



Commonly Used Formulas

Hectare per Minute

FORMULA: Hectare per Minute = $0.00167 \times \text{swath width} \times \text{Kilometer per hour}$

Example: Airspeed of 160km/h using a 12m swath will cover 3.21 Hectare per minute.

$$0.00167 \times 12 \times 160 = 3.21$$

To find the flow rate in liters per minute (l/min) or Kilograms per minute (kg /min) multiply the Hectares per minute by the number of liters per hectare or Kilograms per Hectare.

Example: If 7 liters per hectare (l/ha) of spray is to be applied. Multiply l/ha by Hectares per minute.

$$7 \text{ liters} \times 3.21 \text{ hectares per minute} = 22.47 \text{ liters per minute}$$

Results: To apply 7 l/ha at 3.21 hectares per minute would require nozzle configuration that would flow 22.47lpm

Same can be applied for Dry material.

Example: If 4.5 kilograms per hectare (kg/ha) are to be applied. Multiply kg/ha by hectare per minute.

$$4.5 \text{ kg/ha} \times 3.21 \text{ hectare per minute} = 14.45 \text{ Kilograms per minute}$$

Results: To apply 4.5 kg/ha at 3.21 hectare per minute would require a gate box setting that would flow 14.45 kg/min

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

Speed (km/h)	9m swath	12m swath	15m swath	18m swath	21m swath	24m swath	27m swath	30m swath
160 km/h	2.40	3.21	4.01	4.81	5.61	6.41	7.21	8.02
170 km/h	2.55	3.41	4.26	5.11	5.96	6.81	7.66	8.52
180 km/h	2.70	3.61	4.51	5.41	6.31	7.21	8.12	9.02
190 km/h	2.86	3.81	4.76	5.71	6.66	7.61	8.57	9.52
200 km/h	3.00	4.01	5.01	6.01	7.01	8.02	9.02	10.02
210 km/h	3.16	4.21	5.26	6.31	7.36	8.42	9.47	10.52
220 km/h	3.31	4.41	5.51	6.61	7.71	8.82	9.92	11.02
230 km/h	3.46	4.61	5.76	6.91	8.07	9.22	10.37	11.52

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