

A BIGGA retrospective

Roger Robinson has been involved in BIGGA since its inception and is well placed to measure the Association's progress since then.

It has always been essential in an organisation to be looking and planning ahead. The world of golf gets larger and larger, entailing change so that skilful management with commitment is necessary to move with the times and succeed. I believe BIGGA has achieved much and is progressive in outlook.

Why am I writing this piece? I was asked by the R&A to represent them at the first official meetings held in York and participated actively in the events leading up to the formation of BIGGA. I was delighted to accept the invitation to be a Trustee which appointment I have held until the AGM this year. Despite my opening comments I feel this is an occasion especially for the benefit of more newly joined members, to reflect upon what has been achieved to date often under difficult circumstances.

Neil Thomas faced a daunting task when first appointed operating from one room courtesy of the STRI at Bingley. The early days were not at all easy but gradually the organisation was put together and the move to premises at Aldwark Manor was very signifi-



cant. At that time other golfing organisations offered to help accommodate BIGGA but I believe the right decision was taken to retain the independence of separate premises.

It has been encouraging to see the progress achieved though, as Neil would agree, there were at least a couple of hairy moments. However with the recent undoubted success of

BTME, the excellent Greenkeeper International magazine and, most of all, the large membership there is now a firm platform.

Attitudes within golf clubs are notoriously hard to change. In my belief the golf course is the main product, desirable though it is of course, to have all the other facilities at optimum level. Many golfers have travelled extensively to America, Spain and Portugal and all are aware of standards being set, albeit often with large budgets. Nevertheless I feel that it is coming home more and more to clubs that members and visitors expect high standards for their courses and all year play as far as possible. If my premise is correct this must make the case for the need for the professional skills of BIGGA members.

I have thoroughly enjoyed my involvement with BIGGA making many friends in the process. I speak for the R&A as well as personally in congratulating BIGGA on reaching its present position and wishing further success. I would say to the BIGGA membership, do please support your Chairman, Board of Management, Executive Director and Staff. They work long and hard for you.

May I also pay tribute to your President – Viscount Whitelaw – who has contributed so much to your cause since the inception.

Good luck and success to BIGGA.

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Levington blossoms under new regime

Levington Horticulture has a new identity but it has a long pedigree.

A new company came into being two years ago. It was launched into a competitive sector of the industry at a time when the country had not quite shaken off the longest recession since the war.

An extremely brave decision one might think, but when you consider that Levington Horticulture was formed following a management buyout from the Fison empire and that the expertise and experience contained within the "new" company was among the finest in Europe you can see why investors had such confidence.

The progress of Levington Horticulture since then has done nothing to change any minds and its fortunes, like the natural recipients of certain Levington products, are blossoming.

At its Bramford headquarters, just outside Ipswich, the zeal and enthusiasm of the workforce is infectious and the staff talk of Levington and its many innovative new products in a way parents describe the achievements of their children.

"The new business is based on very solid and firm foundations. You also get decisions made quicker, as it is all done in the same corridor. You don't have to wait for them to go from board level to board level," said Paul Waller, Senior Product Manager.



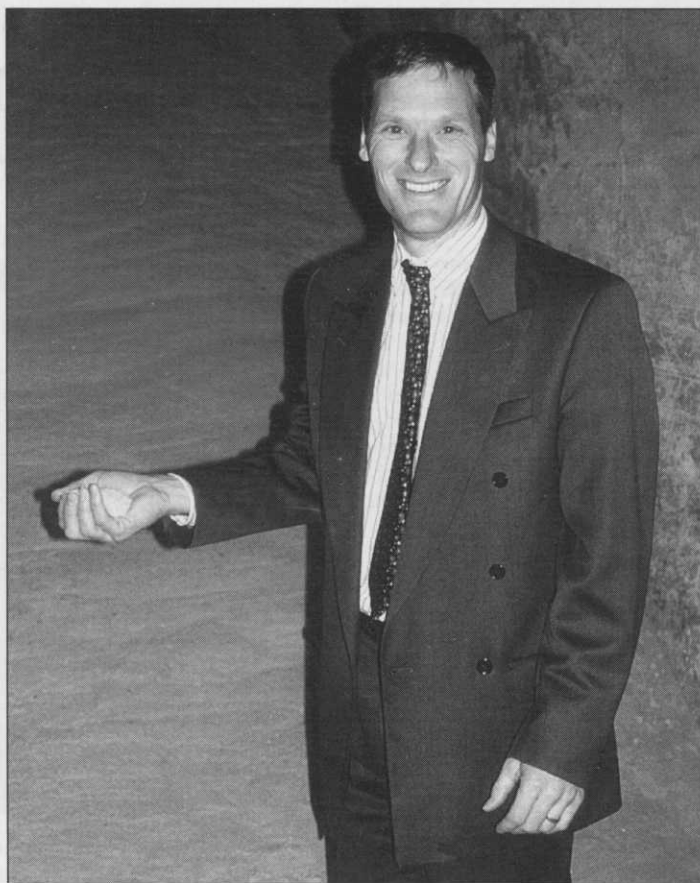
"That is coupled with the experience we have to ensure that we proceed with caution," he adds.

Levington Horticulture is a major player in European Horticulture selling around £50 million worth of fertilisers, composts, garden chemical and professional amenity chemicals a year.

A total of 250 people are employed at the main site at Bramford which manufactures and packs fertilisers and chemicals and the other plant near Doncaster in Yorkshire, which is the



At the heart of the matter: Inside a test site



Handing it to Levington: Steve Holton, Works Manager, with some base product

growing medium site where peat is extracted and compost manufactured for commercial growers and for the amateur market.

The opportunity for the management to liberate themselves and become masters of their own destiny came when Fison's needed to generate cash in the early 90s and put the Horticulture Division on the market.

"Thankfully there was a management buyout and it was the best solution all round. It retained the same team, same commitment, same plant, same product. It gave continuity," said Public Relations Manager Alan Shaw.

That team had been responsible for many major innovations over the last 150 years, since the 50s all developed at the Research Station in Levington – now you see where the company name comes from – 15 miles from Bramford.

The first commercially successful peat based growing medium – the Levington Compost range; the Gro-bag – still a multi million pound business in the retail market; the first specialist sports turf fertiliser developed as demand increased on sports facilities. They just trip off the tongue and are recognised milestones in the industry.

"The demand on sports facilities increased a need to feed and maintain these facilities and straight agriculture fertiliser was too concentrated and not ideal for maintaining turf. We, therefore, used the company's expertise in fertilisers to develop a granule which could be used reliably and efficiently to the point that it is used at, among others Wimbledon and the Wentworth Club – most European Tour venues use and recommend our products and our Greensmaster range has been granted the endorsement 'PGA European Tour Official Supplier' which is a testimony to our quality," explains Technical Services Manager Keith McKee, as he and Paul combined to ensure nothing was overlooked.

"When I was first working on the Greenmaster Range it was called the 'Greenkeeper' and was peat based. We were the business which revolutionised the supply of fertilisers to greenkeepers because it was a light weight granule of high concentration," said Paul, with more than a hint of pride in his voice.

**Kate Sudgen,
Product
Development
Officer on site**



"It was the first pinhead fertiliser granule. Previously it was large granules or powder and there was nothing in between. It was called Hi Lite - high concentration light weight. The plant which was there at that time was known as the Hi Lite Plant. The product outlived itself and we rebuilt the plant with a new formulation based on vermiculite but we still call it the Hi Lite Plant. It enabled people to treat high quality turf more effectively and efficiently to get good mechanical distribution."

Golden Key membership will allow Levington to expand its, already established, policy of talking to greenkeepers to find out what they want.

"One of main reasons we became a Golden Key member is that it is important to us, and always has been, to have a forum to discuss the greenkeepers needs and how technology can meet those needs. The sales call is not the most appropriate time or place for that and neutral ground is far better. The opportunities brought by Golden Key are ideal for that kind of interaction," explained Alan.

"We are involved with the European Tour which has allowed us to talk at its greenkeeping conference over the years. There, the greenkeepers, could be described as the creme de la creme and a lot of hot information comes out of the meeting and you tend to react to it. It is vitally important to talk to the people who do the job."

"We can sit and dream something up but it is the guys out there who know what they want," added Keith.

One of Levington Horticulture's biggest growth product has been Turfclear, a dual purpose product originally promoted as a fungicide with some worm cast control but now, as people have seen that it is an excellent worm control, its usage has grown and more people purchase the product for that purpose than as a fungicide.

"It doesn't contain carbaryl or chlordane and has probably quadrupled in sales in last four years," said Keith.

The company has the Royal Warrant as suppliers to Her Majesty the Queen but of equal pride to all concerned is the BS EN ISO 9001 accreditation.

"Many people have the 9000 accreditation but, in fact, are

accredited for just service and maybe manufacturing but 9001 means that uniquely our research and development is covered for quality assurance.

"We're very proud to have that because our heritage is that we are a research and development based company," said Dr Bob Daniels, Research and Development Manager, who joined the meeting.

The safeguards are in place at Levington to ensure the highest possible standards and are a reassurance to even the most sceptical of clients.

"We make sure product is right before we start the line running. We used to have 'policemen' at the end of the line who would say 'yes' or 'no' but we have empowered the workforce so that anybody can stop the line if they see something wrong. Quality assurances are high and a great deal of training has been done to reach this level. We can trace back everything if anything goes wrong to find out exactly what happened and put in our corrective action procedure," explained Dr Daniels.

It can take between three to five years to develop a pesticide or a fungicide before it reaches the stage where it can be produced commercially so they are currently working on developments now which won't be available until the year 2000.

The excellent Research Station allows development and comparison work to go on in both outdoor and controlled environments and is a wonderful springboard for new products.

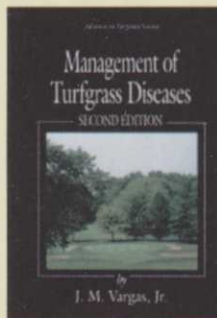
The company spends over £1 million a year on Research and Development. "It's a lot of money on tomorrow," says Dr Daniels.

Among developments recently launched is the water soluble sachet which Turfclear is now sold in.

"For safety purposes it's another step forward. The ultimate is not to have any contact at all and water soluble sachets help towards this. It's all part of the on-going product stewardship."

Words again spoken with a high degree of pride and enthusiasm and it is those qualities which will carry Levington Horticulture on to the next millennium.

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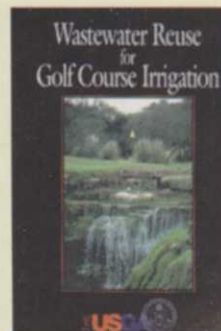
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Getting to the ROOT of the problem

Dr Alan Gange of Royal Holloway, University of London explains how soil dwelling microorganisms may help in the fight against annual meadow grass.

In terms of living biomass, the majority of most plants is hidden beneath the soil surface in the form of roots. Grass plants are no exception and in some cases, 70% of the total plant weight may be below ground. However, it is a mistake to think that a root system is just plant material. On the outer surface of the root live countless thousands of bacteria. These survive on chemicals exuded by the root and they are thought to play an important role in maintaining healthy growth. There is evidence that these bacteria also protect the root against disease-causing fungi.

A group of 'friendly fungi' also live in intimate associations with grass roots. The scientific name of these is arbuscular mycorrhizal fungi (AMF). The fungi grow in soil and when they encounter a root, they enter the host cells. Inside these they form a number of different structures, most notably highly branched microscopic arbuscules, from whence they are named. The arbuscules are sites of nutrient exchange and the association benefits both partners; the fungi donate nitrates and phosphates to the plant, in return

for a supply of carbon.

It is a fact that fungicides which are applied to golf turf in order to control pathogenic fungi may harm the mycorrhiza too. In our experiments at Royal Holloway, we use a fungicide to reduce mycorrhizal abundance in natural grasslands, and thereby demonstrate their benefit to plants. However, a survey of

pesticide usage on Britain's golf clubs, conducted by the Ministry of Agriculture and ourselves, has found that this chemical is the second most widely applied pesticide on greens.

Mycorrhizas in golf greens

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mycorrhizas can be detrimental to golf turf, because if the flow of carbon to the fungus exceeds the benefit derived from enhanced nutrient uptake, then the fungus becomes parasitic. In theory this is true, but there is virtually no evidence to support this suggestion and the nutrient status of golf green soils makes it a highly improbable scenario. Instead I believe that AMF may be of great benefit to greenkeepers in the battle to reduce or even eliminate Annual Meadow Grass (*Poa annua*) growth.

It is an odd fact that *Poa* does not form a mycorrhiza, while bent grasses (*Agrostis*) and fescues (*Festuca*) form a very strong one. In other words, bents and fescues seem to derive great benefit from the mycorrhiza, while *Poa* does not. Until recently, it was thought that this benefit was entirely manifest in increased growth, because

of the enhanced nutrient uptake. However, recent work has shown that mycorrhizal plants may show greater resistance to insect pests and diseases which attack shoots or roots, than do non-mycorrhizal conspecifics. In addition, because some plants do not form a mycorrhizal the balance of competition between them and other species which do form the association can depend on the level of the fungus in the soil.

In natural grasslands, by which I mean no added fertiliser or pesticide and grazed by rabbits, the infection levels of the roots of *Agrostis capillaris* and *Festuca rubra* were 81% and 76% respectively. In the greens of a nearby golf course, the average values for all 18 greens were 1.6% for *Agrostis* and 4% for *Festuca*. On a second course, we failed to detect AMF in 11 of the 18 greens. Furthermore, on this second course we have recently completed bacterial counts of the soil. In the natural grassland, the average value was about 7×10^7 bacterial cells per gram of dry soil.

In the golf green this was 4 000 times lower and in two greens, we could not detect bacteria. It therefore appears that the microbiological constituents of plant root systems in golf greens are much lower than one would normally expect. I think this may highlight a potential problem with bacterial amendment treatments which have recently become available. If one applies bacteria and increases their numbers to something approaching "normal", then this is likely to have more effect than if one starts from a baseline of zero. Clearly, as

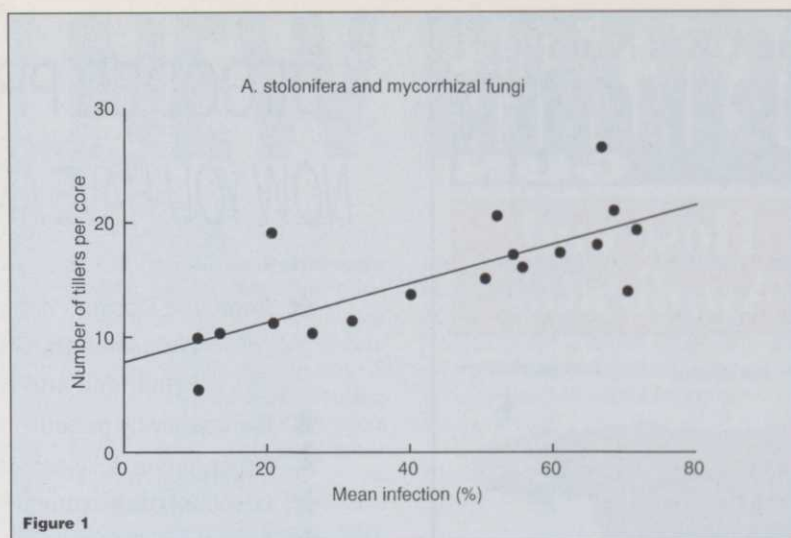


Figure 1

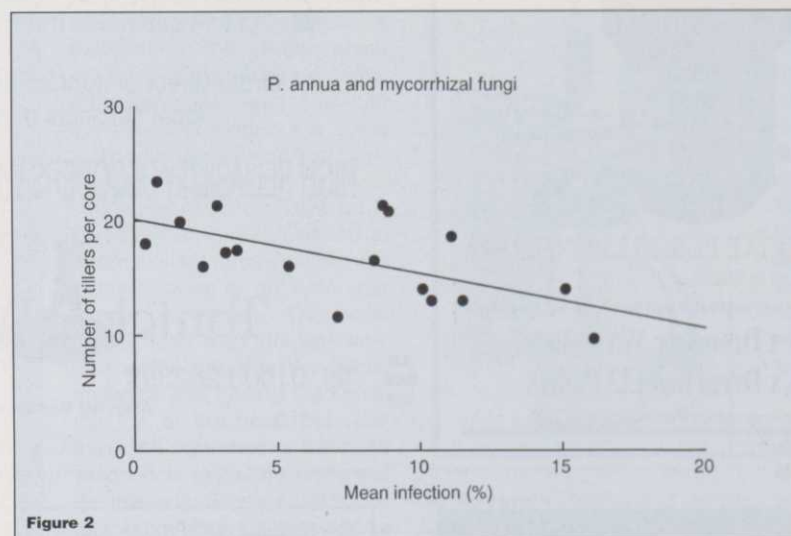


Figure 2

both mycorrhizas and bacteria can protect roots against disease-causing fungi, grass plants in golf greens are going to be more susceptible than those in unmanaged turf. There is a vicious circle here which somehow we need to break: Grass is attacked by disease, fungicide is applied, this kills the beneficial microorganisms as well as the pathogens, hence the plant loses its natural protection, so it is more susceptible to disease etc.

In my studies of AMF and grass abundance I have found that there is a relationship between the amount of mycorrhiza in the soil and the abundance of *Poa* and *Agrostis*. I sampled from two areas on the 18 greens of one course – the green itself, which had received fungicide application over a number of years, and the collar which had not. There was a striking difference in the amount of AMF fungi in the two areas. In the green, the bent grass had 5% of the root system infected with the fungus, while in the collar it had 30% infection. Furthermore, if one plotted the amounts of the two grass species on graphs against the abundance of fungus in the soil, then areas with high fungal abundance also had high *Agrostis* (Fig. 1) but low *Poa* abundance (Fig. 2).

My reasoning for these results is as follows. When bent grass has a reasonable level of AMF infection, it benefits from enhanced nutrient uptake, and is therefore a stronger plant, more able to withstand the intense management regime of cutting, trampling etc. Without the fungus, it is weaker and more prone to disease and loss from the green. Once the bent grass plant dies, it cannot be

replaced naturally, because golf green soil does not contain its seeds. However, most green soils contain large amounts of *Poa* seed, which germinates and grows rapidly to fill the gaps left by the bent grass. Even if the green is overseeded with bent, this will not alleviate the problem, because of the continual regeneration of *Poa*. The lack of bacteria also contributes to the problem, because recent studies have shown that the functioning of the mycorrhiza is enhanced and more efficient when the bacteria are present. Therefore, in golf greens, one has the opposite situation to that in natural grasslands; the annual grass is the strongest competitor because unlike the perennials, it does not suffer from a lack of its microbiological helpers. It can dominate the greens, at the expense of bents and fescues.

The root of the problem

I believe that a way to combat the growth of Annual Meadow Grass on golf greens is to target research on the bents and fescues. If we could replace their natural root microorganisms then we may be able to slowly reverse the competitive balance between the annual and perennial grasses.

The elimination of *Poa* from golf greens must be a slow process, so that the game can continue to be played.

The easy solution would be to shut every green with *Poa*, spray with an appropriate herbicide, and reopen six months later. Not a very sensible idea, I think!

Clearly, there are a great many issues which we need to address before this approach can be implemented. I believe that this is an exciting and important area of work which needs pursuing with funded research. There are potential advantages for not only the golf industry, but for manufacturers of pesticides and fertilisers as well. Of critical importance is the need to find out whether there are fungicides which are less deadly to AMF and bacteria than others. Furthermore, we need to set up experiments in which the relations between microorganisms and the various management methods employed on greens are determined.

When we have this information, we will be able to look at ways of replacing the fungi and bacteria in greens and then sustaining their levels. In this way we will really be getting to the root of the problems which many greenkeepers face.

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LETTERS

Explain the code of conduct

I noticed with interest the article on advances in turf production by Mr Derek Edwards which was carried in your April edition. There were many interesting and sensible comments contained in the article.

However, there was also a reference to TPI UK (ie Turf Grass Producers International UK). There was reference to TPI achieving the introduction of "Minimum Standards of Turf" and "A Code of Conduct for its Members".

What exactly are the standards referred to?

What are the contents of the code of conduct?

Where are these items published?

It seems to us TPI UK are being allowed to talk about standards without ever being asked what they mean exactly.

TPI UK should be invited to put up or shut up on the subject of standards for turf.

Terry Ryan

Sales and Marketing Director
Rolawn (Turf Growers Ltd)

Green speeds

I write with response to the letter in April's edition of the magazine concerning green speeds and grass species. I am a believer in trying to make my greens as fast as possible without causing any undue stress or harm to the quality of performance of the greens.

The weather maintenance programmes and, obviously, the species of grass on the greens can all influence the decision on how fast we can make them. I think that once a good healthy sward or desirable grasses has been achieved then a competent greenkeeper can then decide how fast to make his greens. I was under the impression that the more desirable fescue and bent grasses could withstand close mowing and that mowing to, or lower (not much) than five millimetres would actually discourage poa annua as this grass is usually the first to show signs of stress either from hot weather or outbreaks of disease. Or am I wrong?

May I also congratulate Mr Billy McMillan of his excellent "In my View" article.

Julian Farrimond

GC Aschheim
Germany

NEW PRODUCTS

■ The DewMaster, **Pattison's** newest product line, has been developed by Greenkeepers across the country for Greenkeepers across the country. It helps to save time by removing dew from the greens. A comment from the Greenkeeping fraternity is that the DewMaster is an excellent product, but it is unable to dispense of the worm casts. As from May 1996 the new DewMaster Mark II will encompass a switch-tip in the handle, which will be on a quick release screw from the main head and can therefore be used in the same manner as the conventional Stanmore telescopic Switch.

The new Holecup Extractor & Rammer has been designed to remove or set cups into the hole without having to get onto your hands and knees. The waist height hand held tool works by putting the end into the ferrule acceptor and turning the key at the top of the hand bar. This turns the cam disc at the base which locks under the bottom of the hole cup. Simply by lifting the tool will remove the cup, setting the cup is just as easy as there is a rammer collet along the length of the tool. This collet is placed exactly to allow the ramming effect to set the cup into the ground.

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■ **Maverick**, pictured, is an all new diaphragm pump knapsack design with a 33% more powerful pump than contemporary designs, it has an Easi-clean system for reduced chemical wastage, Easi-mount harnesses and an ergonomic shape.

"In essence" says Adrian Vass, Managing Director of Maverick manufacturer Crop Protection Ltd, "we have built a sprayer that is both more comfortable to wear and more powerful. It is, quite simply, more efficient and far easier to use".

"The first responsibility of any company in the field of chemical application is to ensure that its products are both safe to operate and environmentally sound" says Adrian.

"To achieve this it is essential to understand the specialist skills required to design an efficient sprayer, to have extensive knowledge of the varied and numerous chemicals used in spraying and to have access to modern manufacturing processes" he continues.

Crop Protection can be contacted on Freephone 0500 821880.

■ **Jacobsen** has introduced the Greens Aerator Vaerator VA24 as an upgrade of the 1124 model. It is the ideal machine to handle a

number of aeration and compaction needs with five coring patterns, conveniently designed operator controls, low maintenance and built-in durability.

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■ **Headland Amenity** has introduced a new generation of liquid feeds - The Headland Triazone Range - which are quick and easy to use and offer numerous benefits among which is that they are fast acting, do not require watering in after application and are not prone to pick-up during mowing.

The range performed well in independent ADAS trials and showed that the fertilisers matched urea-based products for speed of initial response, yet also continued to release nitrogen at controlled levels for up to eight weeks.

The trials showed that for a set application of nitrogen the highest actual uptake by the plant was achieved when the nitrogen was supplied in the Triazone form while the fertilisers contained slow and fast release sources so they produced rapid greening and the appearance was retained longer.

Among the other benefits were less scorching in the summer, that it was ideal for low volume application and there was less leaching.

For further information call Headland Amenity: Tel: 01799 530146

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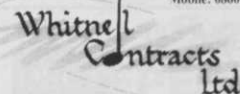
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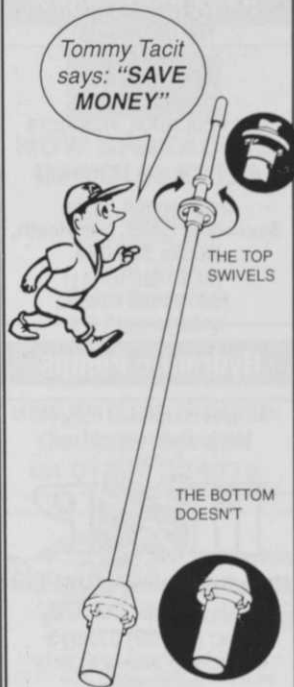
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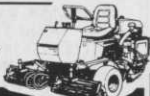
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