

Driving impression: Hardi Commander 4400 i trailed sprayer

'i's to the front...

What difference can a little 'i' make to a machine's performance? Quite a lot is the short answer.

In a previous profi issue we looked at the complete Hardi Commander (profi 05/07) package, whereas on this occasion we confine most attention to the sprayer's 'intelligent' features – the bits that have the potential to make the Commander stand out.

At the heart of the 'i' automatic functions lies the electronic SmartValve system, which is controlled both from the cab and a control panel on the machine.

First up in the list of automatic functions is 'AutoWash' (£1,650, all pricing excl. VAT) and its three rinsing programs. Option one is 'BoomFlush', which is used when the operator has to stop spraying temporarily – it starts to rain unexpectedly, for example. This cycle rinses the spray boom, including the pump and control unit, without diluting the liquid in the main tank.

Another program on the menu is 'Fast-Flush', which rinses the empty tank but only briefly – ready for the machine to continue spraying the same chemical the next morning.

The most comprehensive wash is provided by the full 'MultiRinse' program. This cycle only starts when the main spray tank is empty and the 500-litre clean

The mini 'i' makes a big difference. Commander 'i' boasts a raft of new functions, not all of them being that obvious on initial inspection.

Photos: HW

... is what Hardi will be hoping for its top-spec sprayers, as it bids for a larger slice of the market. It is perhaps tempting to dismiss the 'i' as no more than a trailed model with a clever cleaning program, yet there's a lot more to this Commander than representing Hardi's equivalent to a washing machine on wheels

water tank is filled to capacity. With these conditions met, the program cleans the entire machine, going through a sequence of 39 steps – a process that takes 20 minutes to complete while the operator busies himself on other tasks.

And the auto functions don't stop there. For the tank filling job, 'AutoFill' (£1,115, or AutoWash + AutoFill = £2,275) relies on a tank sensor to measure the liquid level in the tank – it uses pressure – and closes the suction tap when the programmed level is reached. An additional float prevents the tank from overflowing. One slight disappointment is that the filling settings only appear on the cab terminal without being duplicated on the external panel;

as a result, the operator has just the one viewing option, a mechanical float, when outside the tractor cab.

Cleverly, the liquid level determines the intensity at which the 'AutoAgitation' system works, and here the operator can choose from 'Powerful' and 'Soft' mode. The agitator shuts off when there are less than 200 litres remaining in the tank.

And 'i' doesn't end with the jobs of washing and filling. For starters, the first and most entry-level of the automatic in-field features is 'HeadLand Assist' headland management (£325). After operating the boom master control, the system continues spraying for a programmable distance

before it shuts off the spray nozzles, raises the boom to a preset height and then levels



Electric suction and pressure tap controls are duplicated on the external control panel. The digital tank level indicator is the only function that is not controlled from this panel.



the levelling system. When the operator activates the master control as he drives into the next tramline, the system mirrors the levelling position of the previous bout, lowers the boom and opens the nozzles. An even more convenient Hardi feature is 'AutoHeight' (£4,725). Built by Canadian manufacturer Norac, the system has two boom-mounted ultrasonic sensors that control the boom angle setting rams, plus



The cab-mounted computer and its joystick. Other control units are for automatic boom section control and boom height control (to the right)...



Multiple nozzle bodies (left) are operated electrically but rotated manually. The boom (below) uses three ultrasonic sensors for automatic boom control.

another ultrasonic sensor in the middle that takes care of the parallel linkage. Highlight of 'AutoHeight', though, is the option to select 'Soil' and 'Crop' mode which, in turn, measure either the largest ground clearance or the smallest boom-crop distance to set boom height.

For those looking for all of the bells and whistles, the ultimate level of 'i' spec is 'AutoSectionControl' (ASC) which, in simplest terms, equates to GPS-controlled boom sections. Supplied by Australian firm Rinex, ASC receives control signals from the NMEA protocol, which is available from many auto guidance systems. With the spraying tractor equipped with a

...plus the auto guidance system (foreground). On our machine, a Trimble EZ 250 unit supplied the GPS signal to control the boom sections.



GPS receiver, the end result is that, after the sprayer operator has been around the headland once

to log the boundaries, he is then left to simply steer the tractor up and down the landwork tramlines while the individual boom section on/off valves take care of themselves.

And on the subject of the boom sections, Hardi's 'PrimeFlow' option (£2,215) uses CANbus-controlled stepper motors on the individual spray nozzle bodies to provide a pressure-based system for the operation of up to 13 sections. These sections

DATA SHEET	
Hardi Commander 4400 i sprayer	
Tank vol, rated/max:	4,400/4,600l
Rinsing/clean water tank volume:	500/17 litres
Pump:	276l/min, 322l/min option
Boom width:	36m
Unladen weight:	4,760kg
Length/Hght/Wdth:	7.80/3.60/3.00m
Track width:	1.50-2.25m
Ground clearance:	0.8m
Price of test spec model:	£47,495
Manufacturer information	

are fully programmable, even down to an individual nozzle.

Other points worth mentioning:

- The multiple nozzle bodies are rotated manually.
- Automatic boom section control allows 1-100% overlaps.
- Clean water tank level is also indicated digitally for improved accuracy.
- Standard-spec 'FastFiller' injector fills the tank at rates of up to 800 litres/min; a pressure empty draining function is an option at £300.
- HC 6500 computer is not yet ISObus-compatible, but brings intuitive operation. It is supplied with a joystick.
- The Hardi Commander trailed sprayer is marketed in three different tank sizes – 3,200-, 4,400- and 6,600-litre volumes – and a choice of 18m to 36m booms.
- Our fully specced Hardi Commander 4400 i sprayer, complete with 36m wide Force booms, lists at £47,495 excl. VAT.

Summary: Not only does the new Hardi Commander i fill and rinse its tank automatically, but it sprays automatically, too. The high-tech functions work effectively, and when the 'i' package is taken as a whole, it makes for a convenient-to-use spraying outfit. Even now, though, refinement still remains possible. For example, Hardi could look at better integration of the boom control and boom section control functions into the cab computer. But that really is fine-tuning. Once Hardi has taken the next step and built features such as individual nozzle control into the ASC system, it's difficult to see how the company can take automation much further.

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