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WEED-IT - What is it and why use it?

WEED-IT (Weed Economical Eradication Detection – Intelligent Technology) is a weed control application technology developed specifically for the control of weeds on public footpaths and similar hard surface areas in urban environments.



The original version was introduced in 1997 (with several iterations improving on it since), Complete Weed Control has treated many hundreds of thousands of kilometres of footpaths and hard surfaces and continued to use and develop the technology, the latest development being the building of a new purpose-built, articulated carrier vehicle.

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What is WEED-IT?

WEED-IT is a computer-controlled herbicide application system specifically designed for use on footpaths and other hard surface areas. The system consists of a shrouded spraying head mounted on the front of a purpose-built, articulated carrier vehicle. Within the shrouded head are sensor units and spray nozzles. The sensor units detect the presence of weeds and trigger the appropriate spray nozzles to apply accurately the correct amount of herbicide just to those weeds and their immediate surroundings.



The result is very high levels of weed control coupled with greatly reduced herbicide use and increased safety to the operator and the public. The environmental impact of herbicide use is also greatly reduced.

During early trials with a major local authority in the year 2000 a unit was used for 20 weeks without any down time related to technical faults, and with outstanding weed control results. The key benefits were found to be:

- Weeds were targeted accurately and controlled
- A reduction of 65% in herbicide use*
- No off-target spray damage to grass verges, open-plan gardens and the like
- The WEED-IT system attracted no adverse comments from local residents and members of the public. (In previous years up to 40 complaints per year had been received).
- Productivity for one operator of between 35 and 40 km per day

* Further years of experience with WEED-IT have shown this to be nearer to 80% reduction in herbicide use.

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Why use WEED-IT?

Reduced herbicide use*:

- Reduces the risk to the operator from herbicide contamination
- Reduces both the real and perceived negative environmental impact of herbicide application, especially on hard surfaces
- Provides the risk reduction measures necessary to satisfy the requirements of COSHH assessment and environmental risk assessment better than any other system



* See later section “The evidence”

The shrouded spray head:

- Virtually eliminates the risk of spray drift and off-target contamination
- Virtually eliminates the risk to the public from herbicide application on footpaths and other hard surfaces

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- Greatly reduces concern and negative comments from members of the public (in fact positive comments are often received)
- Allows spraying to continue when the weather would mean that quad bike and knapsack application work would have to stop
- Can be used in “spot treatment” or “overall spray” modes

Computer controlled herbicide application:

- Allows the operator to give a far greater part of his/her attention to the safe operation of the sprayer
- Provides the highest levels of accuracy in herbicide application
- Ensures that herbicides are always applied at the correct rates
- Minimises waste

The purpose built, articulated carrier:

- Provides a stable platform for the operator and for the spraying equipment to be mounted on
- Has its top speed restricted to 16kph, much lower than any quad bike so limiting greatly the risk to people, vehicles, buildings and street furniture (typical spraying speed is 6-8kph depending on the specific situation and risk assessment)
- Allows the operator to pay much more attention to his/her surroundings, increasing both public and environmental safety
- Provides a highly manoeuvrable vehicle that can safely access many more areas than a quad bike
- Enables additional spray nozzles to be controlled with foot-operated switches leaving both of the operator's hands on the steering wheel
- Allows the safe use of a hand lance where this is necessary

The Evidence

A quantitative evaluation was carried out at Plant Research International in December 2000 (*Quantitative evaluation of liquid deposition by herbicide application systems for weed control on hard surfaces – C. Kempenaar, R.M.W. Groeneveld and A.J.M. Uffing*).

Liquid application was measured from a number of spray application systems in swath (overall spray) and spot treatment modes. In swath treatment mode, sprays were evenly distributed over the whole surface, whilst in spot treatment mode, sprays were directed at the weeds only.

WEED-IT is a modern herbicide sprayer for spot and swath treatment. The system uses sensors to detect the presence of weeds before triggering an application of herbicide. Application begins just before and terminates just beyond the weed to ensure complete coverage.

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The machine was compared with a hand operated sprinkle bar and a knapsack sprayer. Tests were carried out on three types of hard surface and two levels of weed infestation.

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Key results are shown below:

Application system	Liquid applied (gm/m²)	Reduction relative to swath treatment (%)
<u>Swath treatment:</u>		
Sprinkle bar	220	
Knapsack sprayer	76	
Weed IT	27	
<u>Spot treatment:</u>		
Sprinkle bar	200	9
Knapsack	43	43
Weed IT	7	74

These results show clearly the significant reduction in herbicide application
From a safety point of view

- When comparing **WEED-IT** with knapsack sprayer application the risk of operator and public exposure to herbicide contamination is greatly reduced and the accuracy of herbicide application is improved. The risk to the operator of developing musculo-skeletal disorders is also greatly reduced.
- When comparing **WEED-IT** with quad bike application the risk of overturn and collision are greatly reduced through the use of a purpose-built carrier unit which is stable, highly manoeuvrable, has top speed strictly regulated and allows the operator to apply his/her full attention to driving safely in public areas.

Conclusions:

By using **WEED-IT** Complete Weed Control can provide:

- An unsurpassed level of weed control
- The highest levels of personal, public and environmental safety
- A “public friendly” method of herbicide application
- A means of meeting better the aims and objectives of your organisation’s environmental policy
- Cost-effective, safe solutions to your weed control problems and a better public environment