KILLING WEEDS WITHOUT CHEMICALS

A new system designed in Norway kills-off weeds, grass and other unwanted plant growth from highways, cycle routes and footpaths - without using chemicals. So what does it use? And how does it work? Malcolm Bates went to Sweden to find out.

ENVIRONMENTALLY FRIENDLY

So what we're looking for is something that doesn't harm the environment, doesn't make a lot of noise, or cause an obstruction when working - and is easy to use and work with, without causing concerns over safety. How about hot water? Yes seriously, the HeatWeed system claims to kill weeds and other unwanted plant growth from roadside verges and other public places by simply 'cooking' them with a targetted jet of hot water at 99 degrees. But surely a lot of hot water would be needed during a working shift requiring a large truck chassis and a vast amount of fuel to heat the water? And wouldn't so much water in an urban area cause flooding?

All these questions and more were going through my head as I arrived at the main offices and depot of Boras Stad to meet Ulf Raneby and his team. Also there, to show me how the HeatWeed system works, is Jan-Tor Angell, technical director at Heat Weed. I'm in for a surprise - the actual weed control 'delivery system' comprises of just two key components - an on-board water tank and a 'spray dispenser' which is roughly the same size as a rotary mower deck used to cut public grass areas in city parks. This deck also contains the water heating boiler (which uses a diesel burner) and a very clever metering system that enables a water tank of a very modest 800litres capacity to go a very long way. The compact design of the HeatWeed system enables it to fit onto a compact toolcarrier that can be used for other duties when not killing weeds. Such as? Grass cutting, or pavement sweeping in summer.

Or as a snow plough/gritter for winter maintenance operations.

Boras Stad runs a fleet of four German-built, Kubota diesel-powered Holder ‘C250’ articulated all-wheel drive multi-purpose tool carriers - primarily because of their ability in heavy snow. But also because unlike a conventional tractor, Holder machines have excellent driver vision from a forward-mounted cab and provision to take both front and rear-mounted attachments with both hydraulic and conventional PTO drive as well as a useful tipping load deck behind the cab. Holders also have an overall width of as little as 1.13 metres (depending on tyre type) which makes them ideal for urban operations. The HeatWeed deck is mounted on the front attachment hitch and the 800litre water tank on the rear loadbed.

But first perhaps we should ask, How does the system work? And what exactly is involved? After all, many city authorities responsible for keeping highways, cycle routes and footpaths clear of weeds, litter and other unwanted debris are under pressure to reduce, or totally eliminate the use of chemical solutions. So while the introduction or a new alternative must be welcomed, is this a case of replacing a simple old method of working, with a new, more complex one? Amazingly, no.

There are other methods of removing weeds aside from spraying chemicals. A wire ‘weed ripper brush’ can be fitted to either a two-wheeled pedestrian-operated groundscape tractor for use in narrow spaces, or as a third brush option on many compact precipit and highway vacuum sweepers. They are not expensive and they are effective. But... The downside is that the abrasive action of a high speed rotating wire brush can break-up the surfaces being treated and actually cause far more serious problems. There are also high pressure steam systems available of course. Steam gets over any abrasive action concerns. But... Using high pressure steam in public places raises safety concerns and risks damaging the joints between paving blocks. Plus, a steam generation boiler, by it’s very nature, requires a large, heavy-duty unit to carry it.

In Boras, Sweden, the Holder units are used to treat weeds in the city parks and open spaces as well as on highways, cycle tracks and footpaths. Regular treatment of weed growth has shown to help reduce litter and fly tipping.

E very now and then I get a phone call or email claiming that this or that new system has, at a stroke, made life easier for local councils (communes) and contractors by either reducing overall operating costs, speeding-up a previously slow and labour-intensive task, or producing a higher quality end-result.

But it isn't very often I come across a new system that can claim all of the above. Such claims are however at the very heart of the new ‘HeatWeed’ system, so naturally I was keen to see it in action. And the best place to do that? The charming city of Boras in central Sweden. Here the commercially-operated (but Commune-owned) city highways organisation was one of the first to undertake trials of the HeatWeed system. Twelve months on - and after 2000 hours of successful operation - director Ulf Raneby was keen to share the results with Waste Management World readers.

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WHAT’S COOKING?

So far, so simple. But how does hot water kill weeds? And how can a small tank of 800litres capacity last for a working shift? Or even half a shift? As Jan-Tor starts to explain the technology, I soon realise there is a great deal more to the system than just ‘hot water’.

Firstly, the water heating boiler works ‘on demand’ heating the water from the tank only when the delivery jets are activated, thus not wasting energy. But the activation process isn’t entirely under the control of the driver - the really clever bit is that the hot water is only sprayed when the sensors on the deck ‘sense’ that there are weeds to be treated. Open areas of tarmac or concrete don’t activate the system.

How is this done? The sensors utilise infrared technology that rather that actually ‘seeing’ the weeds and other growth, ‘smell’ the chlorophyll found in every living plant. ‘Seeing’ the weeds and other growth, ‘smell’ the chlorophyll found in every living plant. ‘See’ that there are weeds to be treated. Open areas of tarmac or concrete don’t activate the system.

The end result? Jan-Tor Angell explains that unlike steam-treated weeds which are ‘frightened’ into growing more vigorously after just a few weeks, weeds treated with hot water will take far longer to recover. “This reduces the number of necessary treatments per year from around once a month with steam, to just two or three with Heat Weed, depending on the length of the growing season,” he suggests. With best part of twelve months on the gauntlet, the weed control system is still more effective.

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