Pesticide drift reduction through parts selection and calibration.

Brief History

- G & R Ag Products was originated in September 1986 by
- Rick Gray and Curt Ruehl.
- Rick and Curt were both employed by Ace Supply Inc.
- Rick and Curt both felt there was a need for other products and services in the Northwest and decided to create their own business.
- G & R Ag Products first site was located at 4814 E Hwy 20-26, Caldwell The business opened its doors in 1986 with four employees. A couple years later, G & R had a salesman in Eastern Idaho and Western Washington.
- In 1989, they started a shop to manufacture their own line of sprayers (skids, front mounts, 3 points, side mounts, etc.) and a service department for the self propelled sprayers.
- In December 1995, G & R moved to their current location at 906 Simplot Boulevard in Caldwell.
- In November 1991, Rick and Curt opened their second location in Pasco, Washington.

Parts and Service

A fully stocked Parts department
And fully staffed Service department

- **G & R** can accommodate all of your Spray Equipment and Fertilizer Application needs

- At **G & R** ***"Service Is Our Specialty"***

G&R Ag Products, Inc.

Self Propelled Sprayers

APACHE by ET SPRAYERS

Tractor Mount Sprayers

BESTWAY Sprayers

Pull Type Sprayers

3 point Sprayers

jacto

Air Blast Sprayers

Air Cannon Sprayers

G&R Ag Products, Inc.

Custom 3 point

Side and Front Mount

Pull Type Spreaders

2 to 8 Ton Pull Type Spreader Carts

12’ to 26 ‘
Pull Type
Or
Truck Mount
Compost
Spreaders

2 Ton
to
14 Ton
Spreader Carts

G&R Ag Products, Inc

Tenders

Loading Equipment

WACKER NEUSON

Articulated Wheel Loader

Skid Steers

All Wheel Drive Dumpers

All Wheel Steer Loader

Storage and Nurse Tanks

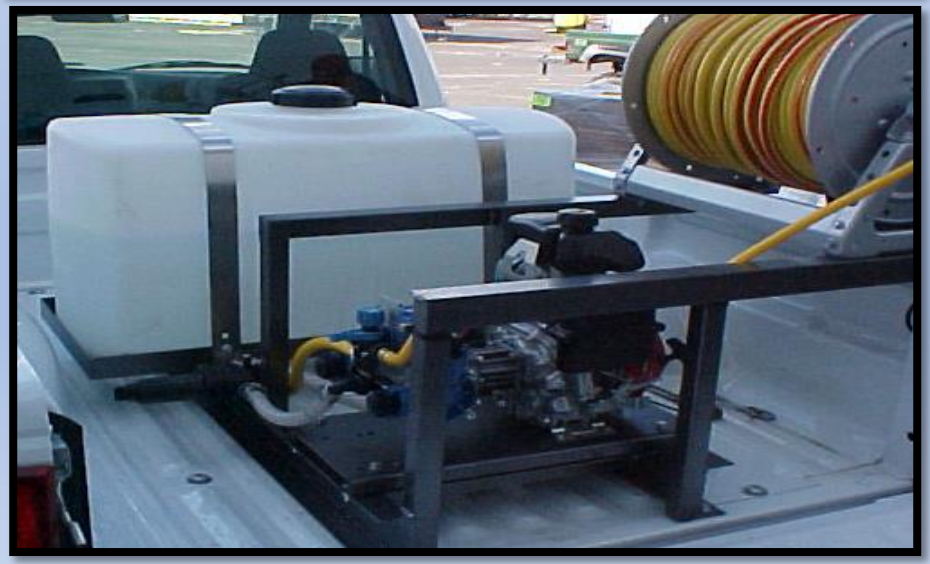
SNYDER INDUSTRIES, INC.

Ace Roto-Mold H_2O
A DIVISION OF DEN HARTOG INDUSTRIES, INC.

G&R Ag Products, Inc

Custom built sprayers

LIL SPOT SPRAYERS



Pumps

G&R Ag Products, Inc

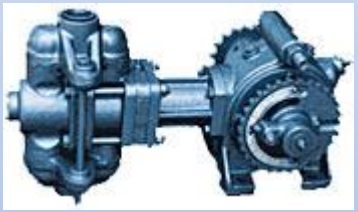
SHURflo
First in Fluid Innovation

HYPRO

ACE PUMPS

Jaeco Fluid Systems, Inc.

CDS-JOHN BLUE COMPANY



BANJO

Valves

Strainers, Fittings, Nozzles

G&R Ag Products, Inc

BANJO

TeeJet TECHNOLOGIES

Spray Controllers and Consoles

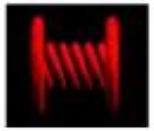
G&R Ag Products, Inc

RAVEN

TeeJet TECHNOLOGIES

G&R Ag Products, Inc

MANUFACTURES REPRESENTED BY G & R AG. PRODUCTS



B-B Trailers
Behnke Enterprises, Inc.

G&R Ag Products, Inc

New for 2018

Spray drift

Spray Drift Factors

- **Weather Conditions** – Read the Wind
  - What's downwind?
    Direction
  - How far will it move?
    Speed
    - 0-3 mph:
      could be very stable with airflow, just not sure which direction the air is moving
    - 3-7 mph:
      manage for off-target movement downwind
    - >7 mph:
      carries more material off-target

It's Just Common Sense

- Avoid adverse weather conditions:

  High winds, inversions, calm air.

  Spray when conditions are favorable

- Use buffer zones: This is a tough area for applicators as to the size of the buffer zone and achieving "on target" coverage.

- **A good drift management plan will include multiple strategies from a list of "Best Practices"**

Drive the speed Calibrated for

- The “rule” applicators should remember is that to double the flow from a given nozzle size, they will need to increase the pressure four-fold.

- Example: Applicator calibrated going

8 mph at 30 psi and changes going to 16 mph..

This will cause the pressure to increase to 120 psi.

Steady as She Goes

- Most applicators are using electronic rate controllers to apply crop protection products. The purpose of a rate controller is to make the application volume uniform.

- What most don't realize is that any speed change will affect the spray pressure.

- Higher speeds require higher pressures to deliver the correct volume. These speed changes impact droplet size.

Lowering the 'Boom' on Spray Drift

- The height of the boom above the target is based on nozzle spacing and overlap requirements for uniform applications.
- The **'rule of thumb'** for boom height in the industry has been 1:1.
- 20 inch nozzle spacing would require a 20 inch boom height above the target area of application.
- This rule of thumb will go a long way in reducing spray drift.

Increase Flow Rates

- This has been done by applicators to achieve higher application volume.
  In general, bigger nozzles
  produce larger droplets.

- An issue here is if there is less water available to mix.
  When using less water a smaller sized nozzle is needed,
  resulting in more drift.

- Combine that with modern sprayers capable
  of higher application speeds;
  this translates to higher pressures / more drift possible.

Use Lower Pressure

- Forever the advice has been:

  Using a lower pressure will result in

  larger droplets to reduce spray drift.

NOW…..

- The higher pressures were needed to create a smaller droplet size to increase the coverage potential on the target.

  Typically more herbicide on the weed.

“Under Pressure”

- Now there are nozzles designed to reduce drift while at the same time using higher pressures.
- These Air Induction nozzles are recommended at pressures ranging from 50 to 80 even higher psi.
- Even at the higher pressure, the amount of drift is less than the previous designs at lower pressures.

Nozzle Selection

- This strategy has been used for years to reduce spray drift. With today's nozzles there are many more choices from multiple manufacturers.

- Challenge is how to best "set" the sprayer parameters – speed and pressure – So while minimizing drift, crop protection is not sacrificed.

- Best on target Application :

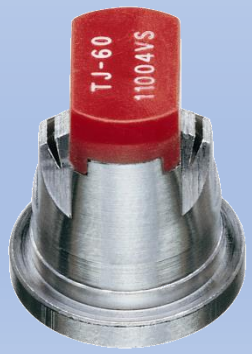
  Recommend use of Air Induction Nozzles.

Drift Control Strategies

Know your wind speed

Wind-meters

Which Spray Tip to Use????



Selecting the Right Spray Tip

1. If post-emergence, is it a contact or systemic chemical?
2. What is the crop and at what growth stage is it at?
3. What is your tolerance to drift?
4. What is the pressure range of the sprayer?
5. What is the boom height?

Selecting the proper nozzle:

Legal issues!!

Following the label!

	Herbicides		Insecticides		Fungicides	Fungicides	Drift Control
	Contact	Systemic	Contact	Systemic	Contact	Systemic	
 *Turbo TeeJet*® WIDE ANGLE FLAT SPRAY TIP	Good	Excellent		Excellent		Excellent	Excellent
 *XR TeeJet*® EXTENDED RANGE FLAT SPRAY TIP	Excellent	Excellent (At Lower Pressures)	Excellent	Excellent (At Lower Pressures)	Excellent	Excellent (At Lower Pressures)	Very Good (At Low Pressures)
 *AI TeeJet*™ AIR INDUCTON SPRAY TIP	Good	Excellent		Excellent		Excellent	Excellent
 *DG TeeJet*® DRIFT GUARD FLAT SPRAY TIP	Good	Excellent	Good	Excellent	Good	Excellent	Very Good
 *TeeJet*® STANDARD FLAT SPRAY TIP	Good	Good	Good	Good	Good	Good	
 *TwinJet*® TWIN FLAT SPRAY TIP	Excellent		Excellent		Excellent	Good	
 *Turbo FloodJet*® WIDE ANGLE FLAT SPRAY TIP		Excellent		Excellent		Excellent	Excellent
 *FullJet*® WIDE ANGLE FULL CONE TIP		Excellent		Excellent		Excellent	Excellent

Droplet size spectrums recommended for various pesticide uses

Droplet Spectrum (by ASAE S572)	Contact insecticide and fungicide	Systemic insecticide and fungicide	Contact foliar herbicide	Systemic foliar herbicide	Soil-applied herbicide	Incorporated soil-applied herbicide
Very fine VF						
Fine F	√					
Medium M	√	√	√	√		
Coarse C		√		√	√	√
Very Coarse VC					√	√
Extremely Coarse XC						√

Provided by University of Illinois

Droplet Size Categories

ASAE Standard S572*

Category	Symbol	Color Code	Dv0.1	Dv0.5 (VMD)	Dv0.9
Very Fine	VF	Red	< 57	< 144	< 274
Fine	F	Orange	57 – 111	144 - 235	274 - 415
Medium	M	Yellow	112 - 149	236 - 340	416 - 579
Coarse	C	Blue	150 - 170	341 - 403	580 - 732
Very Coarse	VC	Green	171 - 215	404 - 502	733 - 790
Extremely Coarse	XC	White	> 215	> 502	> 790

***Data extracted from American Society of Agricultural Engineers (ASAE) Standard S572. Data is an average of three laser measuring instruments (Malvern, PMS, and PDPA) and is based on the following droplet size studies:**

1) Womac, A.R., R.A. Maynard, I.W.Kirk.1999. Measurement variations in reference sprays for nozzle classification, Transactions of the ASAE 42(3):609-616

2) Womac, A.R., 2000. Quality control of standardized reference spray nozzles, Transactions of the ASAE 43(1):47-56.

Droplet Size Charts

	PSI										
	15	20	25	30	35	40	50	60	70	80	90
TT11001	C	M	M	M	M	M	F	F	F	F	F
TT110015	C	C	M	M	M	M	M	M	F	F	F
TT11002	C	C	C	M	M	M	M	M	M	M	F
TT11003	VC	VC	C	C	C	C	M	M	M	M	M
TT11004	XC	VC	VC	C	C	C	C	C	M	M	M
TT11005	XC	VC	VC	VC	VC	C	C	C	C	M	M
TT11006	XC	XC	VC	VC	VC	C	C	C	C	C	M
TT11008	XC	XC	VC	VC	VC	VC	C	C	C	C	M

XR TeeJet® (XR) and XRC TeeJet® (XRC)

	PSI						
	15	20	25	30	40	50	60
XR8001	M	F	F	F	F	F	F
XR80015	M	M	M	F	F	F	F
XR8002	M	M	M	M	F	F	F
XR8003	M	M	M	M	M	M	F
XR8004	C	C	M	M	M	M	M
XR8005	C	C	C	C	M	M	M
XR8006	C	C	C	C	C	C	C
XR8008	VC	VC	VC	C	C	C	C
XR11001	F	F	F	F	F	VF	VF
XR110015	F	F	F	F	F	F	F
XR11002	M	F	F	F	F	F	F
XR11003	M	M	M	F	F	F	F
XR11004	M	M	M	M	M	F	F
XR11005	M	M	M	M	M	M	F
XR11006	C	C	M	M	M	M	M
XR11008	C	C	C	C	C	M	M

TwinJet®

	PSI				
	30	35	40	50	60
TJ60-11002	F	F	F	F	F
TJ60-11003	F	F	F	F	F
TJ60-11004	M	F	F	F	F
TJ60-11006	M	M	M	M	M
TJ60-11008	C	M	M	M	M
TJ60-11010	C	C	C	M	M

DG TwinJet®

	PSI				
	30	35	40	50	60
DGTJ60-110015	F	F	F	F	F
DGTJ60-11002	M	M	M	F	F
DGTJ60-11003	C	M	M	M	M
DGTJ60-11004	C	C	C	C	M
DGTJ60-11006	C	C	C	C	C
DGTJ60-11008	C	C	C	C	C

Droplet size classifications are based on BCPC specifications and in accordance with ASAE Standard S-572 at the date of printing. Classifications are subject to change.

VF	F	M	C	VC	XC
Very Fine	Fine	Medium	Coarse	Very Coarse	Extremely Coarse

XR TeeJet Flat Spray Tip

VMD of XR8004VS at 40 psi ≈ 325 microns

% Driftable Fine at 40 psi: XR8004 = 5%

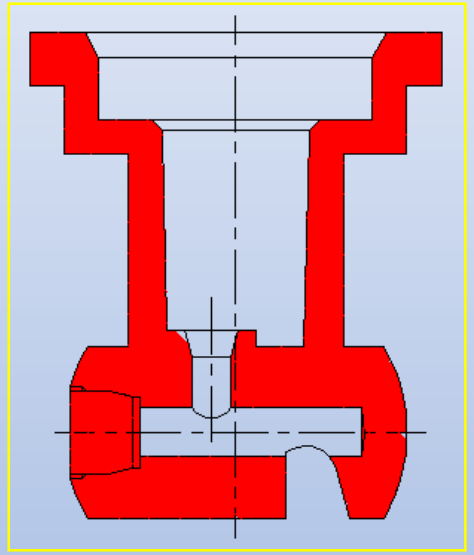
(<150 Microns) XR11004 = 14%

ASAE Classification at 40 psi - Medium

XR TeeJet Flat Spray Tip

- **Similar drop size to TP tips**
- **Lower operating pressure than TP**
  - 15 psi minimum operating pressure for XR versus 30 psi for TP
- **Available with cap (XRC)**
- **Available in 80° and 110° spray angle**
- **Available with plastic, stainless steel or ceramic orifice**
- **TP tips available with tapered, off center, and even spray patterns**

Turbo TeeJet Flat Spray Tip



VMD of TT11004VP at 40 psi ≈ 420 microns

% Driftable Fines at 40 psi: TT11004 = < 3%

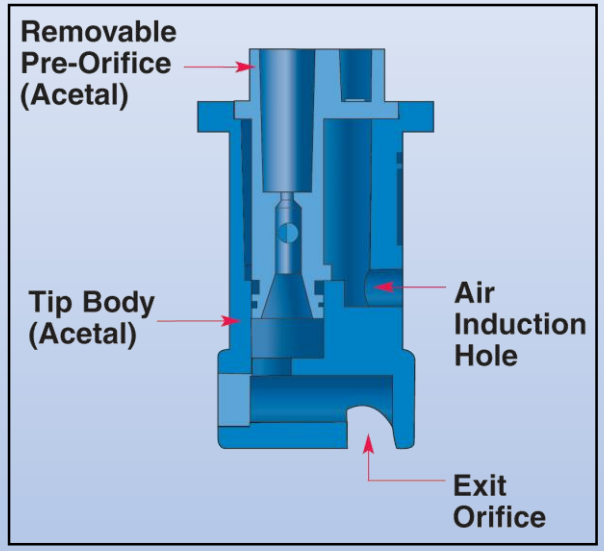
(<150 Microns)

ASAE Classification at 40 psi - Coarse

Turbo TeeJet Flat Spray Tip

- Drop size slightly bigger than XR tips but small driftable fines are significantly reduced
- Wide operating pressure; 15-90
- Available in 01 to 08 capacities
- Only available in 110° spray angle
- Only available with plastic orifice

Turbo TeeJet Induction tip



VMD of TTI11004-VP at 40 psi ≈ 825 microns

% Driftable Fines at 40 psi: TTI11004 = < 1%

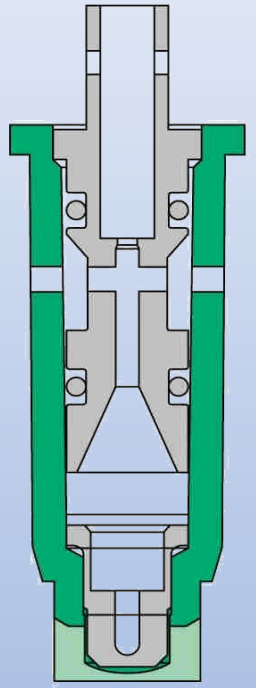
(<150 Microns)

ASAE Classification at 40 psi – Extremely Coarse

Turbo TeeJet Induction tip

- Any capacity any pressure, these tips provide Extremely Coarse (XC) droplets
- Any capacity any pressure, less than 2% of the volume is going to be in small driftable fine droplets
- Wide operating pressure; 15-100 psi
- Only available with 110° spray angle
- Only available with plastic orifice
- Uses CP25597-*-NY cap

AI TeeJet Flat Spray Tip



VMD of AI11004VS at 40 psi ≈ 603 microns

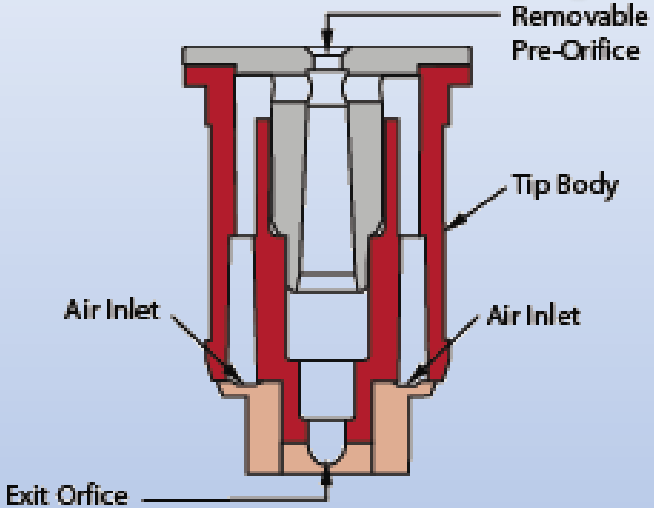
% Driftable Fines at 40 psi: AI11004VS = < 1%
(<150 Microns)

ASAE Classification at 40 psi – Extremely Coarse

AI TeeJet Flat Spray Tip

- Large air filled droplets
- Wide operating pressure; 30-100 psi
- Available with cap; AIC
- Available in 80° (VS only) and 110° spray angle
- Available with tapered, off center and even (95°) spray pattern
- Available with plastic, stainless steel or ceramic orifice (AIC only)
- Uses CP25597-*-NY cap

AIXR TeeJet Flat Spray Tip



VMD of AIXR11004VP at 40 psi ≈ 500 microns

% Driftable Fines at 40 psi: AIXR11004 = < 2%

(<150 Microns)

ASAE Classification at 40 psi - Coarse

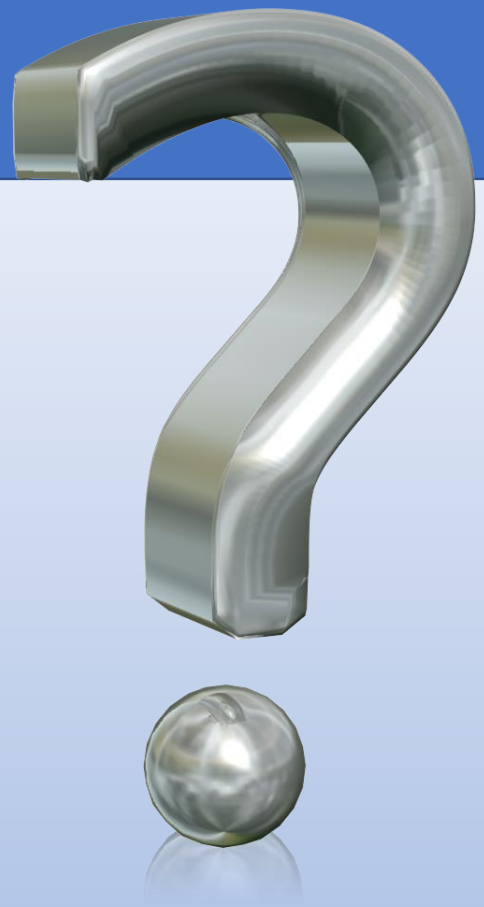
AIXR TeeJet Flat Spray Tip

- **Droplet size between TeeJet AI and TT tips**
- **2-piece all polymer construction using Ultra High Molecular Weight Polyethylene (UHMWPE)**
  - UHMWPE provides excellent wear characteristics
  - UHMWPE provides excellent chemical resistances with acids
- **Compact size (0.9 inches)**
- **Twin flange makes for easy removal of pre-orifice**
- **Wide operating pressure; 15-90 psi**
- **Available in 015 to 06 capacities**
- **Works with 25612-*-NYR Quick TeeJet caps**
- **Only available in 110° spray angle**
- **Only available with plastic orifice**

TurfJet - TTJ

- Designed to be a replacement to the Delvan RainDrop nozzle – same drop size and ¼” NPT inlet
- Superior distribution when compared to the RainDrop nozzle
- Available in stainless steel in capacities from 02 through 15
- Available in plastic in capacities 06 through 15
- Operating pressure 25-75 psi
- Normally used with QJ4676-90-1/4-NYR

G&R Ag Products, Inc.

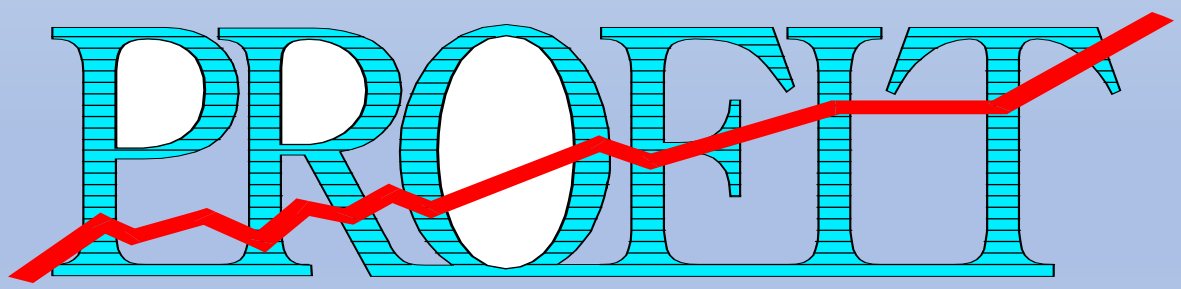


QUESTIONS

SPRAYER CALIBRATION

Why Calibrate?

- Maximizes value of chemical
- Insures legal/label rates
- Minimizes crop injury
- Minimizes pest control failure



Calibration Equipment

- Collection containers with graduated measurements
- Calculator
- Notepad and writing instrument
- Stopwatch or wristwatch with second hand
- Calibration formulas and a current nozzle manufacturer's spray guide

Calibration Equipment

- Nozzle tip cleaning brush
- One NEW tip matched to other nozzles on sprayer
- Unlined, chemical-resistant gloves

A graduated cup is used to make sure each nozzle on a boom is applying within a specified range.

Cleaning nozzles

- Clean nozzles with soft brush (an old toothbrush works well)
- Compressed air also works well for cleaning a nozzle

Gallons per minute (gpm) per tip

- Need to know:
  - Application Rate * (gpa)
  - Sprayer Speed (mph)
  - Check tip Spacing (W in inches)
    - For broadcasting spraying, W is the nozzle spacing in inches
    - For single nozzle or boomless spraying, W is the spray width
    - For directed spraying, W is the row spacing divided by the number of nozzles per row

$$\text{GPM (per tip)} = \frac{\text{GPA x mph x W}}{5940}$$

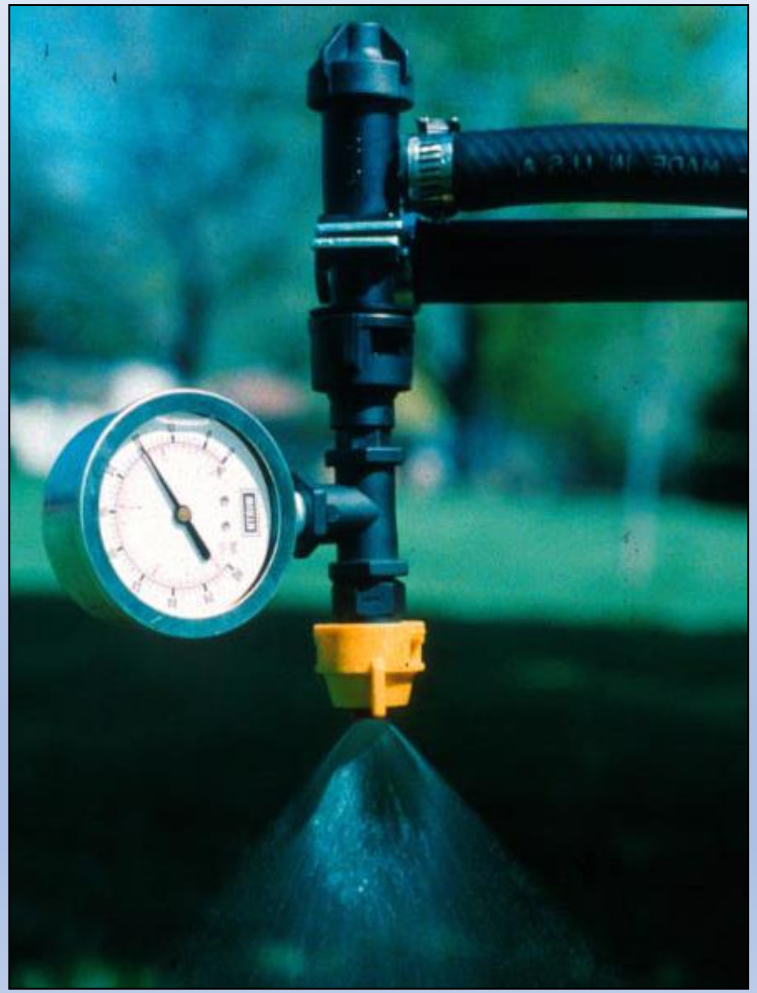
* If material density is different than water (8.34 lb/gallon), the application rate will need to be converted to an adjusted rate for nozzle selection

Timed Flow Method

- #3. Solve the GPM equation

$$GPM = \frac{gpa \times mph \times width}{5940}$$

Nozzle Flow Rate



- Flow rate helps to determine the GPA
- To double the flow through a nozzle you must increase the pressure by 4-fold
- Most nozzles use the ISO Standard for color coding of flow rate

Example calculation

Application rate = 10 GPA
Carrier = Water
Application speed = 8 mph
Tip spacing = 20”

$$\text{GPM (per tip)} = \frac{\text{GPA x mph x W}}{5940}$$

$$\text{GPM (per tip)} = \frac{10 \times 8 \times 20}{5940}$$

GPM (per tip) = 0.27 gpm

Example calculation with 28% N

Example:
Desired application rate is 10 GPA of 28% N

GPA of 28%N * Conversion Factor = GPA of Water

10 GPA of 28%N X 1.13 = 11.3 GPA of Water

Weight of Solution	Specific Gravity	Conversion Factors
7.0 lbs./gal.	.84	.92
8.0 lbs./gal.	.96	.98
8.34 lbs./gal.	1.00–WATER	1.00
9.0 lbs./gal.	1.08	1.04
10.0 lbs./gal.	1.20	1.10
10.65 lbs./gal.	1.28–28% nitrogen	1.13
11.0 lbs./gal.	1.32	1.15
12.0 lbs./gal.	1.44	1.20
14.0 lbs./gal.	1.68	1.30

Example calculation with 28% N

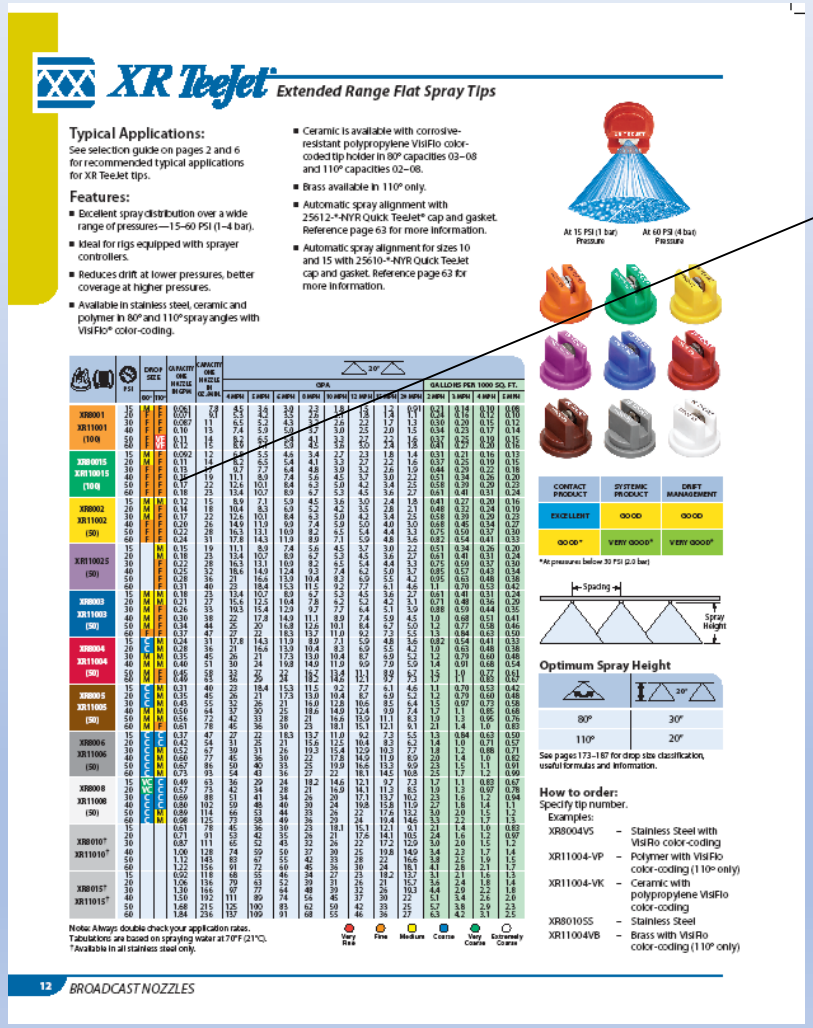
Application rate 10 gpa
Carrier 28% Nitrogen
Corrected appl. rate 11.3 gpa
Application speed 8 mph
Tip spacing 20”

$$\text{GPM (per tip)} = \frac{\text{GPA x mph x W}}{5940}$$

$$\text{GPM (per tip)} = \frac{11.3 \times 8 \times 20}{5940}$$

GPM (per tip) = 0.30 gpm of water

Weight of Solution	Specific Gravity	Conversion Factors
7.0 lbs./gal.	.84	.92
8.0 lbs./gal.	.96	.98
8.34 lbs./gal.	1.00–WATER	1.00
9.0 lbs./gal.	1.08	1.04
10.0 lbs./gal.	1.20	1.10
10.65 lbs./gal.	1.28–28% nitrogen	1.13
11.0 lbs./gal.	1.32	1.15
12.0 lbs./gal.	1.44	1.20
14.0 lbs./gal.	1.68	1.30



XR TeeJet® Extended Range Flat Spray Tips

Typical Applications:
See selection guide on pages 2 and 6 for recommended typical applications for XR TeeJet tips.

Features:
- Excellent spray distribution over a wide range of pressures—15–60 PSI (1–4 bar).
- Ideal for rigs equipped with sprayer controllers.
- Reduces drift at lower pressures, better coverage at higher pressures.
- Available in stainless steel, ceramic and polymer in 80° and 110° spray angles with VisiFlo® color-coding.
- Ceramic is available with corrosive-resistant polypropylene VisiFlo color-coded tip holder in 80° capacities 03–08 and 110° capacities 02–08.
- Brass available in 110° only.
- Automatic spray alignment with 25612-*-NYR Quick TeeJet® cap and gasket. Reference page 63 for more information.
- Automatic spray alignment for sizes 10 and 15 with 25610-*-NYR Quick TeeJet cap and gasket. Reference page 63 for more information.

CONTACT PRODUCT	SYSTEMIC PRODUCT	DRIFT MANAGEMENT
EXCELLENT	GOOD	GOOD
GOOD*	VERY GOOD*	VERY GOOD*

*At pressures below 30 PSI (2.0 bar)

Optimum Spray Height

80°	30"
110°	20"

See pages 173–187 for drop size classification, useful formulas and information.

How to order:
Specify tip number.
Examples:
XR8004VS – Stainless Steel with VisiFlo color-coding
XR11004-VP – Polymer with VisiFlo color-coding (110° only)
XR11004-VK – Ceramic with polypropylene VisiFlo color-coding
XR8010SS – Stainless Steel
XR11004VB – Brass with VisiFlo color-coding (110° only)

Note: Always double check your application rates. Tabulations are based on spraying water at 70°F (21°C).
*Available in all stainless steel only.

Very Fine · Fine · Medium · Coarse · Very Coarse · Extremely Coarse

XR8002 XR11002 (50)	20	M	F	0.14	18	10.4	8.3	6.9	5.2	4.2
	30	M	F	0.17	22	12.6	10.1	8.4	6.3	5.0
	40	F	F	0.20	26	14.9	11.9	9.9	7.4	5.9
	50	F	F	0.22	28	16.3	13.1	10.9	8.2	6.5
	60	F	F	0.24	31	17.8	14.3	11.9	8.9	7.1
XR110025 (50)	15		M	0.15	19	11.1	8.9	7.4	5.6	4.5
	20		M	0.18	23	13.4	10.7	8.9	6.7	5.3
	30		F	0.22	28	16.3	13.1	10.9	8.2	6.5
	40		F	0.25	32	18.6	14.9	12.4	9.3	7.4
	50		F	0.28	36	21	16.6	13.9	10.4	8.3
	60		F	0.31	40	23	18.4	15.3	11.5	9.2
XR8003 XR11003 (50)	15	M	M	0.18	23	13.4	10.7	8.9	6.7	5.3
	20	M	M	0.21	27	15.6	12.5	10.4	7.8	6.2
	30	M	F	0.26	33	19.3	15.4	12.9	9.7	7.7
	40	M	F	0.30	38	22	17.8	14.9	11.1	8.9
	50	M	M	0.34	44	25	20	16.8	12.6	10.1
	60	F	F	0.37	47	27	22	18.4	13.7	11.0
XR8004 XR11004 (50)	15	C	M	0.24	31	17.8	14.3	11.9	8.9	7.1
	20	C	M	0.28	36	21	16.6	13.9	10.4	8.3
	30	M	M	0.35	45	26	21	17.3	13.0	10.4
	40	M	M	0.40	51	30	24	19.8	14.9	11.9
	50	M	F	0.45	58	33	27	22	16.7	13.4
	60	M	F	0.49	63	36	29	24	18.2	14.6

When is a nozzle worn ?

- When the flow of any nozzle exceeds 10% of the rated flow, it is time to replace it
- Check each nozzle against others on the boom, and also against several new nozzles

Boomless Nozzles

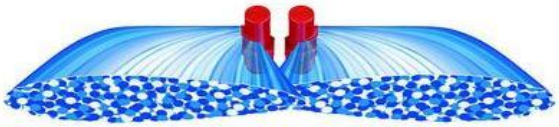
G&R Ag Products, Inc

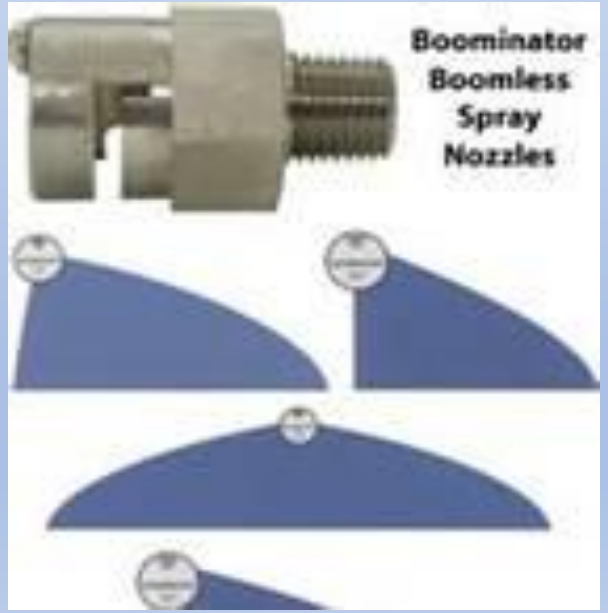
3 MOST POPULAR MANUFACTURES

BOOM BUSTER SPRAY NOZZLES

BOOMINATOR®
BOOMLESS SPRAY NOZZLES

XP BoomJet®





KNOW YOUR EFFECTIVE SPRAY WIDTH

Set height of nozzles between 12" and 36"

Measure outside to outside wettest pattern to get total spray width

Test on pavement to see how pattern evaporates to achieve effective spray width.

Flow Calibration tools

- A 5 gallon bucket with gallon markings
- A stopwatch or a wristwatch with second hand
- A calculator

Speed test

- Drive measured distance
- Use chart to determine speed

Speed chart

SPEED IN MPH	TIME REQUIRED IN SECONDS TO TRAVEL A DISTANCE OF:		
	100 Feet	200 Feet	300 Feet
1.0	68	136	205
1.5	45	91	136
2.0	34	68	102
2.5	27	55	82
3.0	23	45	68
3.5	19	39	58
4.0	17	34	51
4.5	15	30	45
5.0	14	27	41
5.5	—	25	37
6.0	—	23	34
6.5	—	21	31
7.0	—	19	29
7.5	—	18	27
8.0	—	17	26
8.5	—	16	24
9.0	—	15	23

CATCH TEST

- Have sprayer at least ½ full of liquid
- Make sure of proper pressure
- Catch amount of liquid for the time it took to drive the measured course.

EXAMPLE

Gallons per Acre = GPM x 5940
MPH X Spray width in inches

- MATERIAL COLLECTED 1 MIN.= 466oz
- 466oz DIVIDED BY 128oz = 3.64 GPM
- 3.64 GPM X 5940 = 21,621
- 5 MPH X WIDTH IN INCHES(36ft = 432in)
- 5 MPH x 432(spray width in inches) = 2,160
- NOW DIVIDE 21,621 BY 2,160 = 10 GPA

Boomless Nozzle calibration

Gallons per 1000 sq.ft. = $\frac{\text{GPM x 136}}{\text{MPH x spray width in inches}}$

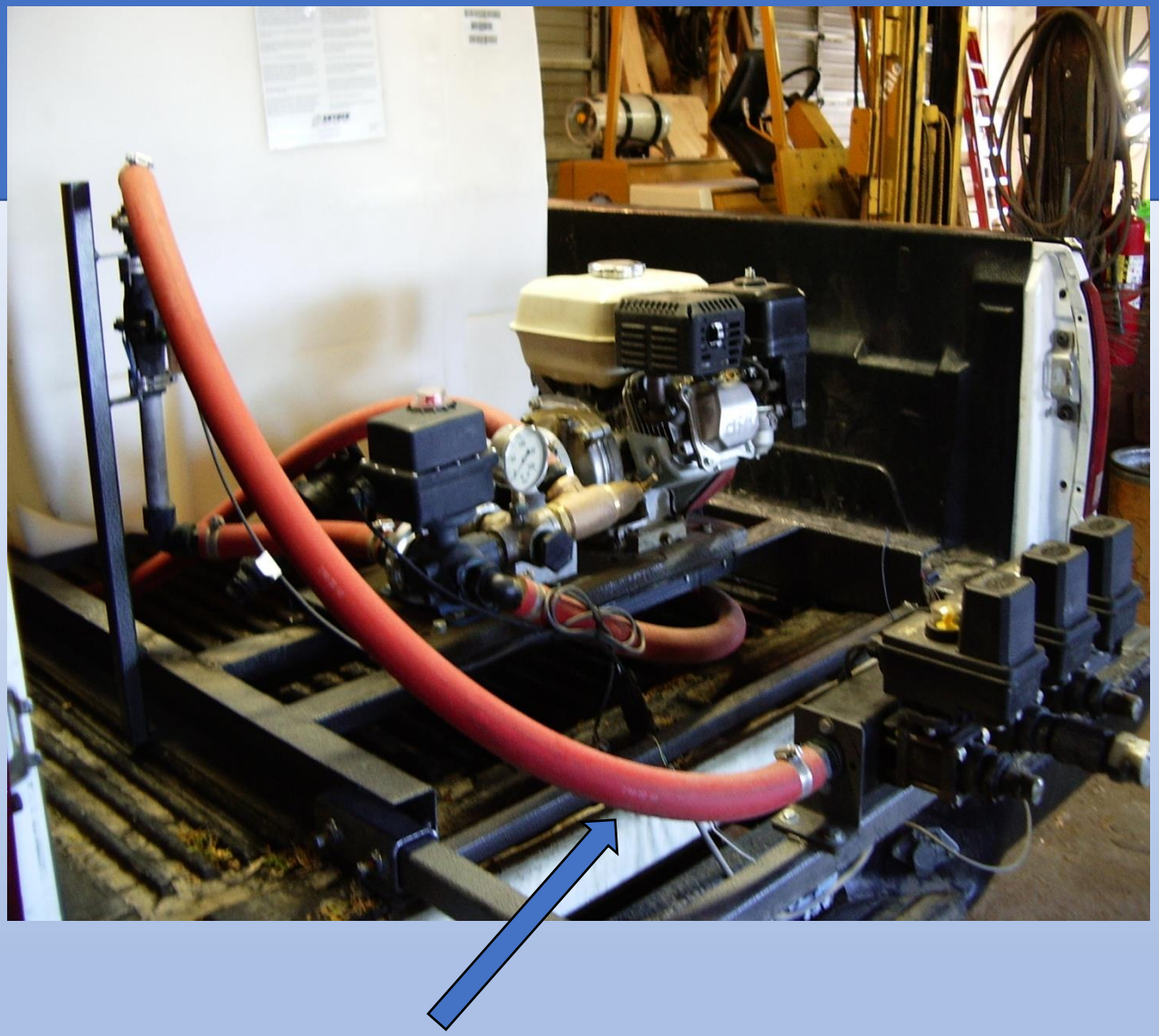
Gallons per Acre = $\frac{\text{GPM x 5940}}{\text{MPH X Spray width in inches}}$

Spray monitor calibration

- Flow meter calibration
- Distance calibration

Flowmeter calibration

- Install hose with valve off flowmeter
- Start pump operation
- Open valve on hose
- Fill bucket to 5 gallon mark



Remove hose here
add valve ,hose

Micro-trak Spray Mate II

First turn dial to here

Raven 440 monitor

Catch Test Results

- Check monitors gallons on screen
- Repeat process if it does not match change cal number according to monitor's manufacture's instructions if you still cannot get it to read the same the flow meter may be bad.
- Replace it to be accurate.

Distance Calibration

- Drive distance marked off .
- Check distance driven to what the monitor display says.
- If different reading adjust Cal. Number
- Repeat process until monitor matches.

Press this button


Turn dial to here
SprayMate II
4.7
AUTO
FLOW CAL
VOLUME (1) (2) (3)
AREA (1) (2) (3)
WIDTH CAL
MIN FLOW
VOLUME / MINUTE
DISTANCE
SPEED CAL
ADJUST RATE
TANK
AREA / HOUR
INLINE BYPASS
TARGET RATE
RATE
SPEED
TEST SPEED
AUTO MAN
CAL
RESET

Calibration Summary

- If things don’t seem right Calibrate to make sure

Calibration tools

G&R Ag Products, Inc

SpotOn®

SPRAYER CALIBRATOR

ACCURATE FLOW RATE MEASUREMENT IN SECONDS

SPECIFICATIONS | SC-1

Best for flow rates below 1 gpm typical of herbicide and insecticide application

Range & Units:	0.02 – 1.00 gpm (0.08 – 3.80 lpm)
Accuracy:	+/- 2.5%
Size:	2.25in Dia. x 9.25in H (5.7cm Dia. x 23.5cm H)
Weight:	0.52 lb (236 g)

SPECIFICATIONS | SC-4

Best for higher flow rates between 1-4 gpm typical of liquid fertilizer application

Range & Units:	0.07 – 4.00 gpm (0.27 – 15.0 lpm)
Accuracy:	+/- 4%
Size:	4in Dia. x 10in H (10.2cm Dia. x 25.4cm H)
Weight:	1.2 lb (544 g)

Every unit is hand calibrated and verified with water to assure top accuracy in the field.

FEATURES

- Quickly find worn spray nozzle tips
  Industry guidelines recommend tip replacement once flow rate exceeds that of a new tip by 10%
- Accurately measure true tip flow rate
  Today's high tech sprayers can only be properly calibrated and confirmed with this knowledge
- Fast and simple operation
  Readings in 10 seconds or less per tip
- Displays in gpm, lpm or oz/min
- JKI - Julius Kuhn-Institut Certified G 2050

Featured in the Journal of Pesticide Safety Education

The SpotOn® Sprayer Calibrator, a Digital Flow Meter: Accuracy Evaluation and Use in Pesticide Safety Education Programs

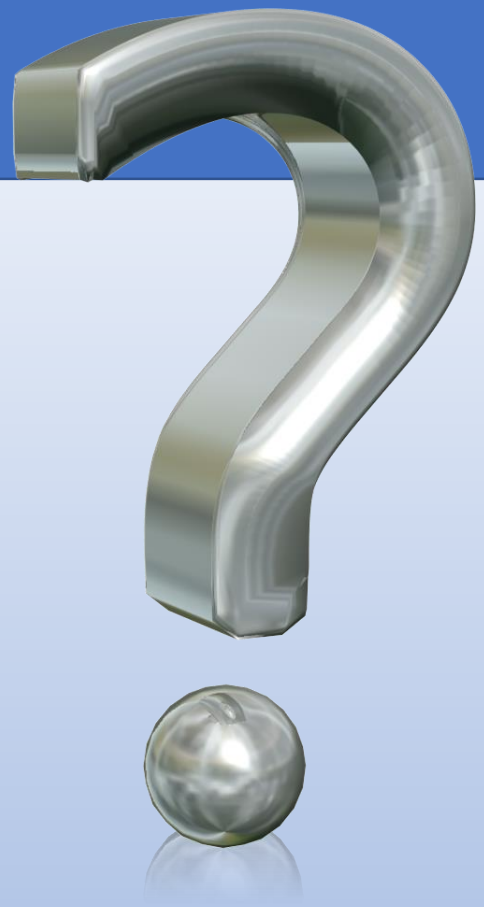
YOUTUBE.COM

Spot-on continued

Calibration Tools

Red ball tip calculator

G&R Ag Products, Inc.



QUESTIONS

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Thank you !