AT KUBOTA,
IT’S A sure THING.

ISO 9002
NATIONAL
ACCRMLTATION
OF CERTIFICATION
BODIES

IN THIS BUSINESS, almost every company claims quality. And the rest talk about it.
But at Kubota, we’ve quietly gone about the business of ensuring it and assuring it.
By creating a culture that makes continuous quality improvement the major priority
of everyone within the company.
And by implementing a quality system that gives the assurance of competitive
performance.
You can see the result in our compact tractors and mowers, in our construction
equipment and in our engines and power products.
You can see it in the service that you’ll receive whenever you deal with Kubota.
And you see it in the ISO9002 symbol which certifies that our systems for
production and servicing make sure.
Anyone can talk about it. At Kubota, we work at it. That’s for sure.
To be sure about quality, call the Kubota Hotline on 01844 268169.

Kubota (UK) Limited, Dormer Road, Thame, Oxon, OX9 3UN. Telephone: 01844 214500 Fax: 01844 216685
Watertight seminar in Scotland

Irrigation Scotland held the latest in a series of seminars at Cowglen GC, Glasgow, to give advice to golf clubs considering installing irrigation systems.

The panel of experts included Steve Isaacs, of STRI, the Water Sourcing Design Consultancy, The Lottery Commission and the BTLIA who spoke on their Code of Ethics.

Further information can be obtained from Irrigation Scotland Tel: 0131 333 5495.

Changes at Rain Bird

Rain Bird's Golf Division have appointed Laurent Reinhardt and Brent Thorley as Brand Managers, responsible for the development, testing and marketing of specific new and existing product lines. Both Americans, Laurent will be in charge of all of Rain Bird's satellite irrigations system controllers and weather detection products, while Brent is responsible for the range of golf course sprinklers.

New aerator from John Deere

John Deere's Aercore 800 is a walk behind version of the tractor mounted Aercore 1000 and 1500. The self-propelled Aercore 800 is designed for aerating golf greens, fairways and other fine turf areas and features an 18 hp Kohler petrol engine with four selectable forward gears and one reverse.

There is an operator presence system with electric raise and lower controls and the aeration unit can be raised manually out of work without damaging the turf. Top speed for transport is 3.5mph and overall weight is around 392kg.

It can work at up to 2123 sq m/hr pulling 266 cores/sq m.

A typical selection of second gear at 50x50mm hole spacings provides a work-rate of 1440sq m at up to 396 cores/sq m.

For further details contact John Deere, Tel: 01949 860491.

PACK UP YOUR TROUBLES

WITH A KNAPSACK MOWER FROM DIXON & HOLLIDAY

THE SAFE AND EASY WAY TO MOW BANKS, SLOPES AND SMALL CONFINED AREAS

ALLOWS THE OPERATOR TO HAVE COMPLETE CONTROL, MANOEUVRABILITY AND BALANCE

TRIMS, MOWS, HEDGECUTS, CULTIVATES AND MUCH, MUCH MORE!

DIXON & HOLLIDAY LTD
UNIT 2, SHEPPARDS FARM, DRAYCOTT FOLiat, SWINDON, WILTSHEIRE SN4 0HX  TEL: 01793 741173 (works)
SALES: 01462 700547  FAX: 01793 741020

Suppliers to the Leisure Industry

• Top Dressing Rootzones.
• Bunker Sands
• All Types of Pathway Material
• Drainage Stone (including Lytag)
• Screened Soils
• Grade1 Railway Sleepers
• Telegraph Poles
• Bagged Materials
• Grass Seed

Construction Materials Ltd
Fittalls Yard, Spurlands End Road,
Great Kingshill, High Wycombe, Bucks HP15 6JA
Charterhouse extend range

Charterhouse Turf Machinery have continued their programme of UK expansion with the acquisition of Michael Richmond, one of the country's largest mail order suppliers of chainsaws and other forestry tools, clothing and equipment.

"This is an excellent acquisition for us which fits perfectly into our international growth plan. Two years ago we broadened our product range and moved into mail order with a range of environmental tools, clothing and equipment and now, at a single stroke, we have acquired probably the largest and certainly one of the most respected companies in the business," said David Jenkins, Managing Director of the Haslemere-based company.

Michael and Shirley Richmond started their business in Haslemere 28 years ago and seen it grow to become a major force in the forestry market.

"We are delighted with the deal. Charterhouse have the vision, management skills and financial backing to take our business to new heights and we are confident that our future is in very capable hands," said Shirley Richmond.

BIGGA invests in the Future

BIGGA Headquarters staff at Aldwark Manor have officially signed up to the Investors in People Programme. After an initial series of meetings during which BIGGA was assessed for its suitability and desire to succeed, Investors in People Representative, Avril Jenkins, of North Yorkshire Tech, visited Aldwark Manor to present the staff with their Certificate of Commitment which formerly begins the process of working towards the Award.

Kubota OAP restored by Evesham College

A 23 year old Kubota B6000 tractor with front loader has been restored "as new" by staff and students from Evesham College in Worcestershire.

When it was acquired by Kubota last year the 12hp four-wheel drive model was the oldest known Kubota tractor in original condition still at work in the UK and once the decision was taken to restore it the College volunteered to carry out the work. The project involved a complete dismantling of the tractor followed by meticulous inspection, overhaul or renovation of all mechanical components and a total respray.

Pictured on the tractor is Adrian Rogers, the student responsible for the majority of the mechanical restoration work.

Swan designs first modern Croatian Course

Fresh from the success of the country’s footballers and Goran Ivanisovic's excellent performance at Wimbledon this year Croatia's first modern golf course has been opened.

The Dolina Kardinala Golf and Country Club, just outside Zagreb is 6200 metres long and a par 71.

Designed by Howard Swan the course is laid out in open land as well as woodland with mature oaks and beech. The design features sweeping interlinking lakes and ponds throughout which the 8th and 17th greens lie within one large water feature.

"It has been a wonderful experience working in a new golfing country and the enthusiasm of the Croatsians for sport is immense," said Howard, who is currently the President of the British Institute of Golf Course Architects.
Helping Mother Nature

One wonders, with such a hullabaloo round the starters box, what Old Tom Morris would have made of it? Every 10 minutes, from 7am till twilight, gaggles of golfers practice their swings, proposition their caddies, pose for snapshots, even make a stab at composure while trying to make light of the awesome occasion.

With a phalanx of players hovering, plus the ever-present gallery of local critics, this is as mind-racking an experience as teeing it up in The Open. So, pray for a cracker off the tee – please Lord, let this one be down the middle! But this is not Open week, simply a routine summer day at The Old Course, St Andrews. Come sunset, the sacred sward will have endured another 280 rounds, eight sets of marching feet per game; an army pounding with niblicks unfurled and divots a flying.

Anyway you tally it, that's giving the course a lot of stick. St Andrews, of course, has always been golf's Mecca; imbuing 600 years of golfing history considered a must, yet it's magnetism serves merely to increase the enthusiasm of Head Greenkeeper Eddie Adams and his crew, their avowed aim being always to present the old lady in her best guise, whatever the season.

This feature is about The Old Course in summer, though in future issues and leading up to the Millennium Open, Greenkeeper International, as part of "The Learning Experience", will cast an expert eye more than occasionally at the goings-on around St Andrews, looking afresh at the New, the Eden, the Jubilee, plus the new kid on the block; Donald Steel's Strathclyde. Ask Ian Forbes, Links Manager for the St Andrews Links Trust, how pace of play is handled and he'll likely tell you some apocryphal tale. While The Old is not an invasive course - nothing crowded once away from the first - there are huge shared greens, narrow fairways and an element of intimidation, especially for nervous tyros.

All these aspects, plus some daunting rough, can indeed slow play, yet Ian boasts the average at well under four hours, thanks to sterling work by links rangers... plus some mythical Scottish adders.

Apparently, they're the favoured ruse of caddies, who would rather not spend all day in fruitless searching. "Not a good idea to go in there, sir, got to be careful of the Scottish adders!"

This, so the story goes, results in rapid retreat. Eddie Adams, Head Greenkeeper of The Old since 1995, has only ever worked St Andrews links, proud of a pedigree that comes with having worked under David Dewar for the 1990 Open, plus as mentor par excellence his original boss and eternal friend, Walter Woods. When Walter retired after the '95 Open, each course was appointed its own Head Greenkeeper and Eddie now manages the plum - the high profile Old Course.

No adders need quicken Eddie, though, who explains that summer on The Old is, quite simply, cutting grass; with 26 hectares of fairways, three hectares of tees; the rest rough, in total some 59 hectares on The Old alone. How, then, do they work around the players? Eddie explains; "We, start early, 5am in the summer, with all the fairways cut before golf begins. The whole course is cut, end to end, within three hours - greens, tees and fairways - the far end of the course clear by 8am as the aim."

"We're blessed with all the latest Ransomes kit, the Fairway 300s were out at 6.30am, a pleasure to use and such a far cry from the old gang-mowing days, because it was hard then to cut without some scalping. In particular, I like the floating heads on the 300s and the grass collectors have always been a great benefit to us. We started boxing cuttings when we first used the 180, and it's certainly improved our turf, virtually no thatch build-up at all. We use the Ryan GA60s, in the winter for coring, more in the last few years than ever we did before. We do a lot of
deep aeration on the fairways as well, but not in the summer, though we still use the GA60 with solid tines on tees.”

So, no spiking or hollow tining in the summer?

“Just some localised hollow tining in perceived weak areas,” explains Eddie, “then overseeding, plus microtines on the greens if we’re seeing a bit of dry patch.” The exceptionally wet start, hasn’t that been a problem? “Well, last year was quite wet also. We don’t use wetting agents on the course; we tried, but never really saw the benefit. We’ve had dry patch on a couple of greens, but we find that just spiking, followed by hand watering, once we get the water infiltrating it’s fine. We can live with doing just that. But it’s beneficial to get a drying period too, because that’ll keep the poa from advancing. We’ve not used the irrigation at all this year, it’s been a beneficial time, with irrigation reserved strictly for excessively stressful periods.”

Eddie’s thinking on chemicals is refreshing: “I’m the chemical salesman’s worst customer,” he claims, “I’m trying to eliminate spraying, next to nothing at all, bent on establishing a pesticide-free golf course.”

“Effectively a gentle withdrawal, the last few years down to a bare minimum, used only as a last resort. We’ve left the rough and most fairways, we practice IPM (Integrated Pest Management), never blanket coverage. Greens were a problem at first, and still are, because with the nature of the turf we’re going to have small problems and areas of compaction, it’s the way of The Old. We’re doing a lot of hand weeding though, trying a lot of other things, verticutting and the like; getting back to a more culturally based programme.”

“When Walter first started in the mid ’70s very few aeration tools were available, though since then, with the Vertidrain, Ryan GA 30s and 60s and all the deep aeration spikers, these have helped dramatically. Aeration tools would always be first priority on our list.”

Seeing a formation line of Ransomes Greens Supers, the next, inevitable question concerned hand mowing. For tournaments, we always cut by hand, though we’ve a big acreage of green out there. You know, we’ve just renewed our agreement with Ransomes, ’til way after the Millennium, so thankfully these machines are going to be around for a long time to come.”

“With the quality of cut achieved with our three Greensplex mowers, we’re so pleased we’ve gone to the extent of using them for verticutting on fairways. What I’m trying to achieve is greens quality turf on the fairways - with a higher cut, obviously - but with the ultimate goal for the 2000 Open to have fairways that are fiery, fast and hard. But looking out of the window just now, it’s mid-summer and with all the rain we’ve had, it if it’s like this in 2000 we’re going to have a green course, no two ways about it. It’s all down to Mother nature; the one thing we can’t calculate is how much rain will fall.”
### Regional Training Courses

**Golf Course Design Construction and Establishment**  
A must for anyone with an interest in golf course maintenance, anyone thinking of constructing new holes or other golf course features. See how not to make expensive mistakes. Understand what golf course architects are saying.

- 13-14 October 1998  
  Inchyra Grange Hotel, Falkirk
- 16-17 October 1998  
  Spindrift Hotel, Ryton
  Borrington Hall Hotel Plymouth
- 8 -9 December 1998  
  Borrington Hall Hotel Plymouth
- 10 -11 December 1998  
  Swansmoor Marriott

**Irrigation Workshop**  
Discover the theory behind irrigation. Look at the design of irrigation systems and experience some hands on maintenance of irrigation systems components.

- 17 - 18 November 1998  
  Barons Court Hotel, Walsall

**Price includes all tuition, food and one night accommodation**

**Essential Management Skills for Greenkeepers**  
Determine how you can acquire and develop supervisory management skills by attending this two day course which looks at leadership, motivation, team building, assertive communication, listening skills and discipline. Can you afford to miss it?

- 24 - 25 November 1998  
  Queens Hotel, Chester

**Price includes all tuition, food and one night accommodation**

**Interviewing Skills**  
Learn how to conduct interviews and how to be interviewed. This course covers employment law, equal opportunities, listening and questioning skills, advertising and selection of candidates.

- 16 February 1999  
  Inchyra Grange Hotel, Falkirk

**Price includes all tuition and lunch**

**Reptile Writing**

**Price includes all tuition and lunch**

**Regional Supervisory Management Course**  
Determine how you can acquire and develop supervisory management skills by attending this two day residential course. A minimum, with prices from £30 for a two day residential course.

- 8 December 1998 and 11 February 1999  
  Aldwark Manor
- 10 November 1998 and 10 February 1999  
  Lakeside Moat House, Grays Essex
- 8 December 1998 and 9 February 1999  
  Forte Post House Maidstone
- 3 December 1998 and 9 February 1999  
  Watermill Hotel, Hemel Hempstead
- 1 December 1998 and 9 February 1999  
  Inchyra Grange Hotel, Falkirk

**Price includes all tuition. four IlIghts**

**Regional Training Courses**

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Dates</th>
<th>Venue</th>
<th>Price Details</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Golf Course Design Construction and Establishment</strong></td>
<td>13-14 October 1998</td>
<td>Inchyra Grange Hotel, Falkirk</td>
<td>£30 + VAT for BIGGA Members. Non Members £150 + VAT</td>
<td>Price includes all tuition, food and one night accommodation</td>
</tr>
<tr>
<td><strong>Irrigation Workshop</strong></td>
<td>17 - 18 November 1998</td>
<td>Barons Court Hotel, Walsall</td>
<td>£80 + VAT for BIGGA Members. Non Members £150 + VAT</td>
<td>Price includes all tuition, food and one night accommodation</td>
</tr>
<tr>
<td><strong>Essential Management Skills for Greenkeepers</strong></td>
<td>24 - 25 November 1998</td>
<td>Queens Hotel, Chester</td>
<td>£80 + VAT for BIGGA Members. Non Members £150 + VAT</td>
<td>Price includes all tuition, food and one night accommodation</td>
</tr>
<tr>
<td><strong>Interviewing Skills</strong></td>
<td>16 February 1999</td>
<td>Inchyra Grange Hotel, Falkirk</td>
<td>£80 + VAT for BIGGA Members. Non Members £150 + VAT</td>
<td>Price includes all tuition and lunch</td>
</tr>
<tr>
<td><strong>Regional Supervisory Management Course</strong></td>
<td>8 December 1998</td>
<td>Aldwark Manor</td>
<td>£80 + VAT for BIGGA Members. Non Members £100 + VAT</td>
<td>Price includes all tuition and lunch</td>
</tr>
<tr>
<td><strong>Managing Golf Course Development</strong></td>
<td>24 - 25 November 1998</td>
<td>Queens Hotel, Chester</td>
<td>£80 + VAT for BIGGA Members. Non Members £100 + VAT</td>
<td>Price includes all tuition and lunch</td>
</tr>
<tr>
<td><strong>Managing People 1</strong></td>
<td>10 - 12 November 1998</td>
<td>Watermill Hotel, Hemel Hempstead</td>
<td>£80 + VAT for BIGGA Members. Non Members £100 + VAT</td>
<td>Price includes all tuition and lunch</td>
</tr>
<tr>
<td><strong>Managing People 2</strong></td>
<td>1 December 1998</td>
<td>Inchyra Grange Hotel, Falkirk</td>
<td>£80 + VAT for BIGGA Members. Non Members £100 + VAT</td>
<td>Price includes all tuition and lunch</td>
</tr>
</tbody>
</table>

**Managing Operations and Resources**  
Discover how to manage budgets and projects, control resources and improve customer service. This week looks at time management, meetings and delivering written and oral presentations.

- 17 - 18 November 1998  
  Aldwark Manor
- 10 November 1998 and 10 February 1999  
  Lakeside Moat House, Grays Essex
- 10 November 1998 and 9 February 1999  
  Forte Post House Maidstone
- 3 December 1998 and 9 February 1999  
  Watermill Hotel, Hemel Hempstead
- 1 December 1998 and 9 February 1999  
  Inchyra Grange Hotel, Falkirk

**Cost for each of the above courses:**  
£500 + VAT for BIGGA Members.  
£300 + VAT for non members.

**Managing Golf Course Development**  
Mainly designed for those delegates who have completed weeks 1 to 4, this course includes an irrigation workshop, golf course drainage and health and safety.

- 17 - 18 November 1998  
  Aldwark Manor

**Managing People 1**  
Mainly designed for those delegates who have completed weeks 1 to 4, this course includes an irrigation workshop, golf course drainage and health and safety.

- 10 - 12 November 1998  
  Watermill Hotel, Hemel Hempstead

**Managing People 2**  
Mainly designed for those delegates who have completed weeks 1 to 4, this course includes an irrigation workshop, golf course drainage and health and safety.

- 10 - 12 November 1998  
  Watermill Hotel, Hemel Hempstead

**Cost for each of the above courses:**  
£500 + VAT for BIGGA Members.  
£300 + VAT for non members.

**Regional and Aldwark Manor Course**  
Delegates will receive a certificate of attendance, which will contain details of N/SVQ the units covered by each course. These certificates may be used as evidence of underpinning knowledge in a portfolio of evidence.

- 3 December 1998 and 9 February 1999  
  Aldwark Manor

**Cost for each of the above courses:**  
£500 + VAT for BIGGA Members.  
£300 + VAT for non members.

**Reptile Writing**  
Price includes all tuition and lunch.
The worm has turned...

Dear Sir,

Having read the article on worms and having been a groundsman and greenkeeper for a long time I can assure everyone that the problem cannot be overstated as Nick Park, so rightly says.

I took over a course in 1976 that was considering spending vast sums of money on drainage and managed to persuade them to spray the fairways with Chlordane. The difference was nothing short of miraculous. We ended up putting in two drains in low places and mole ploughing one fairway. The course became playable right through the winter and the grass was springy and clean to play on.

In the 60s I worked at a course where a shovel was kept in the cab of the tractor to scrape the mud off the rollers of the gang mowers, after cutting half a fairway. There was no point in raking or brushing the casts first as it is never dry enough on a parkland course in winter and the casts are only smeared and spread.

What I'm leading up to is why did BIGGA, the IOG, the R&A, the Golf Unions and the chemical companies not take a stand against the banning of Chlordane? It is deemed an environmentally unacceptable form of control, but why? It is persistent in the ground and therefore does not need to be used more than every five to ten years. Why is this a problem?

Do people think after another war, perhaps nuclear, that they will need to plough golf courses up to plant vegetables? I read once that golf courses take up less than half of one percent of this country. Not a large amount is it?

After spraying Chlordane I've never seen golfers (or spray operators) dropping like flies, so one could only assume that it did them no harm.

The most important fact about Chlordane was that it stayed put and did not spread. Worms would live and work quite happily right up to the line where the Chlordane had been sprayed. Indeed if a piece, even a metre by half a metre was missed in the middle of a fairway worms would be found casting in that slither of ground with clean areas all around!

It is too late for BIGGA and the other bodies, to move in the right channels for a reversal of this decision?

I am sure if it was overturned a company would have a ready market for its product - or are the chemical companies making too much money from the short lived, vastly overpriced, alternatives?

When courses are closed for three or four months a year (and golfers only pay a three quarter sub?) will the sport's governing bodies hold up their hands and say "We allowed this to happen?"

William Pile
Fingle Glen GC

During my years within the greenkeeping trade I have experienced - both national and international - colleagues that have been maligned by "their" Golf Club and its elected members (Board Members or Members of the Green Committee).

Most often the disagreement has started when the Head Greenkeeper has insisted on certain steps as regards the maintenance programme, steps that have not been approved of by the elected Members. In most cases it is the greenkeeper's working experience in combination with what he has learnt at seminars, courses etc. that tells him what to do at a certain point in order to keep the quality of the golf course at the highest possible level. The steps taken may sometimes inconvenience the players and it is here, that most often, the problems occur.

When the Head Greenkeeper insists on taking the necessary steps, contrary to what the Elected Members seem fit, the Head Greenkeeper is looked upon as a stubborn member of the staff, instead of looked upon as a professional who knows what measurements are needed in a certain situation. When this situation occurs, the Head Greenkeeper often has to leave the Golf Club owing to "difficulties in co-operation", unless he turns a blind eye to his experience and his own knowledge and comply to what the Elected Members say. In doing so, he is also aware of the fact that when it goes wrong he is to be blamed, although he just "followed orders". The Elected Member is always right.

When I started in the greenkeeping trade some 30 years back, a behaviour like the one described above would be, if not acceptable, it would at least be understandable. But that it still happens and besides, is quite common, is unbelievable. The Head Greenkeeper/ Course Manager of today is a well educated person, not only in "grass knowledge" but also in leadership and Health & Safety. Furthermore his attendance to seminars and courses are often supported by the Golf Club, but still, the Elected Members do not look upon him as a professional within his trade.

One can rightly ask oneself why do I educate myself within my profession, when I continually meet Elected Members of the Golf Club who have a better knowledge of greenkeeping than myself?

When will a serious discussion start whether it is necessary with a Green Committee in the Golf Club? Why do we not have a Committee whose task it is to overlook the way the Golf Professional at the Golf Club teaches how to grip the golf club, how to swing the golf club etc., or a Committee that overlooks the Club Secretary to see that he/she is doing their work in a right manner and with the right tools?

As I see it, FEAGA can play an important role in helping its Member Associations with their educational programmes and trying to reach, on a European level, International standards within our profession. This would be an essential part in influencing Golf Clubs to look upon its Head Greenkeeper as a professional, who has a back up by colleagues all over Europe.

Per-Olof Ljung
Vice Chairman FEAGA
When turf disease strikes you have to get your foot down. And there's no faster way to react than with double action Vitesse.

A powerful concept in the fight against turf disease, Vitesse has a unique combination of two active ingredients - iprodione, a contact fungicide which gets to work from the moment you spray, and carbendazim, a proven and effective systemic fungicide that carries on working for weeks.

Instantly effective against Fusarium patch, Red thread, Anthracnose, Pink patch and Timothy leaf spot, Vitesse is the faster way to fight turf disease in the growing season.
Roland Taylor has a whale of a time investigating the world of leaf blowers...

Thar’ she blows!

Within the next two months most readers will be faced with the annual task of clearing up nature’s bounty of discarded leaves. This work can be highly labour intensified and time consuming. As there is no forewarning of the actual days when it will happen, like a good boy scout, being prepared will save a lot of last minute hassle.
Manufacturers have not skimped on the range of machinery on offer and so there is plenty to choose from. What you will actually require depends on your specific circumstances. It may be that more than one machine is the answer to get the job done quickly and efficiently.

In this feature we will be looking at the different systems and equipment available plus the type of areas where they would be of biggest benefit.

Moving leaves can be done in three ways: High-velocity air, Vacuum and Rotary action.

**Air**
To create an airflow requires some form of impeller and aero-dynamics play an important part in its design and the housing in which it is mounted. The unit works at high speed and so balance is critical, as are the materials used in its construction. One of the main reasons for this will be clear when we come to vacuuming.

'Air broom' is an apt description of how these machines are used - the leaves are blown into windrows ready for collection. Three versions are available hand held, backpacks or larger walk behind units. Generally speaking, the small blowers are used to clear leaves from confined spots. On large open areas the walk behinds can be used to bring leaves into one collection spot.

**Vacuum**
To expel air requires some form of intake and designers of leaf and litter clearing equipment have used this principle to create a collecting system. Leaves and debris are picked up in the airflow and pass through the impeller into a receptacle, or through tubing into a trailer. Not only does this provide collection, but on most machines the material is also considerably reduced in volume. This has two advantages. Firstly, more can be collected thus reducing the number of times the unit has to be emptied and secondly, the leaves are chopped up and their fibres exposed. This enables micro-organisms to work on the material and considerably accelerates the decomposing process.

One possible downside, especially on smaller hand-held blowers is that any dust, sand or small stones in the litter can cause wear to the impeller as the material passes through the machine.

Air broom is an apt description of how these machines are used - the leaves are blown into windrows ready for collection.

Three versions are available hand held, backpacks or larger walk behind units. Generally speaking, the small blowers are used to clear leaves from confined spots. On large open areas the walk behinds can be used to bring leaves into one collection spot.

**Vacuum**
To expel air requires some form of intake and designers of leaf and litter clearing equipment have used this principle to create a collecting system. Leaves and debris are picked up in the airflow and pass through the impeller into a receptacle, or through tubing into a trailer. Not only does this provide collection, but on most machines the material is also considerably reduced in volume. This has two advantages. Firstly, more can be collected thus reducing the number of times the unit has to be emptied and secondly, the leaves are chopped up and their fibres exposed. This enables micro-organisms to work on the material and considerably accelerates the decomposing process.

One possible downside, especially on smaller hand-held blowers is that any dust, sand or small stones in the litter can cause wear to the impeller as the material passes through the machine.

An alternative collection system is available although this is largely