

James de Havilland takes a closer look at the intricacies of current machinery

The anatomy of...

A rotary mulch mower



Mulch mowing in the broader amenity and commercial sector tends to see a resurgence of interest when we enjoy a few dry summers in a row; the technique favours 'little and often' mowing and is well suited to helping to retain moisture in dry conditions. But does mulch mowing equipment now deserve wider use?

The John Deere 8800 TerrainCut mower is fitted with five individual rotary units to allow the following of ground contours. Designed to cut and mulch clippings, this type of mower is well suited to wide area mowing to include the cutting of roughs.

Anyone whose has looked at the way rotary mowing has evolved over the past few years will be struck by the increased availability of what can broadly be termed a mulch mower.

On the pedestrian rotary front, the term should really be broadened to suggest more manufacturers are offering mowers that can mulch. Dedicated mulch mowers are out-sold by '3 in 1' units that can readily switch between collection, cut and drop and mulch.

On ride-on equipment, it is increasingly likely that a modern rotary deck will be offered with a mulching kit. This can range from a simple outlet 'bung' that effectively seals the deck discharge through to a more comprehensive option that will see a different type of blade and modified baffles under the deck altering how clippings are handled. A 'proper' mulching deck is designed to do more than just contain clippings and chop them more finely. The aim is to chop and then 'blow' and evenly distribute the clippings back down into the sward to leave a clump free finish.

In other words is now established that some deck designs are better at producing a good mulch finish than others. Simply stopping clippings exiting a conventional 'cut and drop' deck does not turn it into a 'proper' mulching deck.

Another key issue is the wider adoption of rear discharge and single unit gang decks where the clippings that are left on the surface but well distributed to leave a really neat finish. Mulching decks are competing with ever improving 'conventional' rotary mowers in other words.

It of course follows that regular mowing of any description makes it easier to leave a decent finish. Fairway clippings are not routinely boxed off, the repeat slicing of clippings carried out by a sharp cylinder mower proving that a great finish can still be achieved without collection.

It is perhaps this point that is overlooked when looking at rotary mowers. How they are operated and the option of going for a deck that mulches as opposed to one that evenly distributes its clippings is not as broadly discussed as perhaps it could be. In certain circumstances, a good rear discharge deck will leave a finish that is pretty hard to tell from that left by a good mulch mower. Where a mulch deck can score, however, is in leaving a good finish on less regularly mown swards.



Understanding the basics of how a mulch mower operates can help explain why. The first point is that a mulch mower is not designed to cut grass down to the tight heights achievable with a cylinder mower or increasingly demanded of a rotary deck. The key to mulching is to leave a longer sward into which the 'recycled' clippings can be 'hidden'.

This type of sward responds well to being maintained regularly but need not mown tightly; a longer sward length can help to crowd out moss and weeds without detracting from the overall look of the turf.

There are also modern grass varieties that have a slow rate of growth, good drought and/or shade

Toro Groundsmaster 3280-D out front rotary mowers are offered with a choice of 1.57 and 1.83m wide side-discharge, rear-discharge and dedicated Guardian Recycler decks. Mulching kits for the conventional decks are increasingly popular, allowing long wet grass to be tackled early in the season, with the mulch kit allowing contained mowing later on.

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In the British Isles there remains a desire to try and tame wider grassed areas to the point where many parks have a manicured 'short lawn' finish. And long may it continue. But try to expect a mulch mower to operate within this regime and it will typically lead to disappointment.

Where a mulch mower comes in is in the mowing of more general 'amenity grass'. A good example is the turf around buildings that is not regularly walked over but that is valued for its overall appearance.

tolerance but that also prefer to be trimmed to around an inch.

Another key and vital point is that a mulch deck is designed to contain the clippings. On regularly mown amenity turf this can be a real plus, tightly contained clippings being less likely to be thrown onto paths or up against parked vehicles. The chance of debris being projected at high velocities is also important. A stone thrown against a window, or worse a third party, is an ever present hazard facing those who maintain grass in a public space.



The Jacobsen AR522 again follows the rotary 'gang' format, the ability of these machines to leave a good finish having seen their increasing acceptance in the place of a cylinder mower alternative. Regardless of mower type, a decent mulch mow can only be delivered if the unit is operated correctly.



Most current Toro one-piece rotary decks can be fitted with recycler kits. Designed from the outset to accommodate these kits, a converted deck will contain material in the same manner as the company's dedicated Guardian Recycler deck. For effective mulching, the deck needs to be well filled with material, so the operator needs to adjust the mowing speed to get the best results. Debris allowed to collect under the deck will compromise performance.



Ransomes-Jacobsen TrimTeK Decks help to illustrate that there is no definitive mulching design. The key is to match the selected mower to its task. Expect this type of deck to reduce a long, wet sward down to under inch in a single pass and the finish will be compromised.

What about mulching leaves?

A dedicated mulching deck can be used to deal with autumn leaf fall. Getting the technique to work is not difficult, but a few basic points need to be followed to get best results. The following tips relate to Toro Guardian Recycler decks, but the basics will apply to other designs.

Quick tips for a better leaf mulch

- The drier conditions, the better the mulch.
- Concentrate on mulching the leaves. Avoid trying to cut grass at the same time. This is of particular importance when working in damp conditions. Wet grass mixed with mulched leaves will be more likely to produce a 'mat' of material that will not be as readily hidden in the sward.
- When mulching a mat of wet leaves, it may be necessary to adjust the deck height and mowing speed to draw the material into the blades. If the results remain poor, wait until conditions improve.
- Keep the deck 'full'. When mulching light patches of leaves, speed up to keep the deck working.
- Keep the deck underside clean and wash off at the end of each mowing session. If the deck starts to leave clumps, check it is clean.
- Try mowing in alternate directions. An initial pass with the deck at a higher setting, followed by a second at a lower setting in a different direction can be extremely effective in difficult conditions. NOTE: To get the best from all types of mulch mowing, it is recommended that repeat mowing patterns are avoided.

Setting up the deck for mulching

- Set the front of the deck lower than the rear; aim for a nose down 'slope' of around 6mm.
- Ensure air can pass under the front of the deck, particularly so when mulching deep piles of leaves.
- Set the deck height to mulch leaves, not to mow.
- Make sure the blades are sharp and balanced.

How a mulching deck should work

A 'proper' rotary mulcher works by both re-chopping the grass to produce small clippings and to then blow them back down and into the sward. The simple act of blocking the outlet of a 'conventional' rotary mower will not do this.

This is why 'convertible' deck mulch kits will typically incorporate some form of restriction around the blade or blades to restrict the flow of clippings. A kit may also include a change of blade type or even include 'ramps' against which 'stalled' clippings can be acted upon by the top of the blade.

Regardless of design, the aim is much the same – to leave the resultant finish as free of surface clippings as possible and to speed the decomposition of those clippings. A more aggressive mulching action helps decomposition, but good containment and the ability to force clippings back into the sward is also important.

Mowing technique will also play its part; the sward to clipping ratio has to be correct. The well established rule is to cut a third of the sward length in any single pass. Try and mulch too much material in one pass and the results can be compromised.

In fact a 'conventional' rear discharge deck can leave a better finish than an incorrectly operated mulcher, particularly in wet conditions.

It is perhaps worth taking a side step when looking at mulching and to consider the whole technique as an ally as opposed to an alternative to conventional rotary mowing. Rotary mowers, particularly for ride-on commercial machines, have evolved from units designed to essential knock grass down to machines capable of producing a good finish. Mulching is a further development in rotary mower design.

Those who are strong advocates of mulching suggest we all need to rethink how mowing is carried out. It is the well-understood that relatively high levels of summer rain are required to keep any sward lush and green.

Come late June and many areas will see non-irrigated turf starting to dry or even brown. It is here where a switch in early June from conventional cut and collect mowing to mulching can have a place. The returned clippings will help retain moisture and also return nutrients to the sward. As long as the regime allows the sward to be maintained to a moisture loss resistant inch or so, this and regular mulch mowing can help keep the grass greener for longer.

There is also the issue of not needing to remove clippings. Clipping disposal is a hot topic at present, so it may be that mulch mowing starts to become recognised as an alternative in regimes that currently call for cut and collect mowing. The secret is to keep an open mind and give mulch mowing a chance.