



FIELD CALCULATION BASICS, QA INDEPENDENT CHECKS OF CALCULATIONS

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WHEN YOU NEED TO BE SURE

SGS



- Speed of Application
- Boom Output
- GPA
- Test Substance Requirements
- Other Spray Mix Components, i.e. adjuvant, AMS



SPEED OF APPLICATION

Speed is represented in ft/sec

Calibration Pass/total sec

i.e. 50 ft in 8.9 sec = 5.6 ft/sec



BOOM OUTPUT

Boom Output is calculated in ml/sec

Total Boom Output (sum of output from all nozzles) divided by catch time in seconds generates ml/sec

Example: A three nozzle boom has average readings from three runs of Nozzle 1: 295 Nozzle 2: 290 Nozzle 3: 290 equals total output of 875 ml.

Calibration catch time of 30 seconds.

—————→ 875 ml output/30 seconds = 29.17 ml/sec

GPA Calculation Formula

$$\frac{\text{Output (ml/sec)} * 43560 \text{ ft}^2/\text{A}}{3785 \text{ ml/gal} * \text{boom width (ft)} * \text{speed (ft/sec)}}$$





TEST SUBSTANCE AI AND TEST SUBSTANCE REQUIRED AMOUNT

- **Test Substance AI will typically be indicted in the protocol**
- **Convert AI per gallon into ml product per acre**

$$\frac{\text{lb ai}}{3785 \text{ ml}} = \frac{\text{lb ai (protocol rate)}}{\text{x ml prod per acre}}$$

If product is 4 lb ai/gal and protocol rate is .25 lb ai/A

$$3785 \text{ ml} * .25 \text{ lb ai (protocol rate)} / 4 \text{ lb ai (lb ai/gal)} = 236.56 \text{ ml prod/A}$$

- **Calculate ml product per mix size**

$$\frac{\text{x ml prod}}{\text{GPA (ml)}} = \frac{\text{A ml prod}}{\text{mix size (ml)}}$$

If GPA is 20, 236.56 ml prod/A and mix size of 3000 ml then

$$236.56 \text{ ml prod per A} * 3000 \text{ ml mix} / 75,700 \text{ ml (20 GPA)} = 9.37 \text{ ml prod per mix}$$

FINAL RATE CALCULATION

- Follow Same Procedure as Test Substance Mixing
- Calculate Speed in ft/sec
- Calculate Boom Output in ml/sec
- Calculate GPA
- Divide Actual GPA by Calibrated GPA to determine percentage of application

IMPORTANCE OF INDEPENDENT VERIFICATION

- Critical to Ensure Accuracy of Mixing
- Necessary to Guarantee Accuracy of Audit
- Necessary to Guarantee Accuracy of Application
- Assists PFI in Performing Quality Application



