

An algorithm for pulsed activation of solenoid valves for variable rate application of agricultural chemicals

ABSTRACT

An alternative algorithm to Pulse Width Modulation (PWM) for pulsed activation of solenoid valves for applying chemicals through agricultural sprayer nozzles is presented. Solenoid valves attached to individual spray nozzles on a modified EMDEK tractor-mounted sprayer system are activated by electronic pulsation to vary the application rate of agricultural chemicals, varying the output by location according to Geographical Information System (GIS) data and a GPS system. A potential advantage of this alternative algorithm over pulse width modulation based systems is the use of lower-cost industrial solenoid valves with slower opening and closing times instead of the more expensive high speed valves normally used in PWM systems.