

CDA hits the target

Despite ten years of commercial use, the benefits of CDA – controlled droplet application – for the application of pesticides may not yet be fully understood. There could still be some confusion over the differences between CDA and the more traditional type of spray application.

Like many other advances in technology, the principles of CDA are very simple. A steady flow of undiluted liquid drops on to a battery-powered disc running at a constant speed, which throws out a controlled stream of uniform-sized droplets. The herbicide, fungicide or insecticide being applied can come pre-diluted, eliminating the need for mixing, and the system operates at low pressure.

Perhaps most important of all, CDA does not use erratic and often unreliable air currents to ensure distribution to the plant or other target area.

Conventional sprayers, on the other hand, mostly use a small quantity of pesticide in a much larger quantity of water. This involves mixing in the concentrated ingredient – one obvious area of possible operator hazard. This water must also be carried to the site being sprayed – four gallons of water weighs 40 pounds, even without the weight of the sprayer.

CDA sprayers, on the other hand, are light, ergonomically well designed and lead to less operator fatigue during operation. Manufacturers claim, in fact, that they are up to ten times lighter than conventional knapsack sprayers.

But it is particularly in the area of lessening hazards during spraying where the CDA system really scores,

both to the operator and the environment. It is this, sometimes quite unfounded, fear which has persuaded some local authorities to eliminate spraying verges, open spaces and other areas used by the public altogether. Yet as a survey by the British Agrochemical Association has shown recently, the costs of returning to manual weed control can be quite horrendous.

BAA compute that the additional costs per km of non-chemical treatment are around £64 for roadside weed control, £180 for site boundary maintenance for schools and recreation grounds, and £230 for pavement weed control. They say the total increase could come to nearly £1 million for 'the average county area'. In addition, the actual costs of roadside weed control are quoted by one county council as £7.26 per km with chemicals, increasing nearly ten times to £70 per km using non-chemical methods. Figures to make any treasurer ponder.

The answer, therefore, is not to eliminate the use of herbicides and other pesticides, but to reduce considerably the risks. This can be done partly by using the safer products now available, those carrying full Government Approval, and partly by using safer equipment to minimise the risk of environmental damage.

Public opinion is, of course, often against any use of pesticides at all. Essex County Council, who changed to the CDA system two years ago, say that the public were initially apprehensive but had given a positive response once the situation

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Details of the GCSAA programme will be available from headquarters at a later date.

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Los Angeles/Gatwick on Virgin Atlantic – 4th February (to arrive in UK on 5th)
Cost: Twin Room £842 per person
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25th January to 1st February 1993

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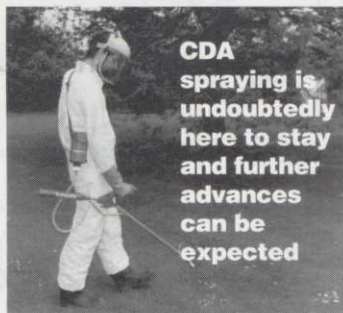
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'Safety for operators is enhanced by a fan-shaped spray pattern projected forward of the operator - reducing the 'wet welly' effect'

7 was explained to them. Any local government supervisor who has had to negotiate damage claims through over-zealous pathway spraying creeping into gardens will know the problem. On the other hand, we know that the public will be the first to complain about weedy, untidy pavements and verges.

The safety of the CDA system comes first, from directing a relatively small amount of pesticide on to the target area - with little wasted into the surroundings; second, through being a low pressure system; third, and probably most important of all, the uniform droplet size which the sprayers produce. Conventional sprayers produce a wide range of droplet sizes. Many of the larger ones will bounce off the plants being sprayed to give uneven results. The smallest droplets, on the other hand, are easily carried away on air currents. This can also cause uneven results, certainly with total herbicides, plus considerable damage to adjacent areas.

CDA equipment is designed to produce a very narrow range of droplet sizes. The Lancelot sprayer, for example, uses only droplets in the 200-300 micron band, no matter what width of swath is being



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sprayed. This size is not only the best for 'stickability' on plants, but gives the lowest risk of inhalation by spray operators.

The rates of application with CDA are also low, ranging from 5-30 litres per hectare, which in itself reduces the amount of unwanted pesticides entering the environment. This is especially important for insecticides and fungicides, where excessive and uncontrolled application can lead to a loss of beneficial predators and an increase in pesticide resistance. Safety for operators is enhanced by a fan-shaped spray pattern projected forward of the operator - reducing the 'wet welly' effect.

To eliminate the risks still further, ready-to-spray formulations of pesticides are now available for using

straight from the bottle, and where even the bottle itself is screwed directly on to the CDA application equipment.

One innovative company has introduced this system with a range of their chemicals, all of which can be used through a variety of CDA sprayers. Their own sprayer incorporates a bleed valve and allows air to replace the liquid as it leaves the screw-on container. This ensures a steady flow through the feed tube without 'glugging'. It results in a totally closed system which avoids any manual emptying of containers - again reducing any risk to operators and the environment. Designed for ease of operation, it comes as a complete kit including a holster to contain the bottles of spray liquid. Loading consists of inserting the container and replacing the bottle top with a cap containing the air bleed valve connected by a feed tube to the end of the lance. The bottle is held inverted and the liquid fed to-the spray lance by gravity. A second built-in container holds a set of six different sized nozzles for different spray band widths.

The heart of any CDA sprayer is the spinning disc which produces the spray droplets. Typically this is powered by an electric motor run by

three U2 batteries carried in a special compartment at the top of the lance, handy for the operator. A set of long-life batteries should last for one day's spraying, but a rechargeable battery and charger is also available.

There are therefore only three controls: an on/off switch for the liquid through the feed pipe, a switch for the motor and a width controller on the spraying head to adjust the band being covered. The correct dose is also partly dependant on the walking speed of the operator. Although simple to use, CDA sprayers are not idiot-proof. Like all precision machinery, they rely on using the right pesticide for the job, correct calibration and proper use to get the right results. Most sprayers are robust in construction, though light in weight, and they should stand up to the rough-and-tumble of practical handling conditions.

For both recreational and industrial use CDA spraying is undoubtedly here to stay and one can expect further advances in the technique in the future.

♦ The author, Geoffrey Ellis, is an independent consultant and writer with some 30 years experience of the agro-chemical industry. He runs a small nursery specialising in the production of wild flowers.

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