the absence of our Chairman and Vice-Chairman, I thank the Sutton Coldfield Golf Club for allowing us the courtesy of their course and clubhouse and for the prizes that the Chairman, Captain, Match Captain and Mr. Holt and Mr. Alger, Committee Members, donated, the indoor staff for the splendid meals they gave us and for making us feel welcome, Jack Toy and his lads for the condition of the course after the severe winter, Bill Payne for coming and doing his usual chores, our visitors and trade representatives who came and joined us and the donors of the many prizes, which were: Messrs. Ransomes, Sutton & Sons, W. Hargreaves & Co., Sparbrook Golf Ball Co., Fisons Ltd., Carters Tested Seeds, Mitchel & Butters, Lunevale Products, F. W. Lees & Sons, Cannock Agricultural Co., Hilton Gravel Co., E.T.B. Mower Services, Parker & Ballenger Ltd., Ludor Mower Services, Mr. J. W. R. Robinson, Mr. Len Price, Mr. Carl Bretherton, Mrs. Bretherton, and officials of the Sutton Coldfield Golf Club.

I had a letter from Stewart Christie, who has been at the Dudley Golf Club, to say that he was leaving to take up the job at the St. Pierre Golf Club, Chepstow, on 8th April. He has not been in the Midlands long, but has been a keen supporter of all our activities during that time and we wish him the best of luck in South Wales.

I also had a letter from C. Woodhouse, Head Greenkeeper at the South Staffs Golf Club. He has had an operation on his foot last December and has not yet returned to work. We hope that he will soon be fit again.

SOUTHERN

By W. Mason

Chairman:
J. K. GLASS
(Thorpe Hall)

Hon. Secretary:
18 Albert Road, Hendon, N.W.4.
Tel.: SUNnyhill 0245

THE ANNUAL GENERAL MEETING will take place at the Talbot Restaurant on Wednesday, 12th June, at 7-0 p.m.

I was pleased to hear that the dinner on Friday, 29th March, went off very satisfactorily.

May I take this opportunity of thanking all members for their kind remarks and good wishes for my recovery. I am pleased to say that I am going on very nicely.

Thanks to our President, Mr. F. Chambers and his Society of London Golf Captains, we have again received a cheque of fifty-two guineas.

We welcome to our Section two new members:

E. R. Brown, "Iona", Farm Lane, Seer Green, Beaconsfield, Bucks.

D. Crude, 8 Berkeley Avenue, Bexley Heath, Kent.

WELSH

By S. A. Tucker

Chairman:
M. GEDDES
(Royal Porthcawl)

Hon. Secretary:
36 Clase Road,
Morrison,
Swansea, Glam.

OUR SPRING MEETING WAS HELD at the Clyne Golf Club by kind permission of the Captain and Committee on 3rd April, 1963. We were very lucky in having a fine day, with a steady breeze blowing. By playing nine holes before lunch and 18 after, we had a 27 hole aggregate and there were some very good cards returned. Jack Martin took the President's Shield and a Coffee Percolator given by Messrs. Ransomes, Sims & Jefferies, with a score of 110. The second prize, a Cigarette Lighter given by H. Pattison, went to D. P. Robinson with a score of 113.

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There was a tie for third place between G. Brennan, D. H. Jones and D. Jones, all with a score of 114. On the score of the last nine holes, D. Jones won third prize, a shopping bag, and G. Brennan won fourth prize, a parcel of fertiliser given by Shell Chemical. There was a special prize for over 20 handicap of a Silver Pencil given by May & Baker, which was won by J. Davies with a score of 134. Many thanks to the Clyne Golf Club and to all concerned in making our day a very pleasant one.

Summer and Annual General Meeting

I have not yet got the date for the General Meeting, which will be held at Southerdown Golf Club, but I will notify all members as soon as I have it at hand. Please make a special effort to attend this meeting and bring your subs with you, as they will be due, and it will save you and Mac a lot of time in writing and posting.

NORTHERN

By J. Parker

Chairman:
G. W. MASON
(Halifax West End)

Hon. Secretary:
8 Goit Stock Terr., Harden,
Bingley, Yorks.

Subscriptions

MEMBERS ARE REMINDED THAT subscriptions for the year 1963/64 are now due and prompt payment would be much appreciated. Once again members are asked to contribute a further 1/- to meet the increased cost of journal postages.

Sheffield Match

The Annual match versus Sheffield Section will be played over the course of the Fulford Golf Club, York (by kind permission of the Committee) on Tuesday, 17th September, 1963.

March Lecture

The last lecture of the winter session was held on Tuesday, 19th March, at the Old Queen's Head, Bingley. Nearly forty members turned up to hear a most interesting talk by Mr. H. Ledgate, B.Sc., Chemist at the S.T.R.I., on "Recent Developments in Greenkeeping". Mr. Ledgate dealt with the work going on with worm-killers, fertilisers and weed-killers. Following the talk, the speaker ably dealt with questions put to him by members.

A vote of thanks was proposed by Mr. G. Mason, Chairman, and heartily endorsed by members.

New Members

We welcome to the Section the following two new members:

J. M. Hannan, 23 Lingfield Hill, Moortown, Leeds 17 (Moorallerton Golf Club).

S. A. Mayhew, 97 Danebury Drive, Acomb, York (Fulford Golf Club).

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EAST MIDLAND

By S. T. McNeice

Chairman:
D. G. WHITEHEAD
(Wollaton Park)

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40 Edward Road,
Clarendon Park, Leicester

Spring Tournament

THE SECTION TOURNAMENT IS being held on Tuesday, 28th May. Will competitors please note that this will be held at the Derby Municipal Sinfen Lane Course.

The Tournament will be over 18 holes, Medal Play, commencing 1.0—1.30 p.m. For those who require them, arrangements are being made for sandwiches to be obtained before play commences. The usual High Tea will be put on after completion of the round.

Will all members wishing to attend this event please let me know not later than Tuesday, 21st May, as I have to contact the club steward re meals.

How to get there

Those going by road from Nottingham, take Ring Road to Normanton Barracks, then to Sinfen Lane.

By public transport—Bus from Derby—No. 88 from the Market Place to Terminus, which is quite near course.

Subscriptions

Will members please note that as from 1st May subscriptions are due for 1963-64. We



THE SCOTTISH GOLF GREENKEEPERS' ASSOCIATION

Chairman:

D. L. MACDIARMID,
Royal Burgess Golfing Society,
Barnton, Edinburgh 4.

General Secretary:

R. B. MOFFATT,
71 Kelton Street, Glasgow, E.2

THE ANNUAL GOLF OUTING WILL be held on Thursday, 27th June, over the Prestonfield Golf Course, Edinburgh, by courtesy of the Prestonfield Committee. We hope to have a large attendance of old and new members on this date.

have been paying 2/6d. per member for the postage of your journal. This is less than the cost of the actual postage, so members are asked to contribute an extra 1/- per year. Your dues will now be: Class A—£1 3s. 6d.; Class B—16/-d.; Class C—12/-d.

Owing to subscriptions being so slow in coming in in previous years, your Committee has stipulated that all members competing in the Spring Tournament must pay their subscriptions not later than 21st May. You have been warned—so please send your subs. to the Section's Treasurer, Mr. A. Thornton, 15 Trent Road, Beeston, Notts.

Autumn Tournament

By very kind permission of the Council your Autumn Tournament will be held at Rothley Park Golf Club, Leicester, on Wednesday, 25th September.

New Members

A cordial welcome is extended to the following who have been elected members of our Association and who will take up their membership as from 1st May. Class C.

Mr. D. J. Topley (Birstall Golf Club), 121 Wanlip Lane, Birstall, Leicester.

Mr. A. E. Neal (Birstall Golf Club), Cliffe Road, Birstall, Leicester.

Mr. D. Warrington (Birstall Golf Club), 227 Wanlip Lane, Birstall, Leicester.

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ENQUIRY BUREAU.—The Editor desires to point out that he will be pleased to answer enquiries from our readers, and forward to them the name and address of the manufacturer or supplier of any particular proprietary article or product used in the construction, maintenance and upkeep of a golf course. Enquiries are coming in from greenkeepers asking for such information. They may, for example, know the trade name of the article or product they wish to purchase, but may not be conversant with the name and address of the actual manufacturer or supplier. The Enquiry Bureau will gladly supply this information, and thus enable the greenkeeper to contact the manufacturer or supplier direct.

TO MANUFACTURERS.—In order that our information may be kept constantly up to date, manufacturers or suppliers are requested to forward their latest trade lists, catalogues, and any other confidential information regarding their products. By so doing the Bureau will be able to function to the mutual benefit of all concerned.

TRADE REVIEWS.—The Editor will be pleased to arrange to devote space in our editorial columns to a review of our advertisers' products, etc. Will advertisers please forward details for this purpose.

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