Commonly Used Formulas

Acres per Minute

FORMULA: Acres per Minute= $0.00202\ x\ swath\ width\ x\ miles\ per\ hour$

Example: Airspeed of 100mph using a 40ft swath will cover 8 acres per minute.

$$0.00202\ x\ 40\ x\ 100 = 8.08$$

To find the flow rate in gallons per minute (gpm) or pounds per minute (lb. /min) multiply the acres per minute by the number of gallons per acre or pounds per acre.

Example: If 2 gallons per acre (GPA) of spray is to be applied. Multiply GPA by Acres per minute.

$$2gpa\ x\ 8.08\ acres\ per\ minute = 16.16\ gallons\ per\ minte$$

Results: To apply 2 GPA at 8.08 acres per minute would require nozzle configuration that would flow 16.16gpm

Same can be applied for Dry material.

Example: If 10 pounds per acre (lb. /acre) are to be applied. Multiply lb. /acre by acres per minute.

$$10\ lbs\ per\ acre\ \ x\ 8.08\ acres\ per\ minute = 80.8\ lbs\ per\ minute$$

Results: To apply 10 lb. /acre at 8.08 acres per minute would require a gate box setting that would flow 80.8 lbs. /min

Below is a quick chart that shows the flow rates in Acres per Minute for wet or dry material when the swath width and speed of aircraft are already known.

Speed (mph)	30ft swath	40ft swath	50ft swath	60ft swath	70ft swath	80ft swath	90ft swath	100ft swath
100mph	6.06	8.08	10.1	12.12	14.14	16.16	18.18	20.2
110mph	6.66	8.88	11.11	13.33	15.55	17.77	19.99	22.22
120mph	7.27	9.69	12.12	14.54	16.96	19.39	21.81	24.24
130mph	7.87	10.50	13.13	15.75	18.38	21.00	23.63	26.26
140mph	8.48	11.31	14.14	16.96	19.79	22.62	25.45	28.28
150mph	9.09	12.12	15.15	18.18	21.21	24.24	27.27	30.3
160mph	9.69	12.92	16.16	19.39	22.62	25.85	29.08	32.32
170mph	10.30	13.73	17.17	20.60	24.03	27.47	30.90	34.34

For swath widths or airspeeds other than those shown in the above chart use the formulas to calculate.