



See and Spray Technology

For several years now, people have been working on technology that would allow the selective spraying of weeds within a crop. With the advent of individual nozzle control technology such as John Deere's ExactApply, I believe it is only a matter of time until a reliable and cost effective method of selectively applying pesticides becomes a reality. Indeed, the technology already exists to identify plants "out of place" using either drone imagery or boom mounted cameras to see green plants on a dark background. In other words, we can already selectively turn individual nozzles on and off when weeds are detected on a bare field.



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John Deere sprayers will be adding a new feature to its 2022 model year sprayer line. "See and Spray Select" will be the company's first venture with this emerging technology. Deere's See and Spray Select is designed to recognize new growth in a fallow field. The system can't tell the difference between plant types, so any green growth it detects will get sprayed. As such, this first edition of See and Spray will key on pre-burn situations and chemical fallow. A click of a button in the cab will allow the operator to switch between See and Spray and conventional applications.





The system uses 36 cameras mounted on a 120 ft boom that look for any green plant material and then activate the appropriate nozzle to hit that target. This is all taking place at 12 mph, so the volume and speed of the computing power is truly impressive.

With the computer learning algorithms that exist today and the way the technology is advancing, I don't think it will be very long before we have the ability to spray only where the weeds are, significantly impacting not only our bottom line, but the environmental impact of herbicide applications.



While the initial See and Spray models will not have any in crop applications, that technology is not likely far behind. At Battle River Implements, we took part in a 2 year pilot project using drone technology and ExactApply sprayers to work on creating prescription maps for in-crop herbicide applications. We were able to reduce herbicide costs by over 40%, but logistical issues such as the lag between the creation of the imagery and the prescription being available for the application, as well as the inability to reliably identify weeds that were dime sized or smaller ultimately made us decide that the technology, although promising, wasn't quite there yet. But the technology we were using **could** tell the difference in the reflective value of a broadleaf plant vs. a grass and even between different grasses and create a prescription based on the distinctive spectral signatures of different plant species. There is still a lot of work to be done, as spectral signatures can vary significantly even within a species based on environmental conditions. But even so, it's easy enough to look at the idea behind the technology and see a path forward towards selective spraying.



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