

GS 2 Swath Control Pro Settings Quick Sheet

Ground Speed (mph)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (feet)	Distance traveled per GPS update (inches)
2 mph	1	2.93	7.04
	2	5.87	
	3	8.80	
	4	11.73	
	5	14.67	
	10	29.33	
4 mph	1	5.87	14.08
	2	11.73	
	3	17.60	
	4	23.47	
	5	29.33	
	10	58.67	
6 mph	1	8.80	21.12
	2	17.60	
	3	26.40	
	4	35.20	
	5	44.00	
	10	88.00	
8 mph	1	11.73	28.16
	2	23.47	
	3	35.20	
	4	46.93	
	5	58.67	
	10	117.33	
10 mph	1	14.67	35.20
	2	29.33	
	3	44.00	
	4	58.67	
	5	73.33	
	10	146.67	
12 mph	1	17.60	42.24
	2	35.20	
	3	52.80	
	4	70.40	
	5	88.00	
	10	176.00	
14 mph	1	20.53	49.28
	2	41.07	
	3	61.60	
	4	82.13	
	5	102.67	
	10	205.33	
16 mph	1	23.47	56.32
	2	46.93	
	3	70.40	
	4	93.87	
	5	117.33	
	10	234.67	
18 mph	1	26.40	63.36
	2	52.80	
	3	79.20	
	4	105.60	
	5	132.00	
	10	264.00	
20 mph	1	29.33	70.40
	2	58.67	
	3	88.00	
	4	117.33	
	5	146.67	
	10	293.33	

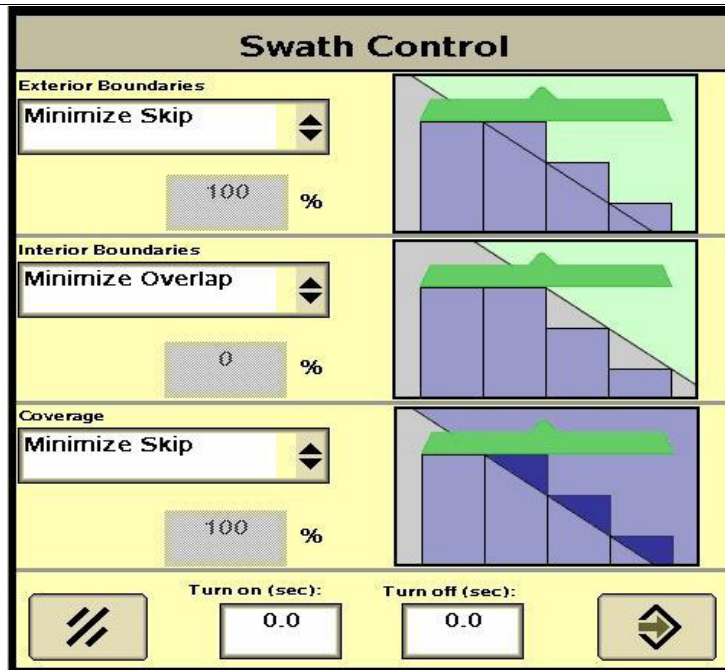
Understanding Swath Control settings:

The Swath Control Turn On and Turn Off Settings are to compensate for average physical machine reaction time delays (Electrical & Mechanical). Keep in mind that the reaction time ratio does NOT necessarily increase as ground speed increases. The physical reaction time delay remains constant for that machine configuration, the machine just travels more or less distance while the reaction is taking place at different ground speeds. If the time is set to 0.0 seconds (turn on or turn off) the command signal to trigger the valves will not be sent until the controlling portion of the implement or boom section reaches the boundary or previously covered area. (minimum overlap, minimum skip, or percentage) This is usually termed as the machine is reacting too late.

As you increase the values (turn on or turn off seconds) the command will be sent sooner in relation to the boundary or coverage area. If your turn on time is 1.0 second, the command will be sent 1.0 second before the boom reaches the boundary or previously covered area. These values have little effect on what is seen on the GS 2 screen, the values only control the command trigger times for the valves. The more constant the speed is kept when entering and exiting coverage and boundary areas, the more accurate swath control will become. Accelerating and decelerating quickly has the potential to induce issues as the times are associated to the vehicles travel speed. If the machine speed is drastically changing while crossing over the coverage or boundary control point, the machine physically cannot react accordingly. (See section 55 of the GS 2 Basics Operators Manual for further information.)

Planters:

On average, most row crop planters generally set a turn off time between 0.0 to 0.3 seconds and a turn on time between 0.5 to 1.0 seconds. Planters average 4 to 7 mph while planting and have very minimal machine electrical clutch reaction delay times. (Under 0.8 seconds usually) The largest delay time is usually from the time the seed leaves the meter disk, travels in the seed tube, and reaches the soil. At a 6 mph planting speed, you will travel 8.8 ft. in one second. That's 10.56 inches of travel distance every one-tenth of a second. *(Example - Entire seed delay time from the switch being pressed in the cab, the clutch stops, the seed meter stops, and all the seed has reached the soil; time elapsed 0.8 seconds)* You can see that changing from 0.2 to 0.8 seconds on the look ahead time can dramatically change the location of your seed placement when turning on or turning off.



Sprayers:

At 16 mph in a self propelled sprayer, the **average** physical reaction time of the system (*turn off command at the hydro handle, the boom valve reacts and turns off, liquid flows out of the boom freely until the check valve pressure is met*) is under 1.5 seconds. The liquid will continue to fall to the crop canopy past the 1.5 seconds so the physical overall operational reaction time could reach approximately 2 - 3 seconds in total. If you refer to the chart on the left, you will see that in two seconds of time at 16 mph, the self propelled sprayer travels 46.93 feet. The GS 2 display allows an operator to set the turn off and turn on time to their average machine reaction delay time (ie... 1.5 seconds mentioned above).

If there is 1.5 seconds of machine reaction time before spray completely stops flowing, you will want to begin with a 1.5 to 2.5 second turn off time. As a rule of thumb, it takes a liquid handling system **longer to react when turning on** than when turning off due to liquid pressure differentials, so many times the turn on time is slightly greater than the turn off time. Keep in mind that your ground speed only affects the distance traveled while the machine reaction delay is taking place and that the distance traveled will vary between turn on and turn off times and from operator to operator.