



Sasha McCann at work in WBB Minerals' laboratory which has been a member of the USGA Proficiency Testing Programme for the past 10 years

By removing fine sand, silt and clay fractions drainage of the sand is dramatically improved. The processed sand is stockpiled and left to drain before being used in top dressing production.

Sands that have not been processed effectively are likely to be cheaper but when used in top dressings may not provide the desired results, specifically drainage. Even a top dressing that contains over 90% sand, when incorporated into a rootzone, may not perform as expected and could lead to capped greens or reduced infiltration rates.

ORGANICS

The most commonly used organic amendments for top dressing production in the UK are soil, peat and green compost.

- Soils can vary in texture from sandy loam through to heavy clay loam and in organic matter from 'sandy' to 'peaty' soils.
- Peat is formed by the partial decomposition of vegetation in acid, waterlogged conditions. Sphagnum peat is derived from sphagnum moss and sedge peat from sedge, a grass-like plant.
- Green compost is produced by the decomposition of recycled green waste.

It is not just the blend ratio, but also the type of organic amendment used that will determine the overall organic matter content of a top dressing.

QUALITY CONTROL TESTING

It is important to request up-to-date product information from your supplier. If they follow an internationally recognised quality control system, e.g. ISO, and participate in a proficiency testing programme, they should be able to guarantee consistency of their products.

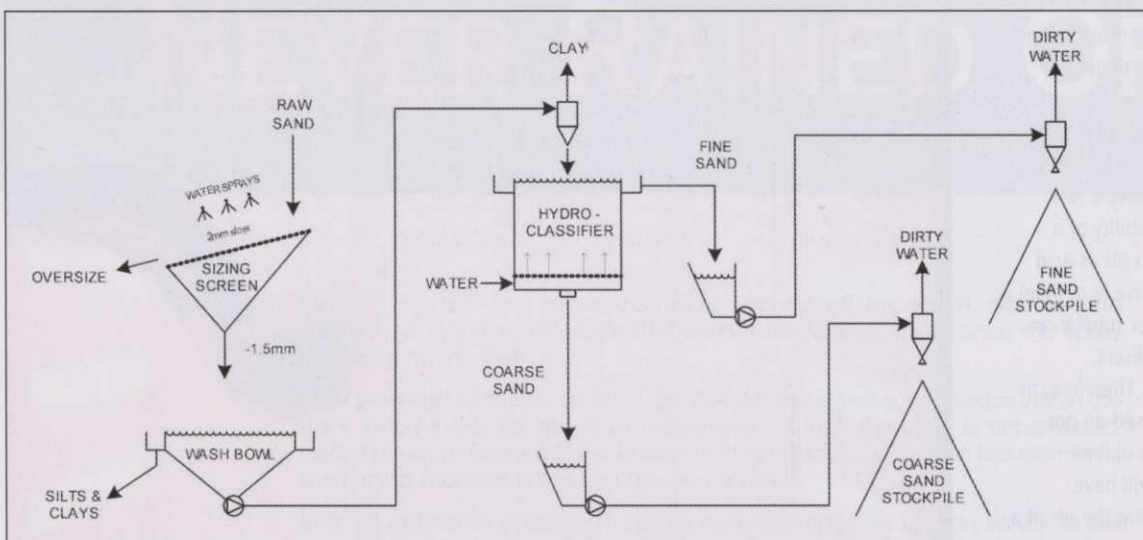
A proficiency testing programme consists of a range of samples being equally divided and sent to participating laboratories on a regular basis. All test data is collated to provide information on consistency of results within each laboratory. This information is also used to statistically compare test

results between laboratories. Laboratories that gain accreditation, i.e. a formal recognition that a testing laboratory is competent to carry out specific tests, through accreditation bodies such as BSI, CICS, UKAS, NAMAS or A2LA, should be utilised wherever possible.

A further measure of a laboratory's competence is participation in the USGA Proficiency Testing Programme that uses

ASTM (American Society for Testing and Materials) procedures. This is a requirement of A2LA, however you do not have to be A2LA accredited to take part in the USGA PT Programme. The current procedures cover testing for putting green and sports turf rootzone mixes. Top dressings are not specifically mentioned but these procedures are generally adopted.

The most common test that laboratories carry out on a top dressing is particle size distribution analysis. Samples must be washed and dried first to remove silt and clays otherwise grains may stick together giving a false (coarser) result. Individual grains are then sorted according to their size using a sieve stack.



The various stages of processing

water filled and air filled porosity levels required for healthy turf. When choosing a sand/top dressing supplier, it is important to interrogate and be comfortable with their quality control procedures. Do they operate within an internationally recognised quality system?

As an example, WBB Minerals' sands used for top dressing production are extracted from the quarry face and immediately screened to remove any oversize material (+ 1.5mm). They are then fed into the wash plant where they are vigorously washed to remove any silt and clay, before being hydroclassified. This continuous process involves segregation, by size, using an upward flow of water within an open topped vessel and results in a closely graded sand.



pH Testing

The particle size distribution of a top dressing should be compatible to that of the greens profile to improve or maintain its drainage characteristics. Coarse over fine may result in a surface that is nutrient deficient and has a low water retention; whereas fine over coarse may result in a surface which holds onto water with very little air-filled porosity.

Additional tests carried out on top dressings are:

- Organic matter content, which is based on the loss on ignition of an air-dried sample, is important to know where there is a thatch problem.
- pH or acidity of top dressings should be slightly acid or neutral for fine turf areas. Sand based top dressings have a low buffering capacity, i.e. the ability of a solution to resist changes in pH as acid (e.g. certain fertilisers) or base (e.g. lime) is added, compared with other substances used on the green, i.e. fertilisers, fungicides, irrigation water. Therefore, as long as the top dressings used do not contain significant amounts of lime (Calcium Carbonate) they will have negligible effects on changing the pH of a greens profile.
- Moisture content will help to determine its ease of use. Top dressings are easier to apply and integrate into the surface (brush in) when dried.

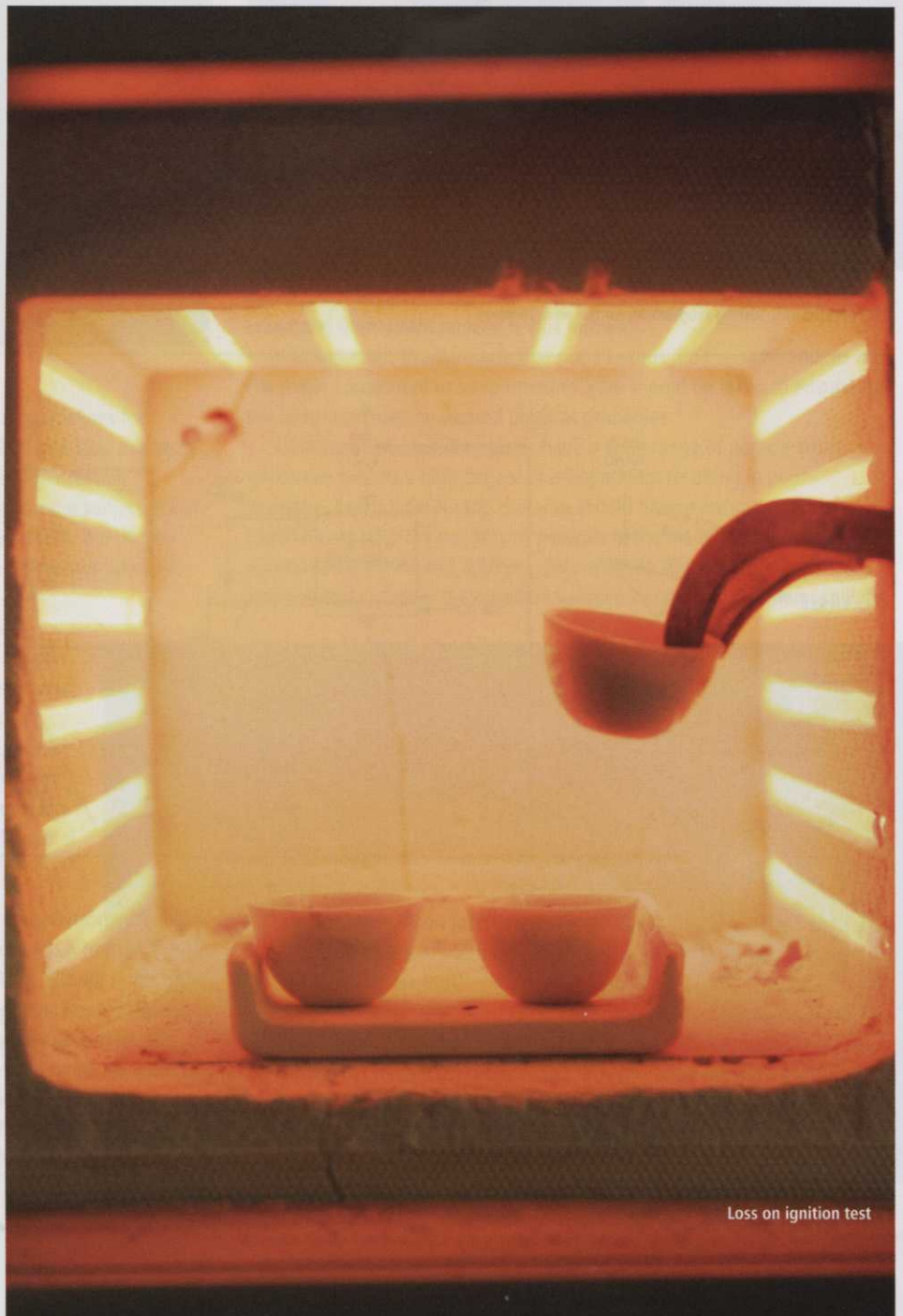
It should be noted that any test data obtained from analysis carried out using different procedures and/or equipment may give different results, so this should be taken into consideration whenever comparisons are to be made.

SUMMARY

Choosing a top dressing is not a case of 'one size fits all' as there is no single grade that is suitable for all applications. Asking for a 70/30 top dressing is no longer acceptable. It is necessary to know the particle size distribution of a green's profile in order to select the correct grade of top dressing. If this information is not known then samples should be taken and forwarded to a suitable laboratory for analysis. Based upon the results, a top dressing should be selected to maintain or improve the current profile.

If these steps are followed and the product is supplied from a reputable company, then this should pave the way for consistent, healthy greens for years to come.

Mick Higgins and Sasha McCann work for WBB Minerals and for further information on golf course construction and maintenance visit the Technical Pages at www.rufford.com.



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More Than Just a Plaything

James de Havilland revs up as he tackles tough terrain on golf courses with the latest ATVs.

Sales of ATVs in the UK hover between 6,000 and 7,000 units a year. Of these, the majority are working, as opposed to leisure quads, with farmers being by far and away the biggest ATV users. But do these machines have a place on a golf course?



Although Suzuki offers an entry level model, the 250 Ozark, it is the 400 Eiger models that will appeal to those looking to tow a load. Manual transmission models provide most relaxed low speed ride

On its own, an ATV is little more than a motorised pair of legs. Although these machines have the ability to traverse some pretty demanding terrain, they have limited carrying capacity on their integral front and rear racks, can only transport one person and have no means of driving ancillary equipment other than that powered by a 12v DC outlet. To add to its limitations, professional ATV operators complying with risk assessment strictures will need to ensure the operator wears the appropriate safety clothing, this essentially condensing down to a helmet.

Competing on a golf course against a utility vehicle, such as the ubiquitous John Deere Gator and Kawasaki Mule, an ATV will, on

the surface, have little to offer. A Gator or Mule can carry a couple of people, they have a built in load platform and both can be specified with diesel power. Utility vehicle three, ATV nil. It is, of course, difficult to argue the ATV corner when an existing course has the resources to fund a utility vehicle. As the latter can be purchased with a cab and does not require the wearing of protective clothing either, it starts to make even looking at what the ATV world has to offer seem somewhat meaningless.

Canny users, however, know different. An ATV cannot be compared to a different class of machine for starters, and to pigeon hole these machines by what they cannot do overlooks their potential uses. Like a utility vehicle, they can work with a range of accessories. These can include equipment from winches and sprayers through to trailed self-powered mowers and spreaders. The reality, however, is that by far and away the majority of ATVs will be purchased for transport, and to optimise this, a trailer is a simple and low cost addition to any first ATV buying package. Although the amount that can be towed by the ATV will be determined by individual model capacities, a trailer loaded with a brush cutter, fuel and some hand tools will be unlikely to tax even the smallest working ATV.

Putting the cart before the horse, ATV trailers from a specialist like Logic are priced from around £450 (ex. VAT). This buys a fully galvanised 1500 x 1000 x 380mm unit offered with a choice of dropping tailgate. Dedicated ATV trailers are built tough and can be supplied with a range of tyres to suit the given load and ground bearing pressure. They can make an ideal transport platform easily robust enough to move a pedestrian greens mower around an 18 hole course.

The Massey Ferguson 'AgTV' range includes models with nominal capacities from 250 to 500cc, with the MF400 automatic illustrating what to expect in terms of looks



As a trailer should be an integral part of an ATV buying decision, it follows that any ATV considered for work on a golf course should have the capacity to tow a load. Realistically, this can make it better to steer away from entry level utility ATV models. Although experience suggests a model such as the 2WD Honda Fourtrax 250S, at a shade under £3,200 (ex. VAT), will easily pull a load in excess of 250kg it is not really aimed at users who want to tow.

Move up the Honda range to the 2WD Fourtrax 350S, and note that this £4,070 (ex. VAT) model has a 325kg towing capacity. That is fine for most users, and this ATV will pull that sort of load safely over varied terrain. This model, incidentally, has a single range, five speed manual transmission with reverse. Gears are selected via a foot shift, an automatic clutch enabling shifts to be made via the pedal alone. An auto clutch is a common feature of 'foot shift' ATVs, regardless of make of model.

While looking at Honda ATVs, the company offers ES variants of both its TRX250 and TRX350 models. The ES system replaces the foot shift with left hand side mounted up and down shift buttons. These work a solenoid to shift through the gears. Opting for the ES shift carries a respective premium of £100 and £200 and, in the writer's opinion, is worth every extra penny. Honda is the ATV market leader in the UK, but they are by no means the only maker of utility ATVs.

Starting with Kawasaki, the company has a broad ATV offering that includes fully automatic models, starting with the selectable 2 or 4WD KVF360. The CVT transmission used in this model is essentially similar to that employed in the Mule, a belt transmitting power between a pair of expanding pulleys that automatically balance engine speed to load and forward velocity. To drive, the KVF360 is simply put in high or low ratio, the throttle opened and that is it. Kawasaki put the towing capacity of this model at a massive 500kg. The KVF360 has a good specification for the money, this model having a £4,495 (ex. VAT) list price.

Kawasaki also cater for those looking to a manual ATV, its venerable 2WD KLF300 having a respectable 317Kg towing capacity and uniquely a lockable rear differential. ATVs typically have no rear diff, which explains why they can be a handful to steer on hard surfaces and why tight turns on turf can lead to a good deal of scuff. This feature alone makes the KLF300 well worth a look, as does its competitive £3,895 (ex. VAT) price.

Suzuki was the first company to develop a four wheel ATV in the early 1980's, no one can challenge Suzuki's heritage in the ATV sector. Despite becoming market leaders initially, the company did itself no favours by withdrawing temporarily from the UK market in the mid-1990's. On its return, however, it introduced a new range of models, including the 400cc Eiger range.

In terms of capacity, a 2WD LT-F400 Eiger is arguably in a different performance league than the aforementioned Honda and Kawasaki models, but the smaller Ozark 250 is arguably not really right for a professional user. Whatever the case, the five-speed manual 2WD Eiger is one of the best all-round ATVs, with a towing capacity of 450kg. In the writer's experience, this model can safely handle this type of load in good



Kawasaki has a choice of models in its utility range, including the KVF360 and, as pictured, the rear diff lock equipped KLF300. The latter will be less likely to mark turf during a tight turn

going, with the caveat that 4WD offers better stability in adverse conditions.

There are three models in the Eiger range, including a 4WD manual and a 4WD Automatic. The 2WD model retails for £3999 (ex. VAT), with an option for 4WD adding a healthy £800 premium. Going auto is even more costly, these models retailing for a shade under £5000 (ex. VAT). For most courses, a 2WD model will do all that is asked of it.

Moving on to Yamaha, the company again offer a 250cc model, the five speed manual Bruin250AN. It is the automatic larger brother to this model, the 2WD Bruin YFM350AN, however, that will interest many potential buyers. For a start, it is among the lowest priced automatic ATVs in the utility sector, with a retail price of £3,999 (ex. VAT). Although the engine is some 50cc shy of the Suzuki Eiger automatic, the 2WD Bruin 350 is well priced and has a Kawasaki KVF360 matching 500kg towing capacity.

Automatic ATVs, incidentally, are good at towing. The operator cannot really set off in the wrong gear and modern autos are pretty controllable when it comes to automatic engine braking. Automatic ATVs are generally harder to abuse, which makes them a good choice in multi-user applications. What can let them down is the need for relatively high engine revs at low speeds and a liking for petrol. Fuel consumption, incidentally, can be high with ATVs. A manual model of around 350cc will be doing well to exceed 35mpg in light going, with an automatic used to tow a heavy load perhaps liking a drink in the low 20's.

Moving on to Polaris, this US manufacturer has long specialised in automatic ATVs, its 2WD Magnum 330 rating as one of the most comfortable quads in its class. Towing capacity of this model is put at 454kg, the physical size of the Magnum making this a realistic maximum in even pretty tough going. As for price, £3,695 (ex. VAT) represents good value, the 329cc power unit having good power delivery.

Next up is Bombardier. The company's ATVs are not really aimed at the entry level utility market, its lowest priced working machine, the 400cc Outlander weighing in at £5,199 (ex. VAT). That is quite a premium over some of the manual quads already outlined, but this model comes with selectable 4WD and a CVT automatic transmission. The company also offer



Hang a trailer onto the rear of an ATV, and it is immediately more useful. A two-wheel drive ATV is fine in easy going, but if there is steep terrain in the job mix, go for 4WD

a 'platform' model, the Traxter XL. The rear platform will take a 275kg payload, while the chassis design allows a 'step through' design so there is no need to swing a leg over the saddle to get seated. Powered by a 498cc petrol engine, this model is more like a cross between a utility vehicle and an ATV with a price of £6,999 (ex. VAT) to match.

A point to watch with Bombardier, however, is the link the company has with John Deere. These ATVs have already started to appear in Deere colours in the USA. When that happens over here expect interest to really start to pick up. As it is, the Traxter XL is an extremely useful bit of kit.

Last in this round up, but by no means last in terms of product offering, is Massey Ferguson. Massey are a well know brand, and for the past three years have been bringing Arctic Cat ATVs as MF AgTVs. The 'Ag' element is to help remind buyers that these are working machines, Massey having developed its MRP rack attachment system to boost their appeal. MRP accessories simply plug them into small sockets on the racks, with clamps for tools and carrying boxes being listed among the items on offer.

In terms of models, the company offer, like rival makers, an entry level model, the MF250, with the next machine in the range possibly being the one to look at, the MF300. This three range, five speed manual ATV has 4WD and a 386kg towing capacity and has a lot going for it as a working bike, not least due to its versatile manual transmission. Prices around £4,489 (ex. VAT).

So, there are certainly a good number of ATVs to choose from, with a specification and budget range that should suit most golf course needs. Utility vehicle prices kick off at around £7,500 (ex. VAT) for petrol models, with an ATV and trailer combination costing from around £5,000 and up. This is a substantial saving, and one that can make looking into buying an ATV well worth the effort.

Honda ATVs have a good reputation for reliability and residual values. A two-wheel drive ATV will suit most golf courses, these models also offering better economy and lighter steering



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WELCOME TO SALTEx



September sees Saltex come around once again and GI previews the IOG Event.

Like BTME & ClubHouse, held in January every year at Harrogate, all the displays at Saltex 2005 focus on labour and money saving products for the effective maintenance and management of turf and sports surfaces, as well as children's play and safety surfacing and leisure and facilities management. These will be complemented at Windsor Racecourse, September 6-8, by a host of features.

These include the Central Arena, which is at the heart of the showground and is constructed as a mini stadium. This is the venue for a host of events, including Tree Climbing demonstrations, a series of educational/training presentations and debates.

As originally introduced at BTME & ClubHouse, the Internet Café is another component of the show and offers visitors unlimited and free access to the Internet and email services. Also a feature at this year's show is the LandscapeSkills Competition final, which has teams completing predetermined landscape projects from scratch.

The educational programme includes presentations on recycling, meeting demands in the public amenity sector, pesticides and EU legislation, landscape skills training as well as play area insurance and inspections. The Groundsman Live Question Time type debates will this year focus on climate change, natural versus artificial turf and safe surfaces. There will also be presentations by Eddie Seaward, of Wimbledon, home of The All England Lawn Tennis Club, and the 'From Cow Field to Cricket Pitch' session by Chris Wood, ECB pitches consultant.

SEMINARS AT SALTEX 2005

TUESDAY SEPTEMBER 6

10.30 Seminar

Recycling for the Future - A Changing Landscape
Louise Hollingworth, WRAP

12.00 Seminar

How Climate Change Affects The Open Space
Profession Institute of Horticulture speaker

12.30 Groundsman Live Debate - **Climate Change**

Panellists include: Gus Grand, Climate Change Projects' Officer, Eden Project;
Jacob Tompkins, Policy Development Adviser, Water UK;
David Mackinnon, General Manager, Windsor Racecourse; Institute of Horticulture Speaker

13.30 Seminar

People or Targets - What Drives the Public Amenity Sector?
Eddie Wardrobe, ex-Newcastle Council Environmental Services

14.30 Seminar

Pesticides - How is EU Legislation Going To Affect Us All?
Simon Barnaby, Technical Product Manager, Scotts

16.00 IOG Awards

IOG Stand Awards. Followed by IOG Sports Turf Awards

WEDNESDAY SEPTEMBER 7

10.30 Seminar

In Praise of Natural Turf - Martyn Jones, Natural Turf Foundation

11.00 Seminar

Artificial Grass Surfaces - The Real Story
Bryn Lee, MD Tiger AG & Chairman of The Manufacturers' Group.

11.30 Groundsman Live Debate - **The Turf Debate**

Panellists include: Martyn Jones - Natural Turf Foundation; Bryn Lee, SAPCA;
Alastair Cox, UEFA Artificial Turf; Steve Williams, The Football Association;
Alan Ferguson, Ipswich Town FC;
Eddie Seaward, Head Groundsman; The All England Lawn Tennis Club

13.10 Seminar

All Year Round Tennis Court Maintenance
Eddie Seaward, Head Groundsman, The All England Lawn Tennis Club

14.10 Seminar

Landscape Skills Training - Card Accreditation Lets You Hold The Aces
Neil Huck, BALI

