

Practical Skills and Safety in Agricultural Applications

John Coyle

Ark Valley Weed Management and Consulting, LLC

Practical Skills

- Calibration
- Pesticide Mixing



The Importance of Calibration

- Safety
- Minimizes impact on environment
- Maintains efficient cost of operation
- Assures compliance with label
- Helps combat herbicide resistance (metabolic resistance)

Issues with Calibration

- Sprayer movement
 - take bandwidth while driving

External factors affecting calibration

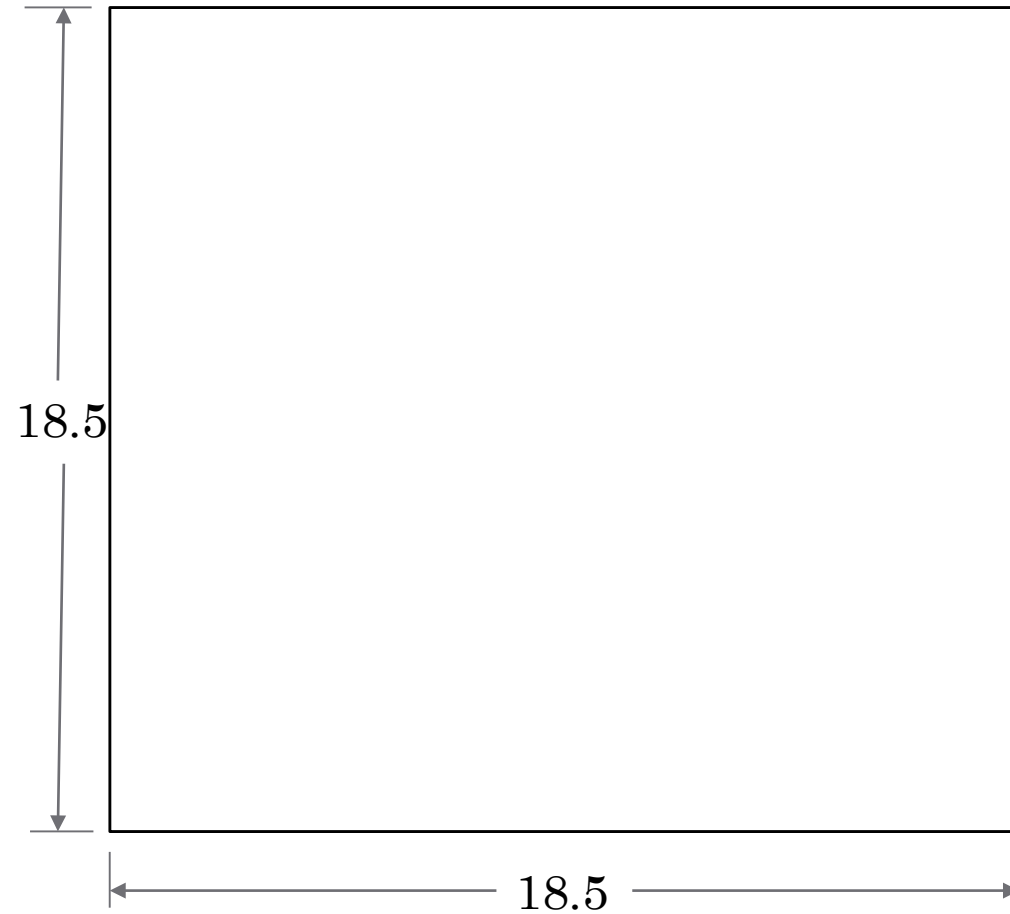
- Wind – boomless vs boom

Methods of Calibration

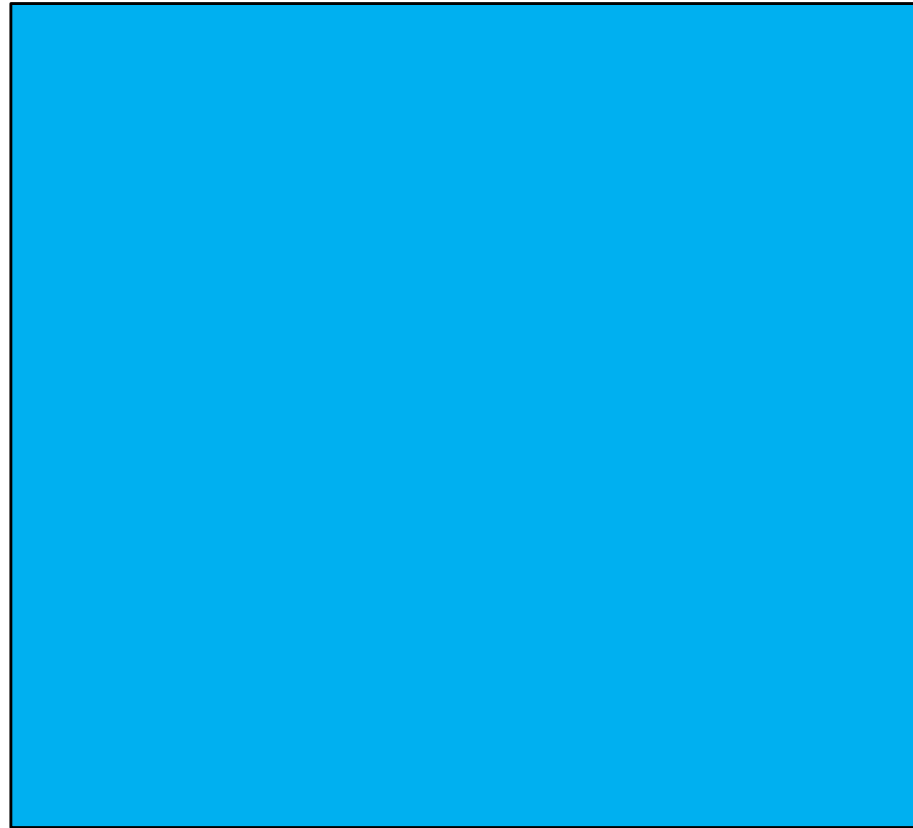
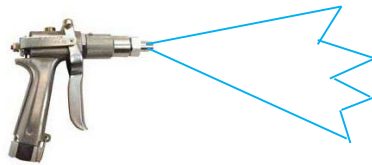
- 1/128th Method for hand spraying
- Ounce Method for boom/boomless spraying
- Calibration Calculators

1/128th Calibration Method

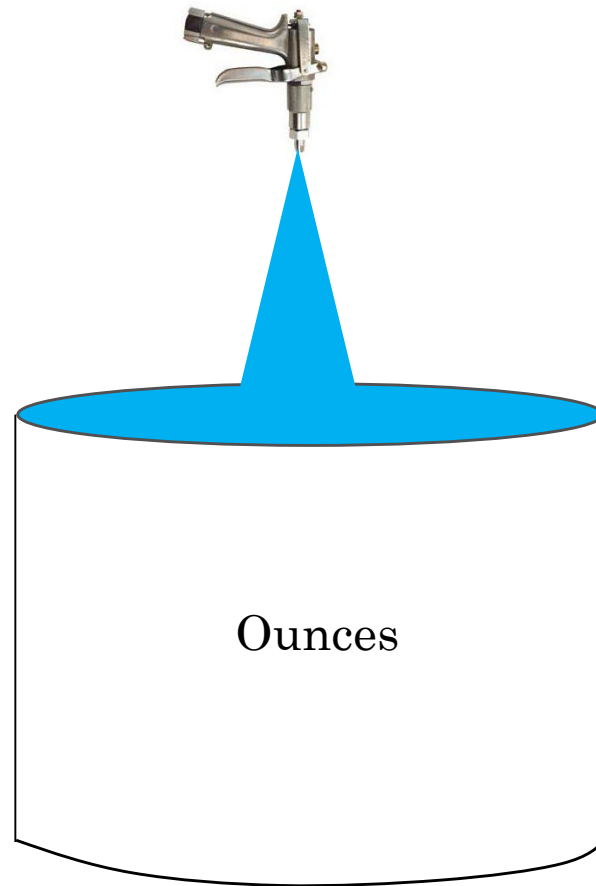
The 1/128th Method



The 1/128th Method



1/128th Method

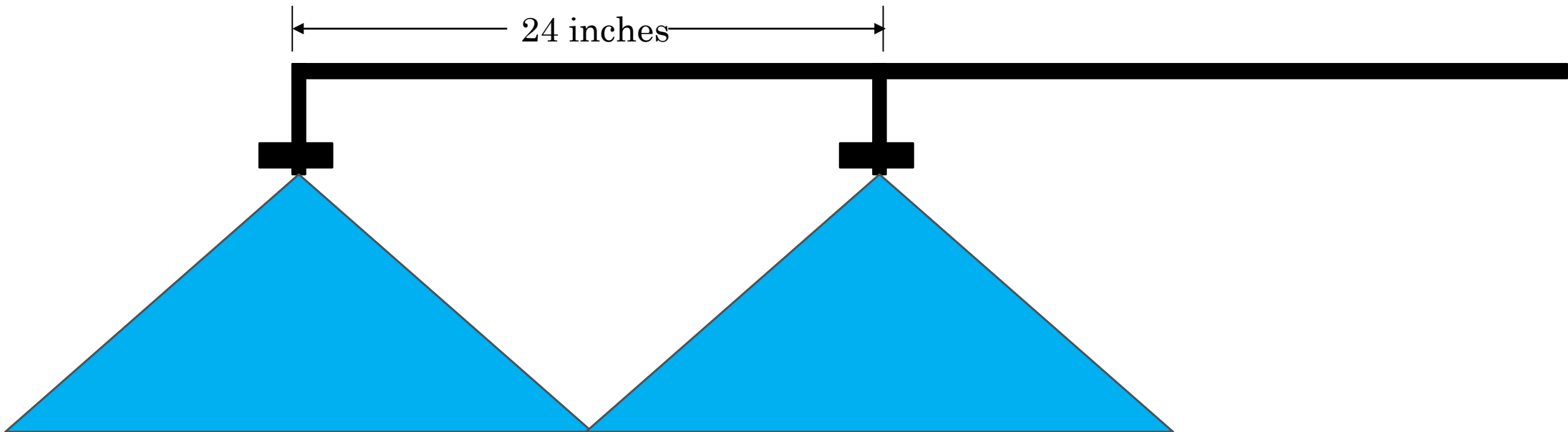


1/128th Method

Ounces collected = gallons per acre

Ounce Calibration Method

Determine Nozzle Spacing



Determine Distance to Drive From Nozzle Space

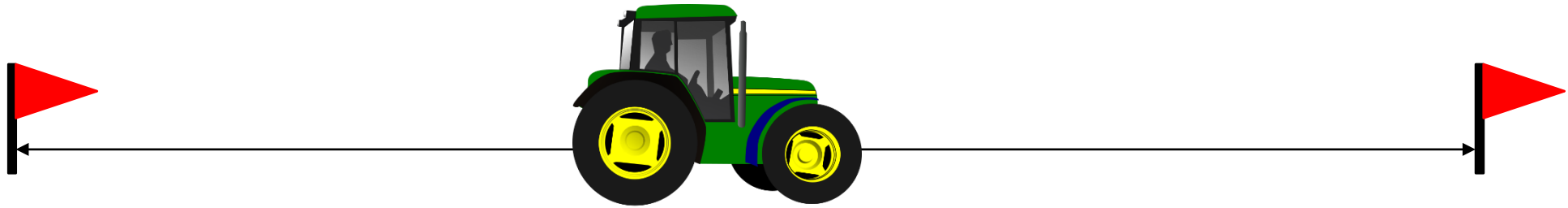
Driving Distance For Ounce Calibration Method

Row Width or Nozzle Spacing (in.)	Driving Distance (ft.)
40	102
38	107
36	113
34	120
32	127
30	136
28	146
26	157
24	170
22	185
20	204
18	227
16	255
14	291

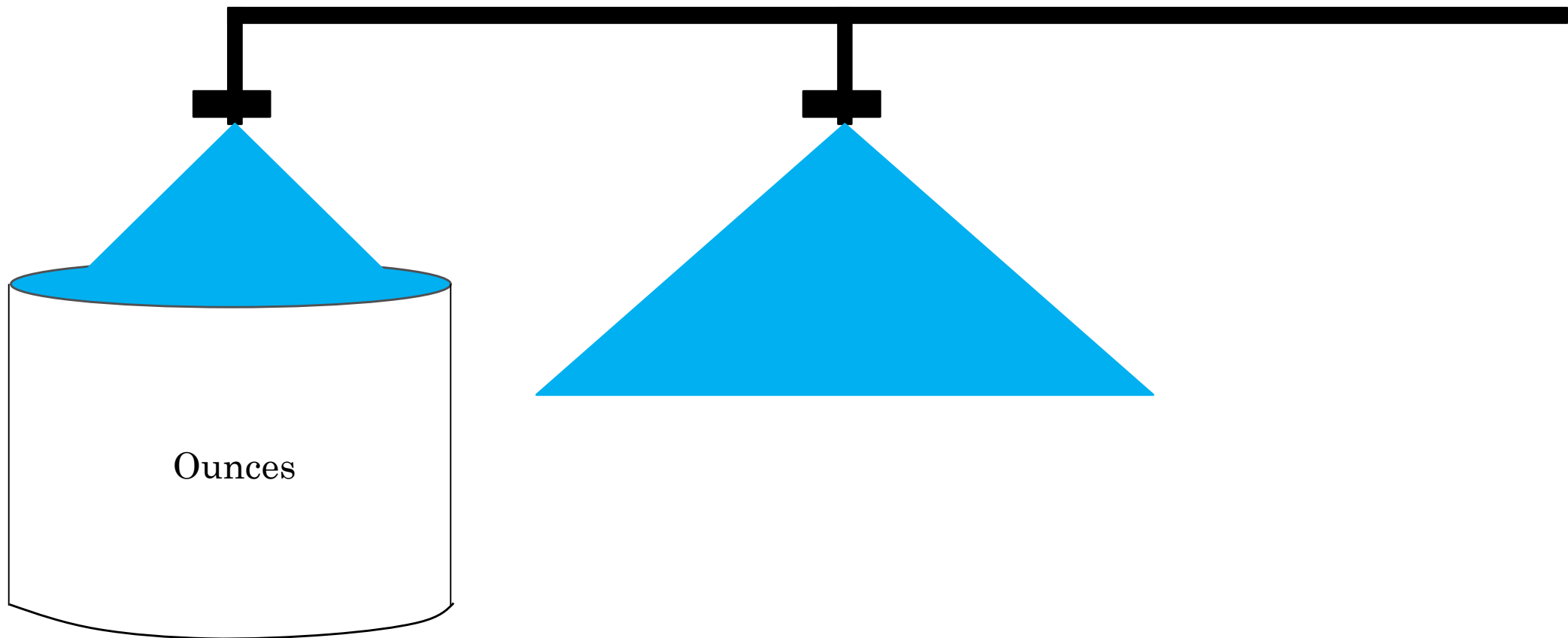
Flag Distance



Time Distance to Drive at Spraying Speed (3x)



Collect Spray From All Nozzles



Ounce Calibration Method

Ounces collected = gallons per acre

Using a Calibration Calculator

Pick the Variable to Solve For

Optimize your spraying application with our easy to use calibration calculator:

TeeJet

Spray Calculator

1. Select units of measure:

US Metric

2. Select the type of spraying application to calibrate:

Broadcast Banded/Boomless Directed

3. Choose one of the following 4 variables to solve for:

Nozzle Flow Rate

Sprayer Speed

Application Rate

Spray Width

Next >

Enter Known Quantities

Optimize your spraying application with our easy to use calibration calculator:

TeeJet *Spray Calculator*

Calculate:
Application Rate(US) for Banded/Boomless spray applications.

Enter the flow rate per spray nozzle at your desired operating pressure:

GPM Oz./second

Enter the speed of your sprayer:

MPH FPS

Enter the width of your spray band:

Inches

APPLICATION RATE:

Solve

Optimize your spraying application with our easy to use calibration calculator:

TeeJet *Spray Calculator*

Calculate:
Application Rate(US) for Banded/Boomless spray applications.

Enter the flow rate per spray nozzle at your desired operating pressure:

GPM Oz./second

Enter the speed of your sprayer:

MPH FPS

Enter the width of your spray band:

Inches

APPLICATION RATE: **11 GPA**

The Basics of Pesticide Mixing

Safety

- Be aware of your surroundings
 - Away from possible water contamination sites
 - Away from general public
 - Away from sensitive plant species
- Consult the label for the proper PPE and mixing instructions
- Maintain an air gap
- Incompatible herbicides clogging sprayer

Proper Mix Order

- Always consult the label on how to mix the herbicide
- Order matters!
- Remember agitation

Mixing to Combat Resistance

- Multiple modes of action significantly decrease chances of developing herbicide resistance
- Using pesticide combinations to lower existing resistance
 - Insecticide/herbicide
 - Herbicide combinations

Questions/Comments