

Modification of a commercial PWM sprayer control system for precision farming application

ABSTRACT

The control system of a commercial sprayer was modified for variable rate control of 12 individual solenoid shut off valves spaced 0.5 m apart on a sprayer boom. The variable-rate control system consisted of pulse width modulation (PWM) solenoids, a by pass control valve, and nozzle control system interfaced to a computer. An algorithm was developed to vary application rate across the booms with computing the best possible combinations of pulse width at the optimal boom through the computer control program for nozzles. This algorithm compensates inaccuracy of applying desired application rate due to pressure fluctuations across the booms.