

Derivation of the 495 constant in the boom flow formula:

$$\text{Flow required for boom (GPM)} = \frac{\text{GPA} \times \text{MPH} \times \text{Boom Width (ft)}}{495}$$

$$\frac{\text{gal.}}{\text{acre}} = \frac{\text{gal.}}{\text{min.}} \times \frac{\text{hour}}{\text{miles}} \times \frac{1}{(\text{BW}) \text{ ft.}} \times \frac{60 \text{ min.}}{\text{hour}} \times \frac{\text{mile}}{5280 \text{ ft.}} \times \frac{43,560 \text{ ft}^2}{\text{acre}}$$

(GPA) (GPM) (MPH) Boom Width

$$\text{GPA} = \frac{\text{GPM} \times 60 \times 43560}{\text{MPH} \times \text{BW} \times 5280} = \frac{495 \times \text{GPM}}{\text{MPH} \times \text{BW}}$$

Now rearrange it!

$$\text{GPM} = \frac{\text{GPA} \times \text{MPH} \times \text{BW (ft)}}{495}$$

**Derivation of the 5940 constant
in the application rate formula:**

$$\text{GPA} = \frac{\text{GPM} \times 5940}{\text{MPH} \times W}$$

$$\frac{\text{gal.}}{\text{acre}} = \frac{\text{gal.}}{\text{min.}} \times \frac{\text{hour}}{\text{miles}} \times \frac{1}{(W) \text{ in.}} \times \frac{60 \text{ min.}}{\text{hour}} \times \frac{\text{mile}}{5280 \text{ ft.}} \times \frac{12 \text{ in.}}{\text{ft.}} \times \frac{43,560 \text{ ft}^2}{\text{acre}}$$

(GPA) (GPM) (MPH) (W)

$$\text{GPA} = \frac{\text{GPM} \times 60 \times 12 \times 43560}{\text{MPH} \times W \times 5280} = \frac{\text{GPM} \times 5940}{\text{MPH} \times W}$$