

SPRAY TECHNOLOGY UPDATE: BOOM HEIGHT

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Sprayers 101 



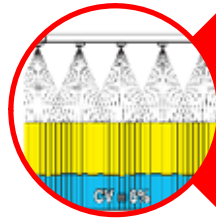
Nozzle Tasks



Meter



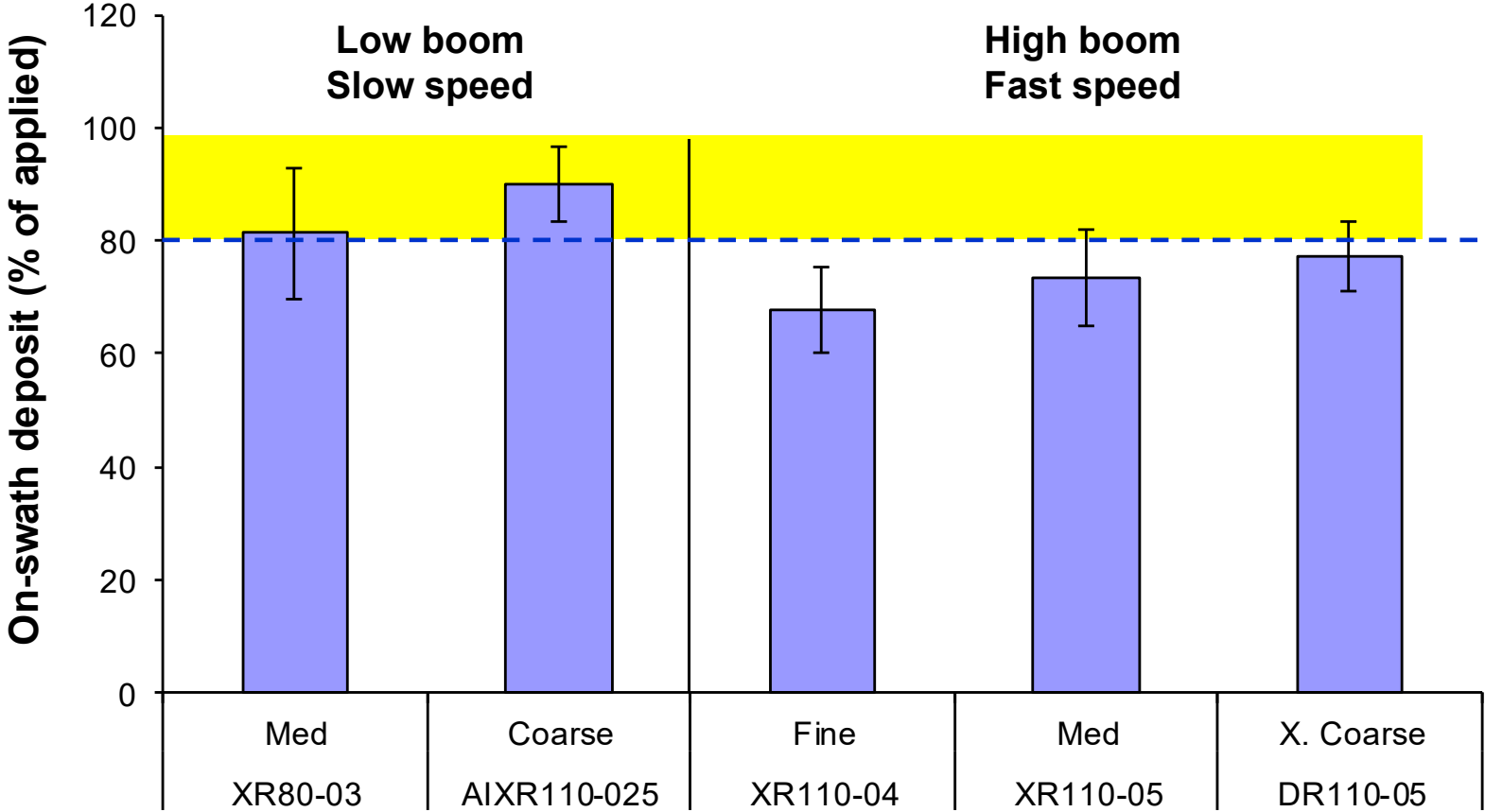
Atomize



Distribute

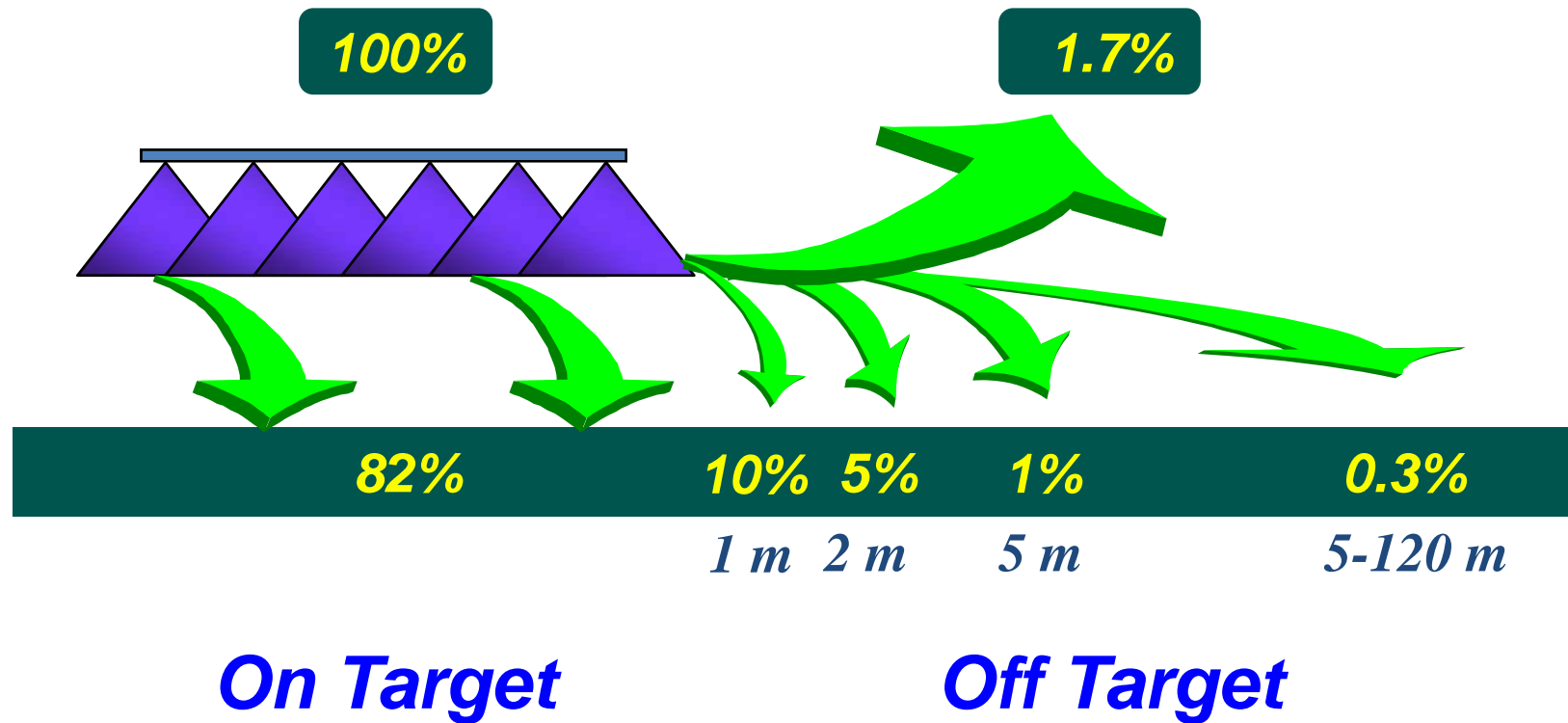


On-Swath Deposit

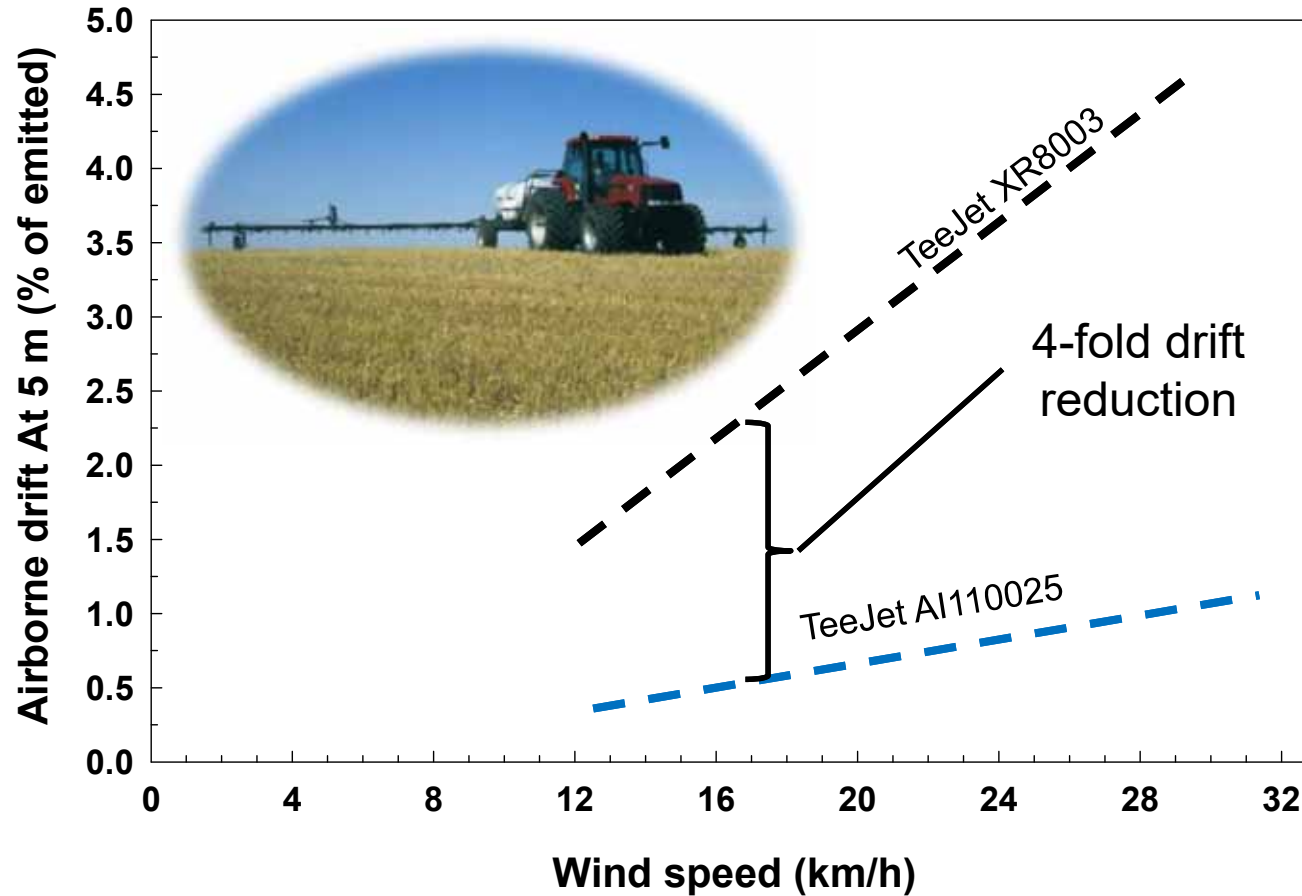




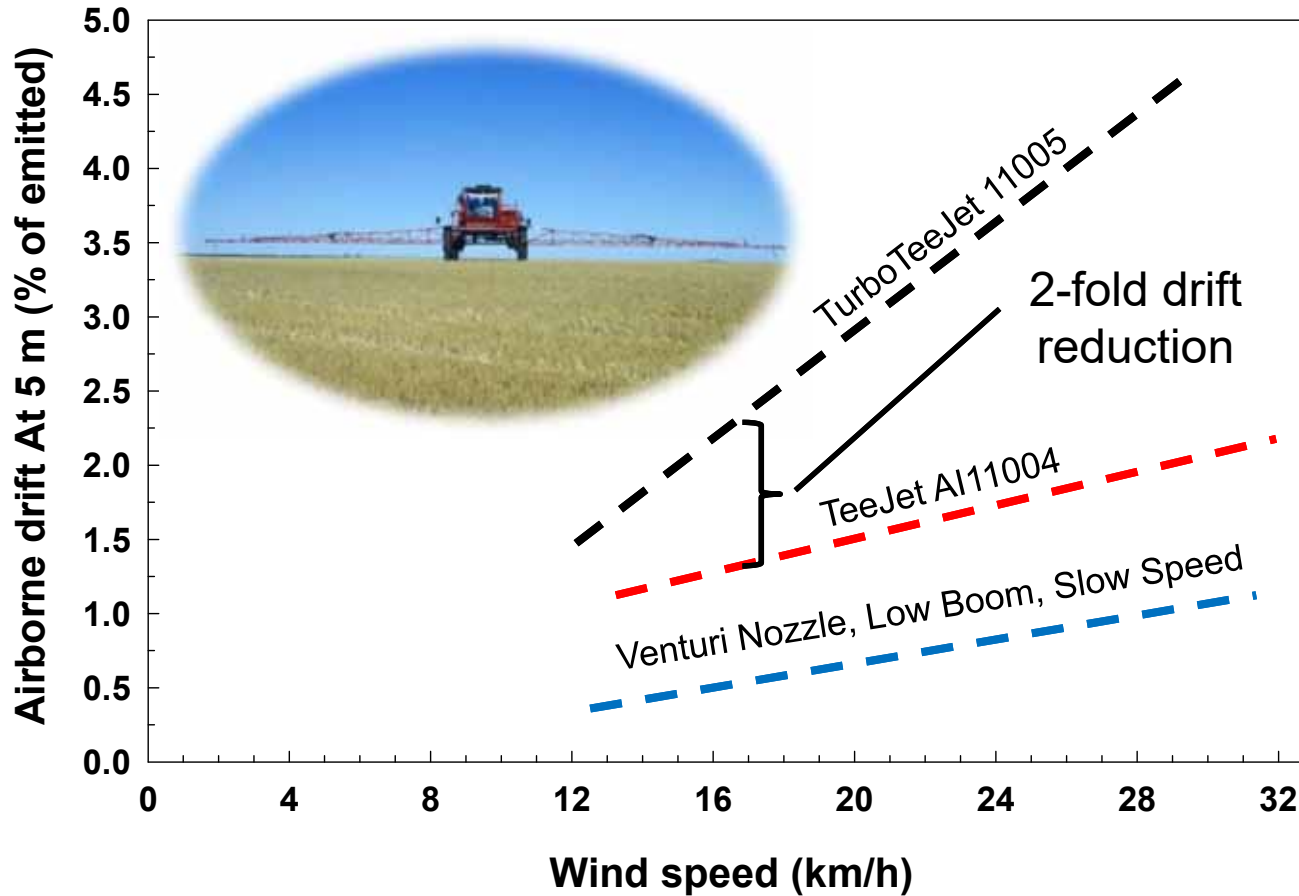
Drift Spray Accountancy



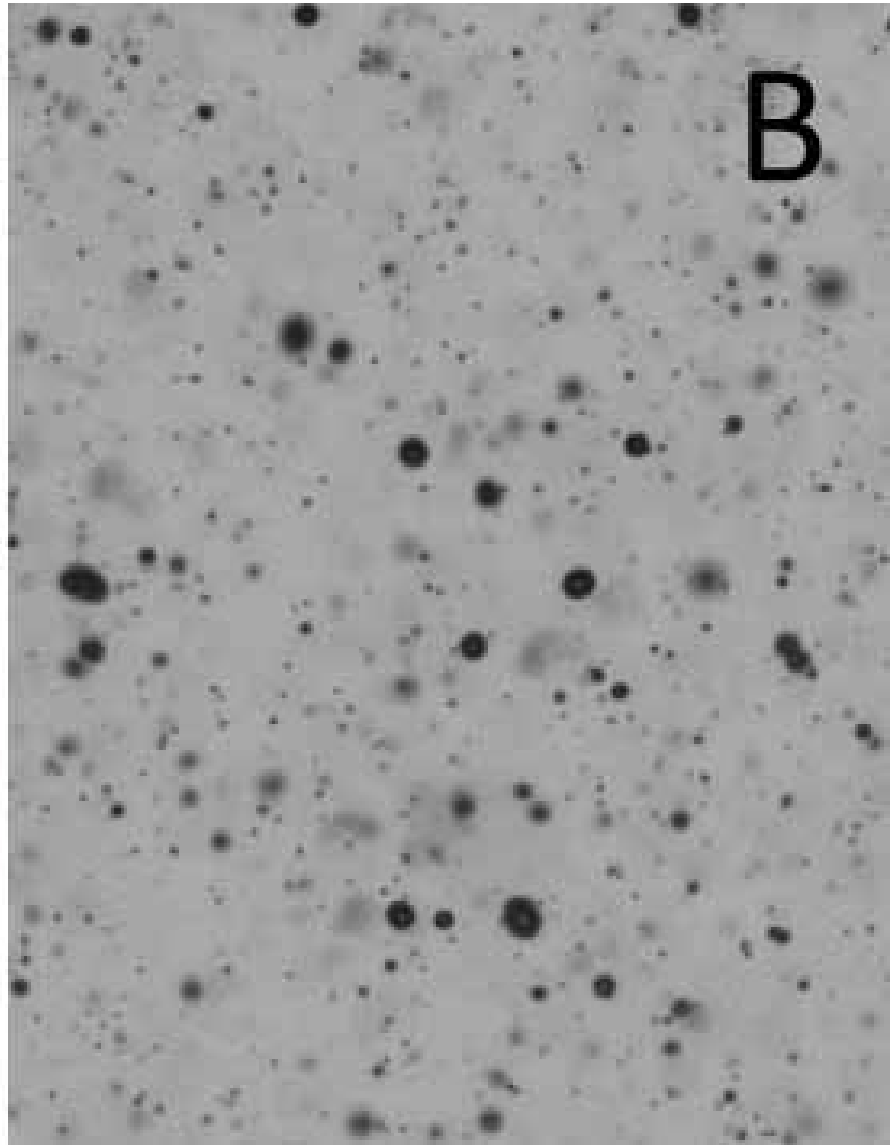
20" Boom height, 8 mph



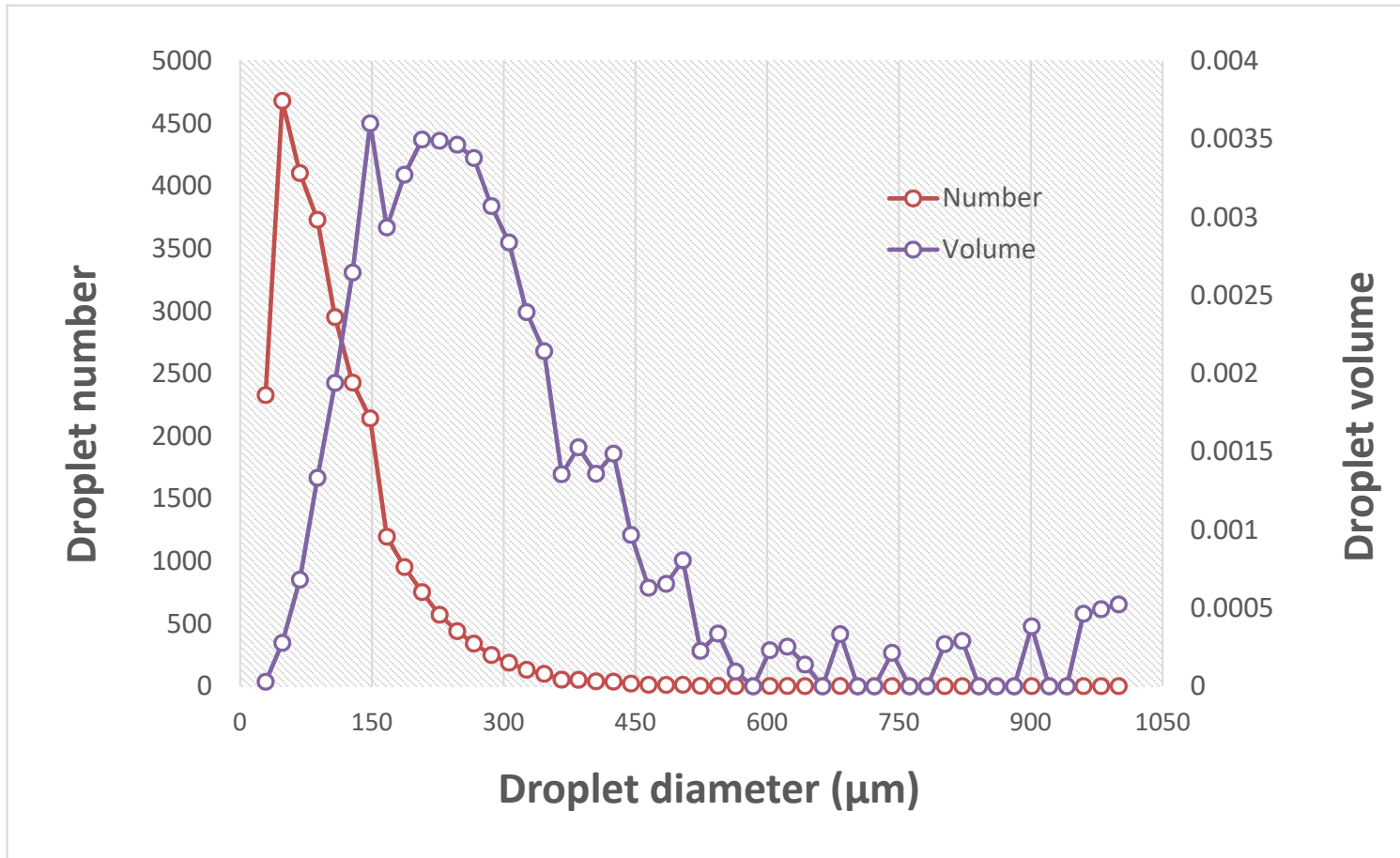
30" Boom height, 14 mph



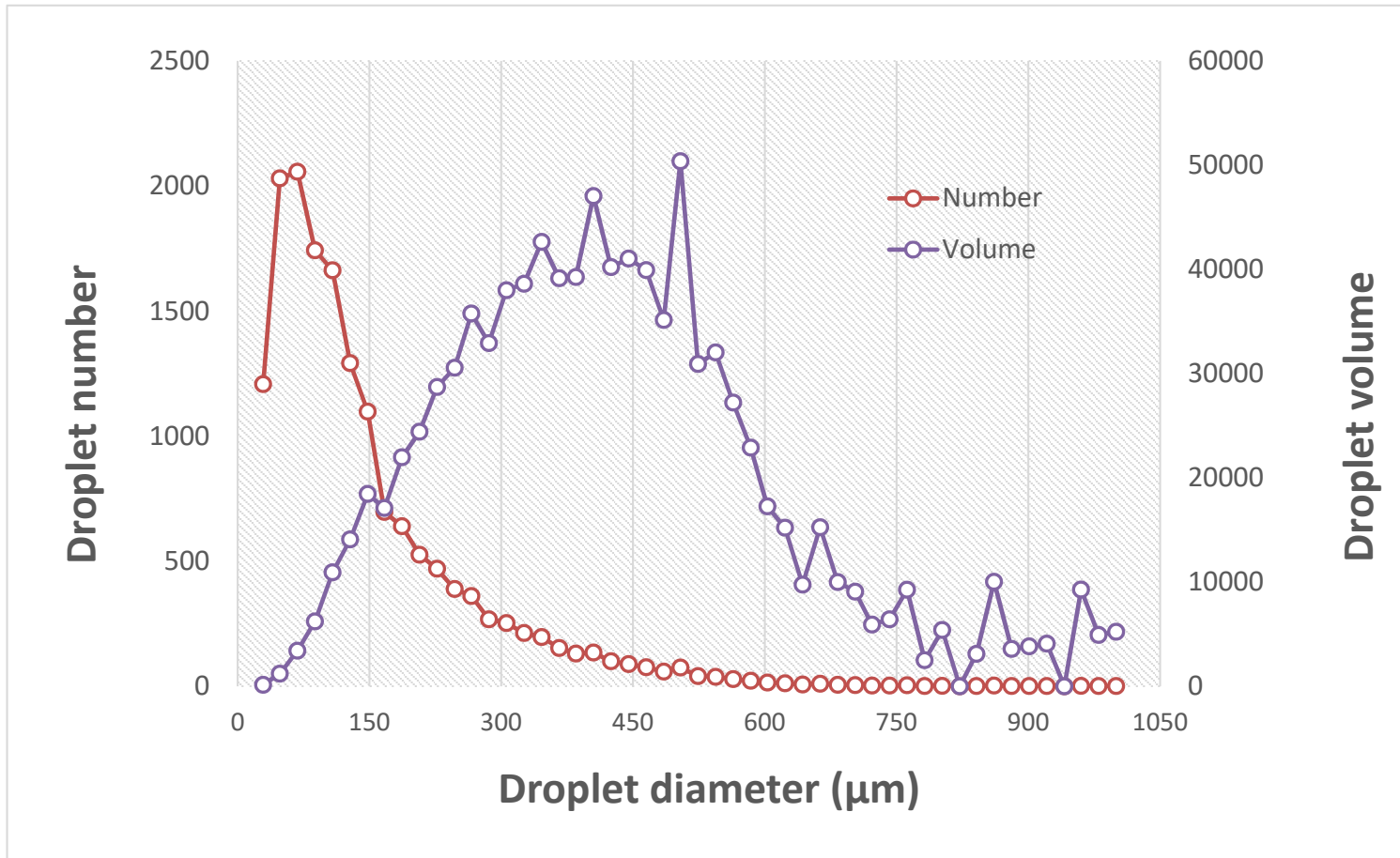




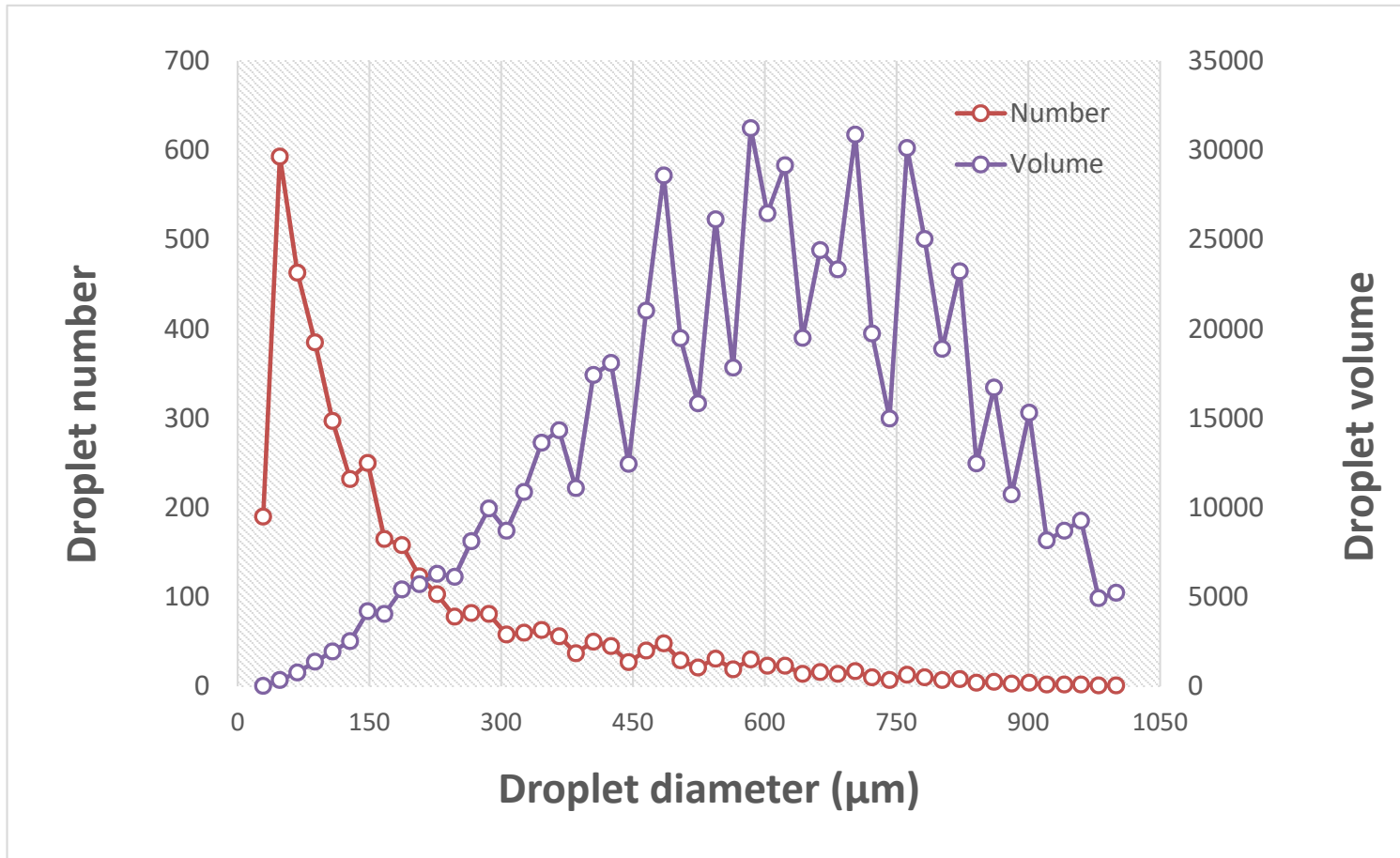
Droplet Number & Volume, Medium SQ



Droplet Number & Volume, Coarse SQ

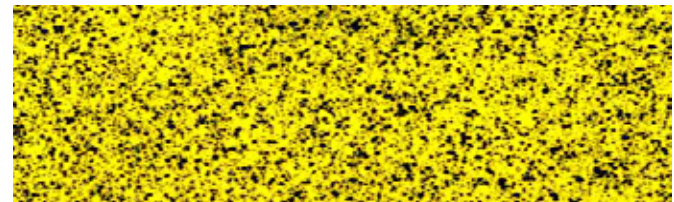
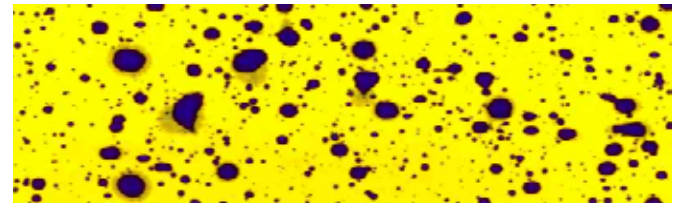


Droplet Number & Volume, X Coarse SQ



Lesson


- All sprays contain small and large droplets
 - Larger droplets = “dose”
 - Small droplets = “coverage”
- Small droplets move
 - Difficult to measure




Droplet Size Categories

Category	Symbol	Color Code	Approximate Dv0.5 (VMD) (microns)
Extremely Fine	XF	Purple	≈50
Very Fine	VF	Red	<136
Fine	F	Orange	136–177
Medium	M	Yellow	177–218
Coarse	C	Blue	218–349
Very Coarse	VC	Green	349–428
Extremely Coarse	XC	White	428–622
Ultra Coarse	UC	Black	>622


XR TeeJet® (XR)

	PSI						
	15	20	25	30	40	50	60
XR8001	F	F	F	F	F	F	F
XR80015	M	F	F	F	F	F	F
XR8002	M	M	F	F	F	F	F
XR80025	M	M	F	F	F	F	F
XR8003	M	M	M	F	F	F	F
XR80035	M	M	M	M	M	F	F
XR8004	C	M	M	M	M	F	F
XR8005	C	C	M	M	M	M	F
XR8006	C	C	C	M	M	M	M
XR8008	VC	VC	C	C	M	M	M
XR8010	XC	VC	VC	C	C	C	C
XR8015	XC	XC	VC	VC	VC	C	C

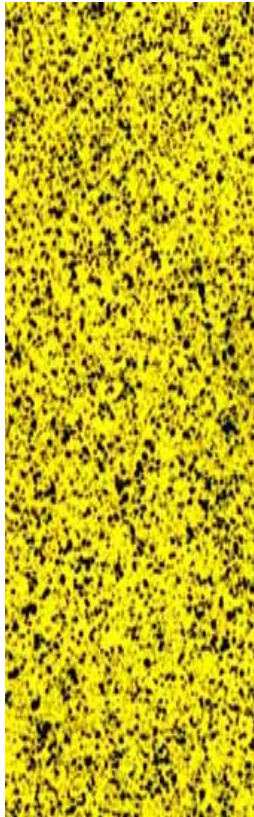
AIXR TeeJet® (AIXR)

	PSI										
	15	20	25	30	35	40	50	60	70	75	90
AIXR110015	XC	XC	VC	C	C	C	C	M	M	M	M
AIXR11002	XC	XC	XC	VC	VC	C	C	C	C	M	M
AIXR110025	XC	XC	XC	XC	VC	VC	C	C	C	C	C
AIXR11003	XC	XC	XC	XC	VC	VC	C	C	C	C	C
AIXR11004	UC	XC	XC	XC	XC	XC	VC	VC	C	C	C
AIXR11005	UC	XC	XC	XC	XC	XC	VC	VC	C	C	C
AIXR11006	UC	XC	XC	XC	XC	XC	VC	VC	VC	C	C

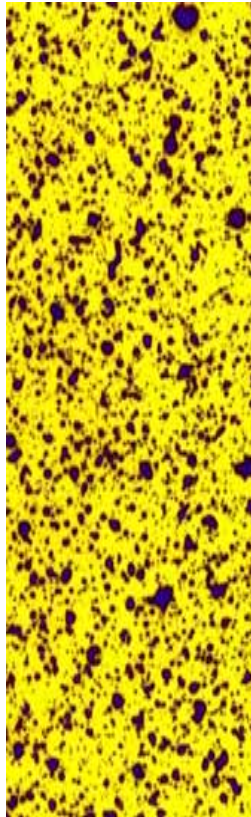
Turbo TeeJet® Induction (TTI)

	PSI											
	15	20	25	30	35	40	50	60	70	80	90	100
TTI110015	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC	XC
TTI11002	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
TTI110025	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
TTI11003	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
TTI11004	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
TTI11005	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
TTI11006	UC	UC	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC

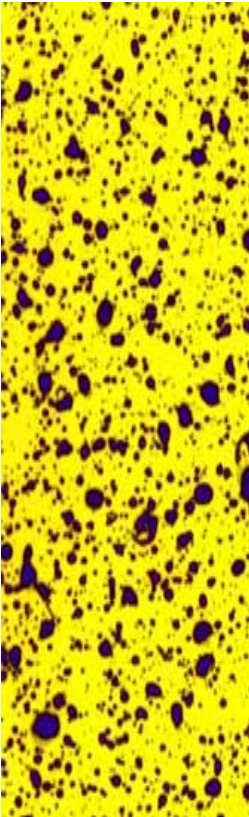
VF/F



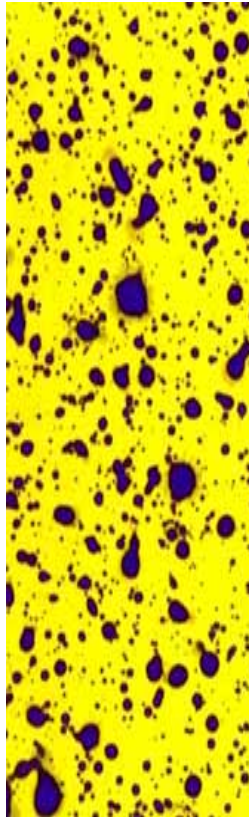
F/M



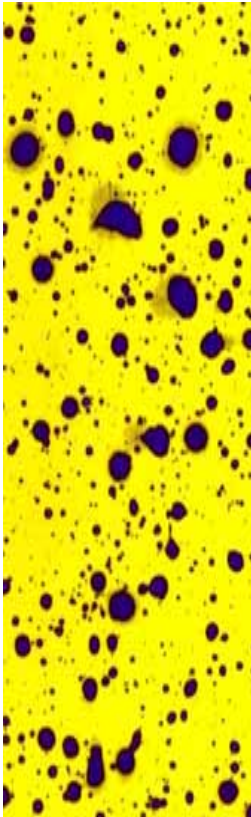
M/C



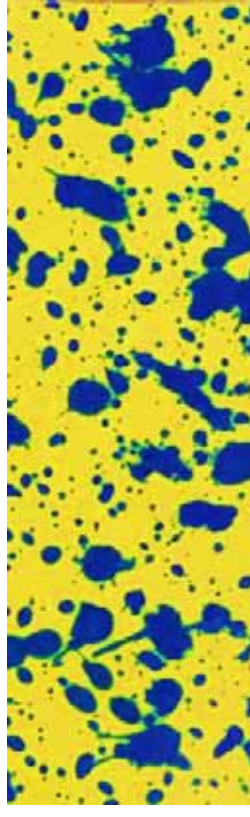
C/VC



VC/XC



XC/UC





TeeJet
TECHNOLOGIES

Catalog 51

Leaders in precision application components, control system technology, and application data management.

Ultra Lo-Drift 120°



The ULD - Ultra Lo-Drift is the ideal spray nozzle for use where drift reduction is paramount. The nozzle produces large air-filled droplets, which cut drift dramatically compared with a standard fan and conventional low-drift spray nozzles. Ideal for use with pre-emergence and broad spectrum products.

- Creates air-filled droplets which significantly reduce spray drift
- Wide spray angle [120°] enables boom height to be lowered to further decrease drift
- Small, compact size reduces the chances of accidental breakage
- FastCap complete includes nozzle, cap, gasket and integrated strainers

US Units

Nozzle Size	Drop Size	Pressure PSI	Flow Rate GPM	Gallons per Acre - 20 inch nozzle spacing										GAL/1000 FT ² 20 inch nozzle spacing					
				4	6	8	10	12	15	20	2	3	4	5					
015	015	15	0.11	1.7	2.5	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	0.04	0.06	0.08	0.10
	015	20	0.12	1.8	2.7	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	0.04	0.06	0.08	0.10
	015	25	0.13	1.9	2.9	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	0.04	0.06	0.08	0.10
	015	30	0.14	2.0	3.1	3.9	4.7	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.1	0.04	0.06	0.08	0.10
	015	35	0.15	2.1	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	0.04	0.06	0.08	0.10
02	02	15	0.12	1.8	2.7	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	0.04	0.06	0.08	0.10
	02	20	0.13	1.9	2.9	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	0.04	0.06	0.08	0.10
	02	25	0.14	2.0	3.1	3.9	4.7	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.1	0.04	0.06	0.08	0.10
	02	30	0.15	2.1	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	0.04	0.06	0.08	0.10
	02	35	0.16	2.2	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	11.5	0.04	0.06	0.08	0.10
025	025	15	0.13	1.9	2.9	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	0.04	0.06	0.08	0.10
	025	20	0.14	2.0	3.1	3.9	4.7	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.1	0.04	0.06	0.08	0.10
	025	25	0.15	2.1	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	0.04	0.06	0.08	0.10
	025	30	0.16	2.2	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	11.5	0.04	0.06	0.08	0.10
	025	35	0.17	2.3	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	11.7	0.04	0.06	0.08	0.10
03	03	15	0.14	2.0	3.1	3.9	4.7	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.1	0.04	0.06	0.08	0.10
	03	20	0.15	2.1	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	0.04	0.06	0.08	0.10
	03	25	0.16	2.2	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	11.5	0.04	0.06	0.08	0.10
	03	30	0.17	2.3	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	11.7	0.04	0.06	0.08	0.10
	03	35	0.18	2.4	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0	0.04	0.06	0.08	0.10
04	04	15	0.15	2.1	3.3	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	0.04	0.06	0.08	0.10
	04	20	0.16	2.2	3.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	11.5	0.04	0.06	0.08	0.10
	04	25	0.17	2.3	3.7	4.5	5.3	6.1	6.9	7.7	8.5	9.3	10.1	10.9	11.7	0.04	0.06	0.08	0.10
	04	30	0.18	2.4	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0	0.04	0.06	0.08	0.10
	04	35	0.19	2.5	4.3	5.1	5.9	6.7	7.5	8.3	9.1	9.9	10.7	11.5	12.3	0.04	0.06	0.08	0.10



1. Twin inlet, Air Induction Technology
2. Available in a FastCap option for easy installation
3. Configured with or without a filter

Nozzle Calculator

The Greenleaf Technologies nozzle calculator accurately determines the correct size nozzle for your spraying specifications. You can clearly see the droplet size each type of nozzle will produce based on the rate, speed, and spacing you use.

For detailed data on each nozzle under all applicable conditions, download a tabulation chart with the nozzle spacing you prefer from our online Tabulation Chart resource page.

Application rate	10 gal/ac	+	NOZZLE SIZES									
		-	01	015	02	025	03	04	05	06	08	10
Speed	10 mph	+	PSI									
		-	113		73		50		28		18	
Nozzle Spacing	20 inches		AirMix		M		C		VC		XC	
Flowrate	0.34 gal/min		TDXL		F		M		C		XC	

Spray Parts Guide





Standard vs. Hollow cone nozzle

Shown in snow

Hollow Cone nozzle



Standard nozzle



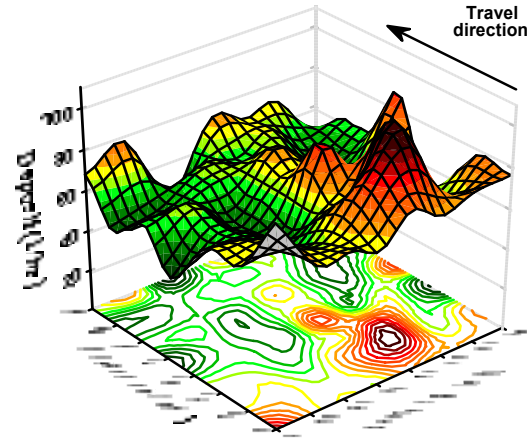
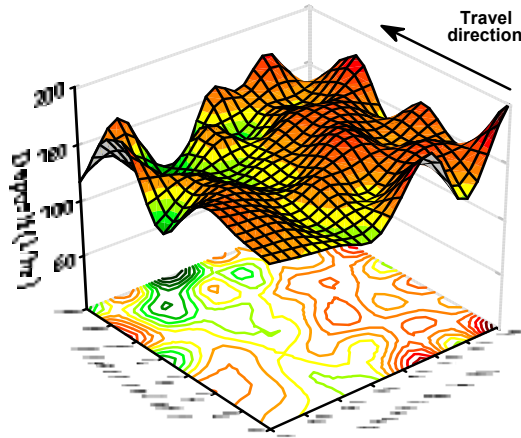
Air Injection Nozzle



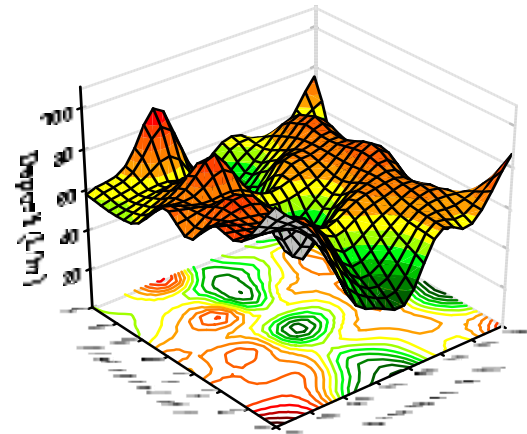
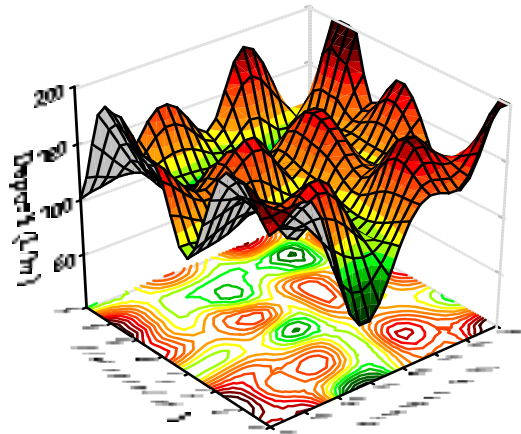
Medium Spray

Fine Spray

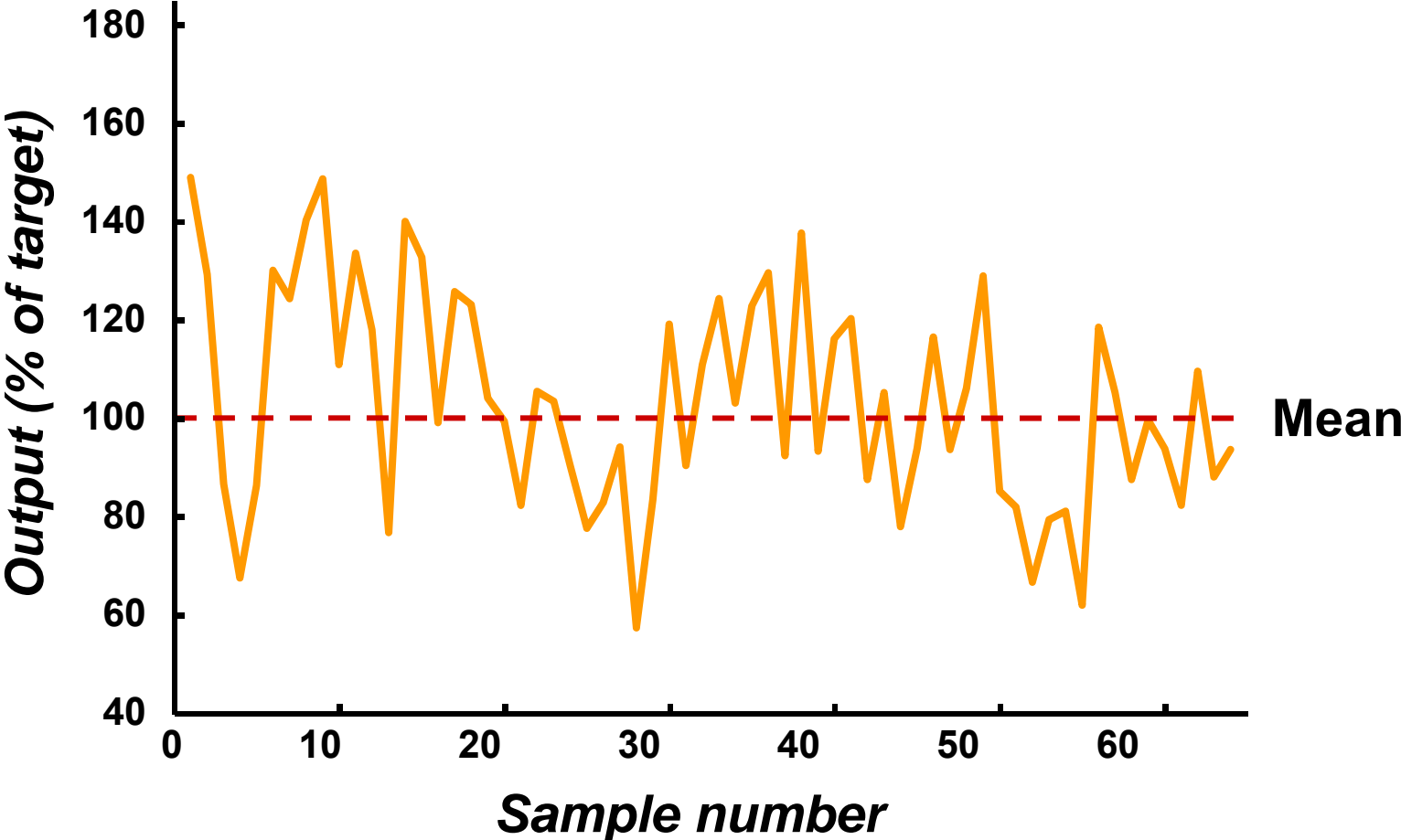
Bare



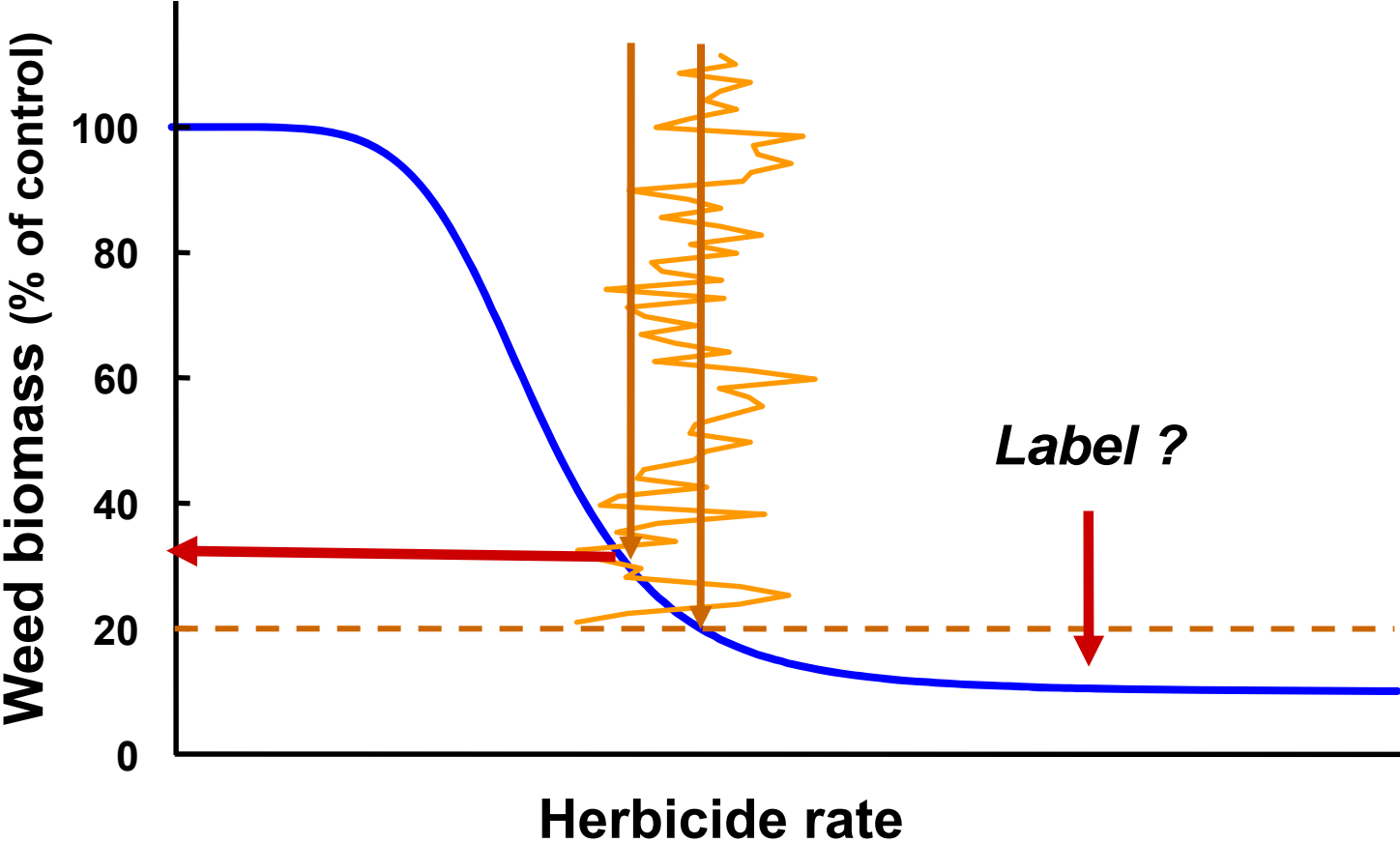
Stubble



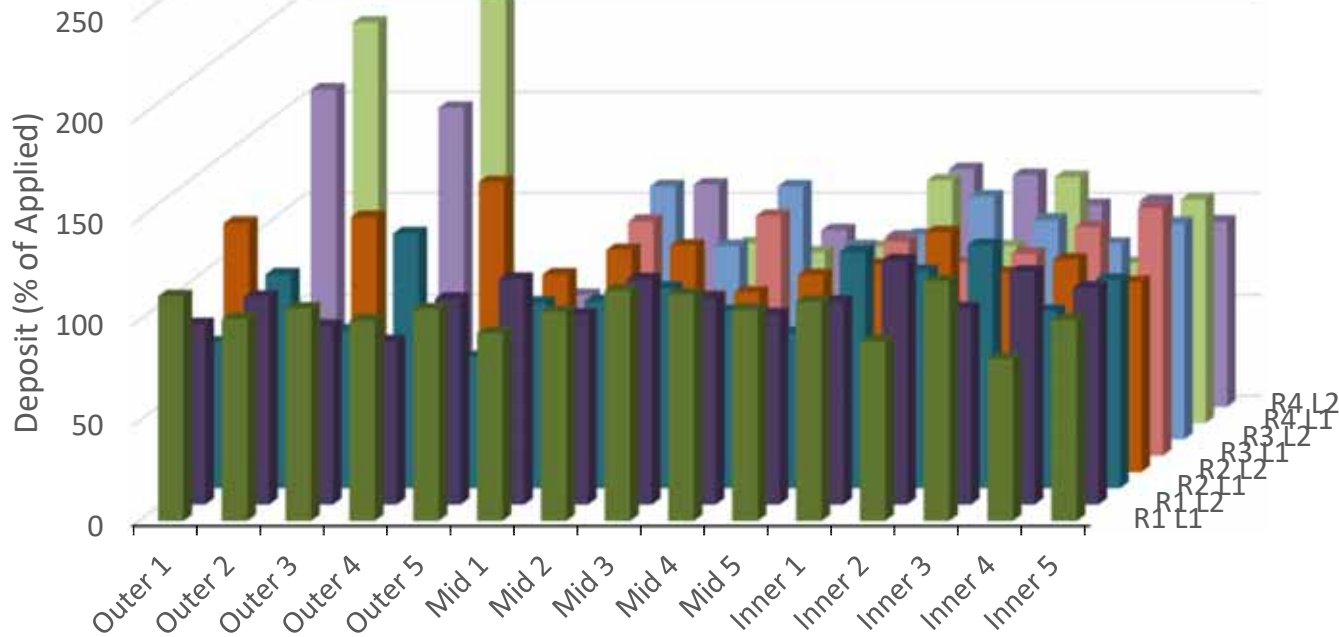
Deposit Variability



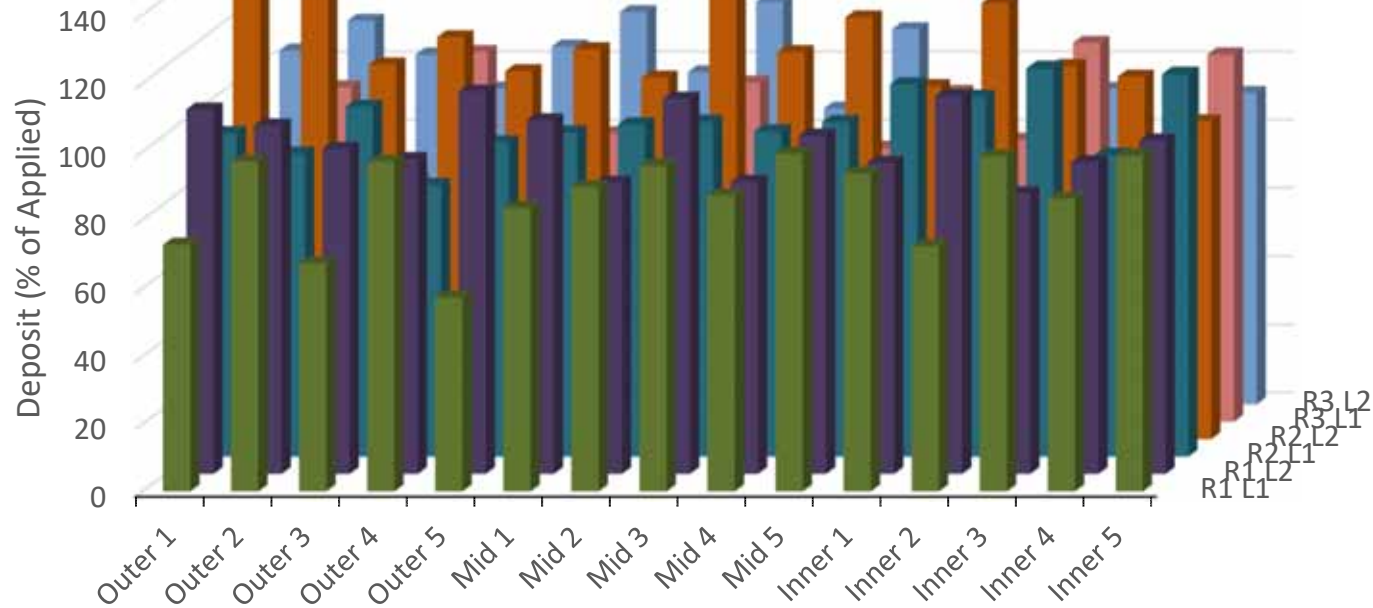
Deposit Variability



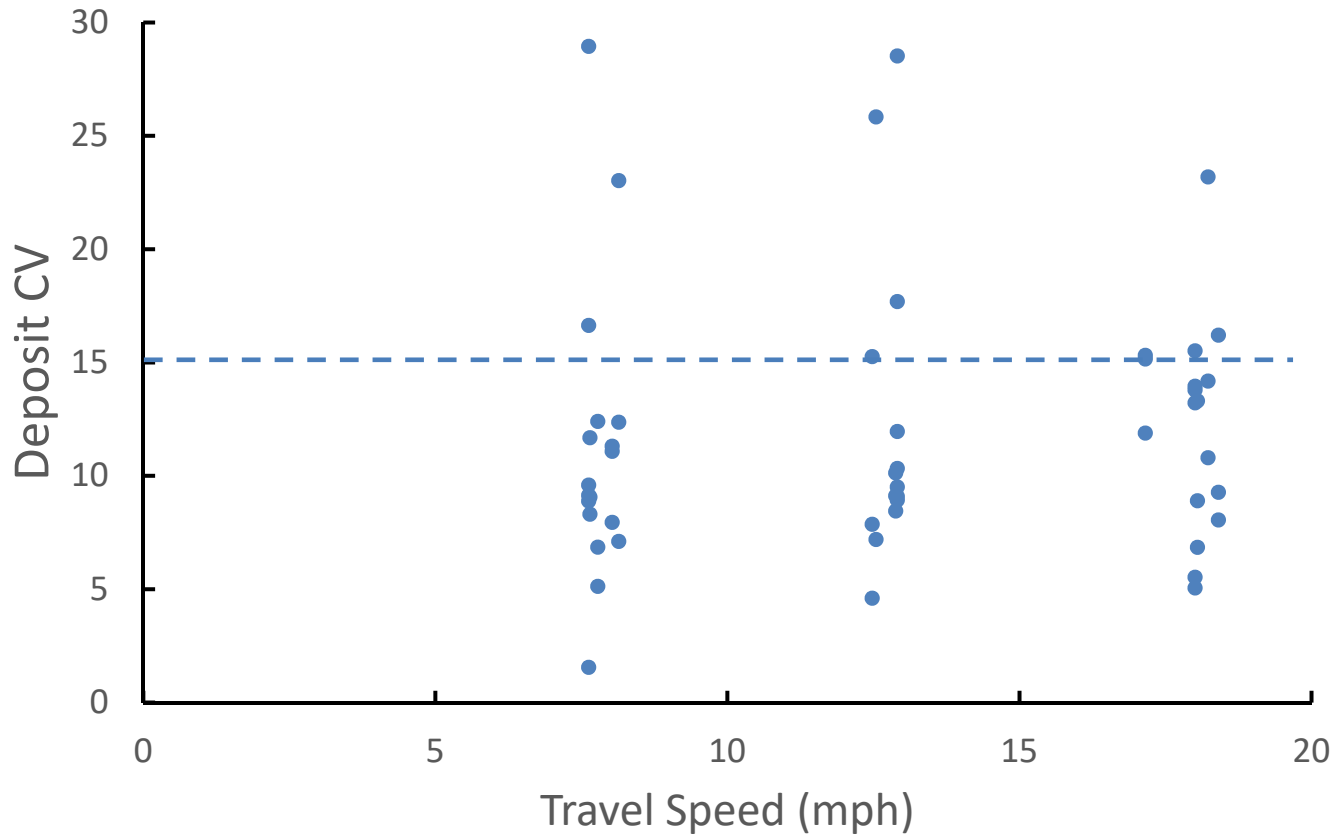
14 mph, 16" target height



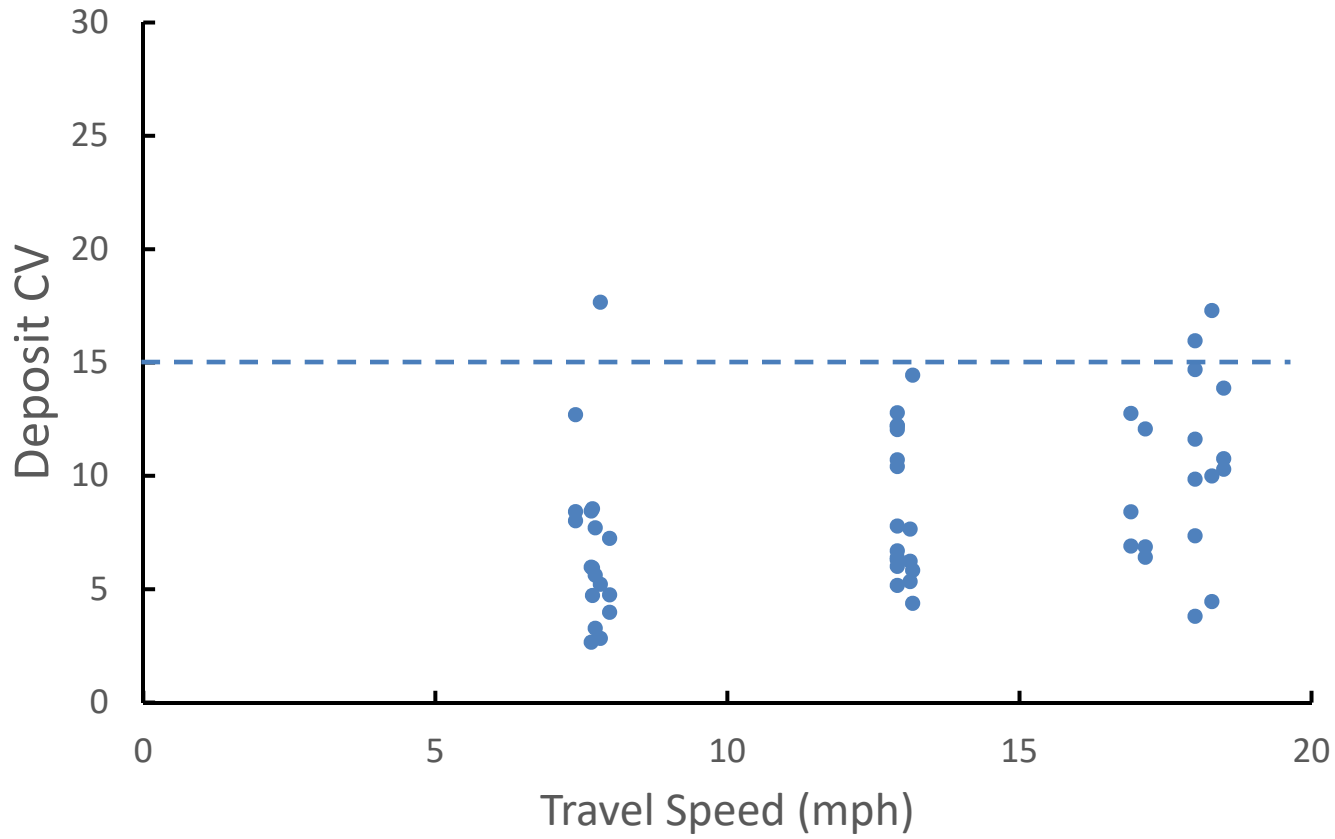
8 mph, 16" target height



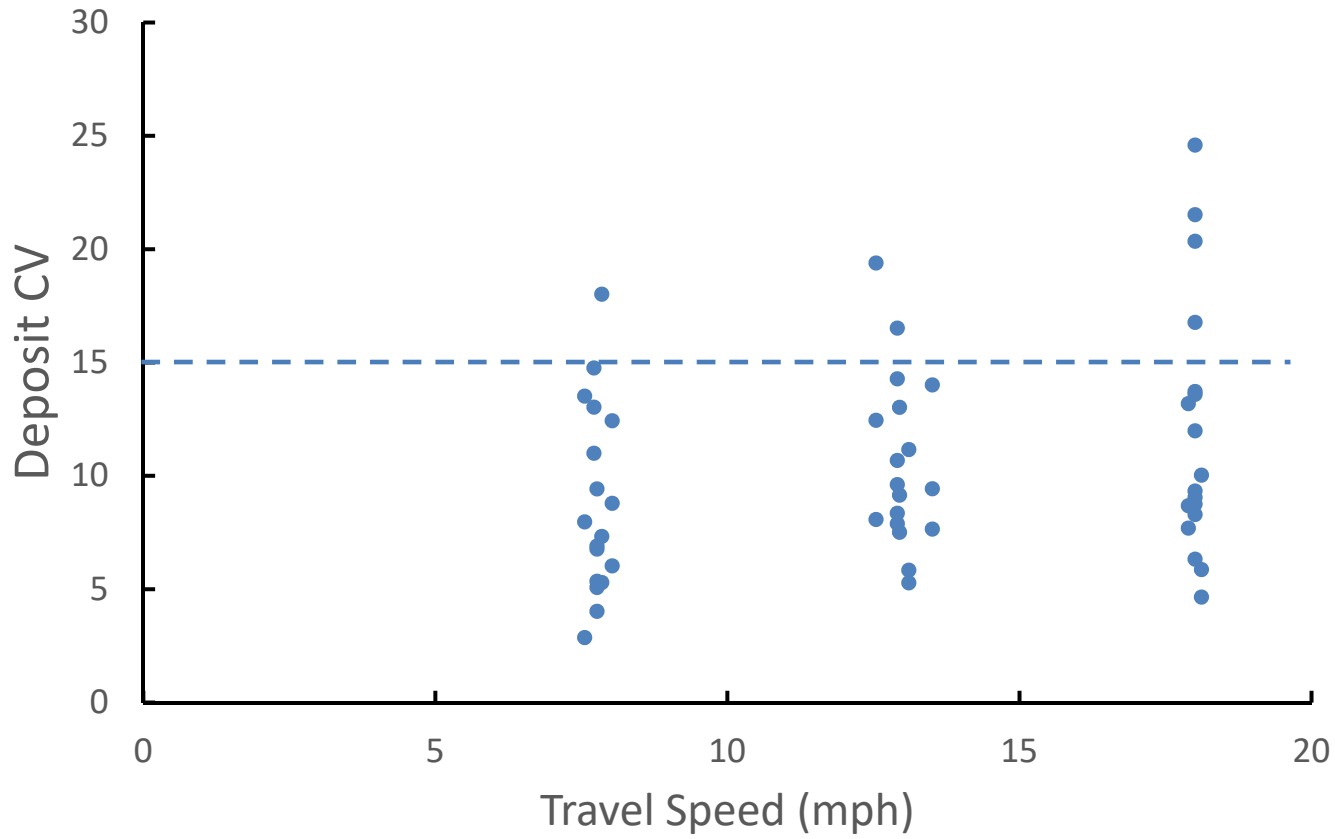
16" Boom Height



32" Boom Height



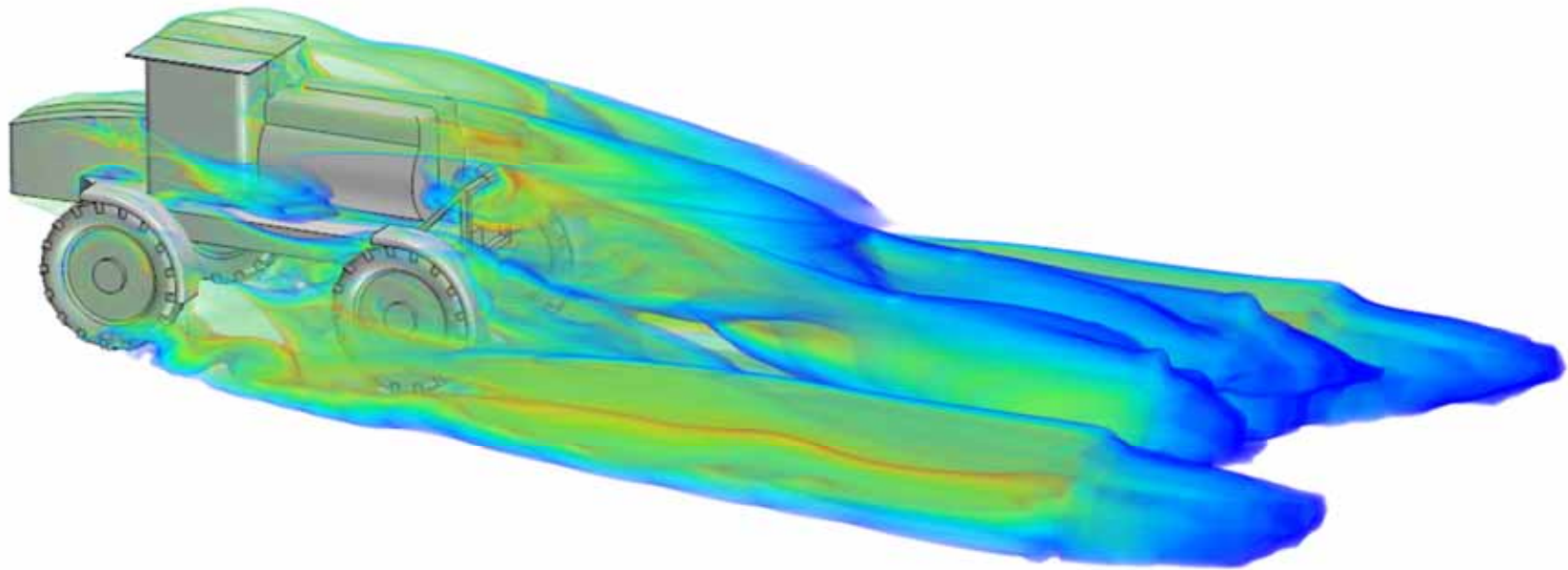
64" Boom Height





TKE, 8 m/s (18 mph)

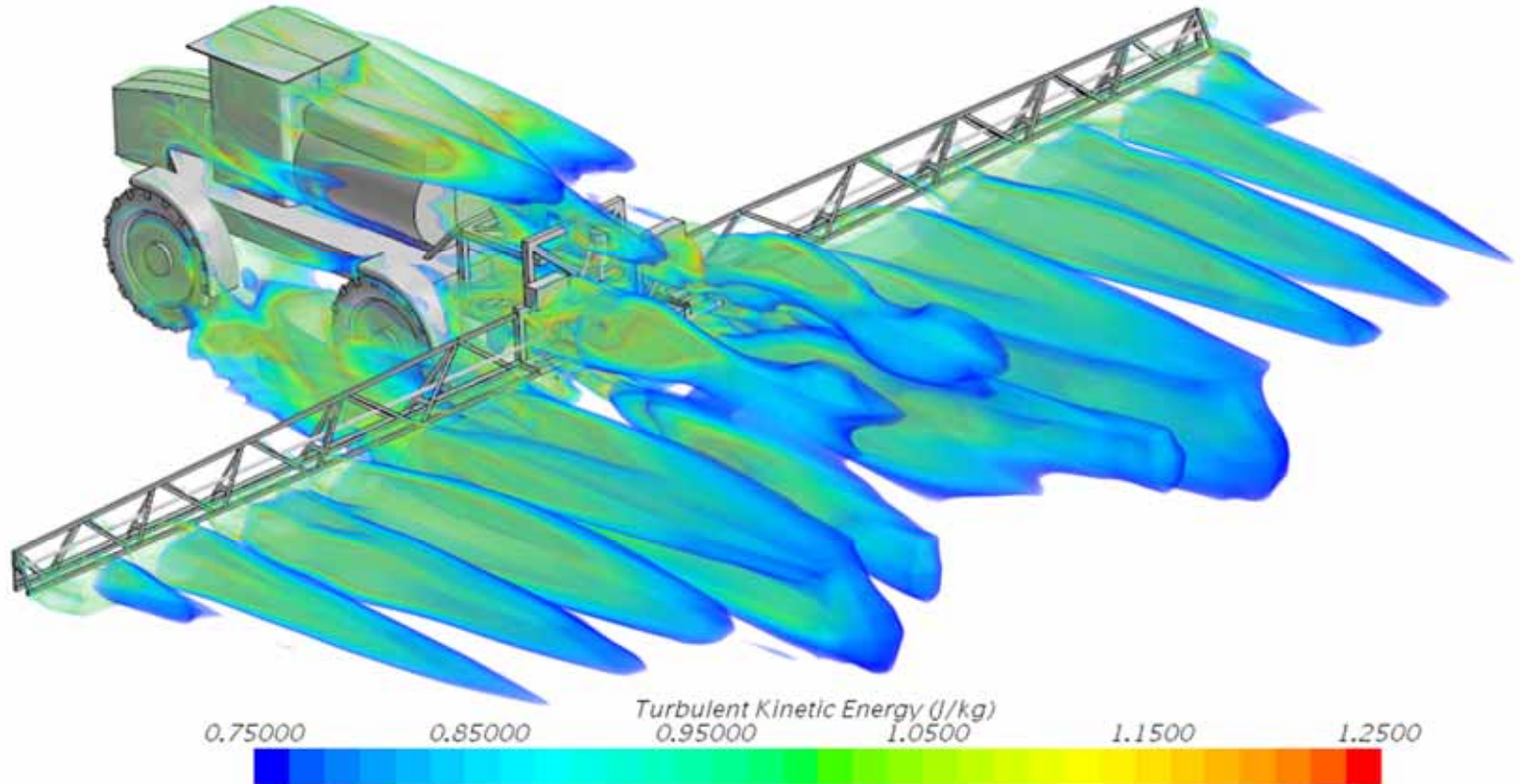
STAR-CCM+



Sprays

TKE, 8 m/s (18 mph)

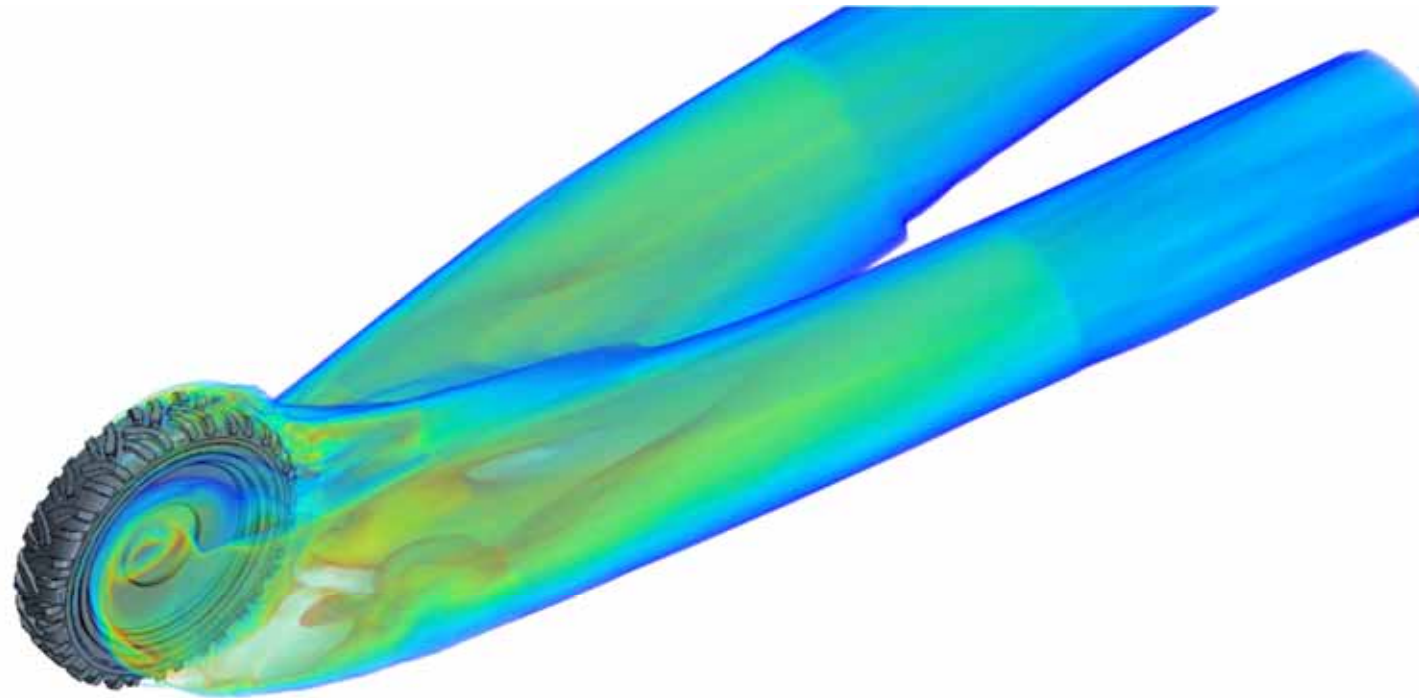
STAR-CCM+



Sprays

TKE, 8 m/s (18 mph)

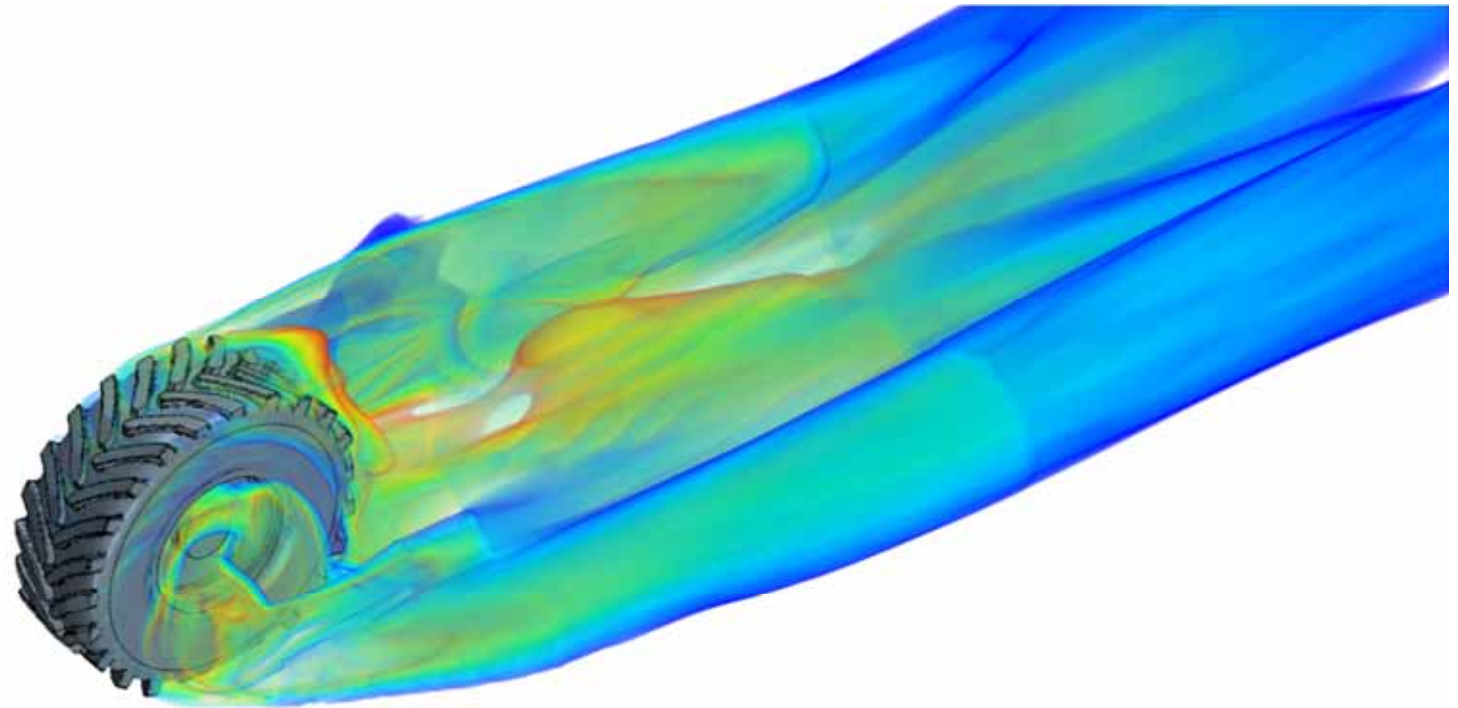
STAR-CCM+



Sprays

TKE, 8 m/s (18 mph)

STAR-CCM+



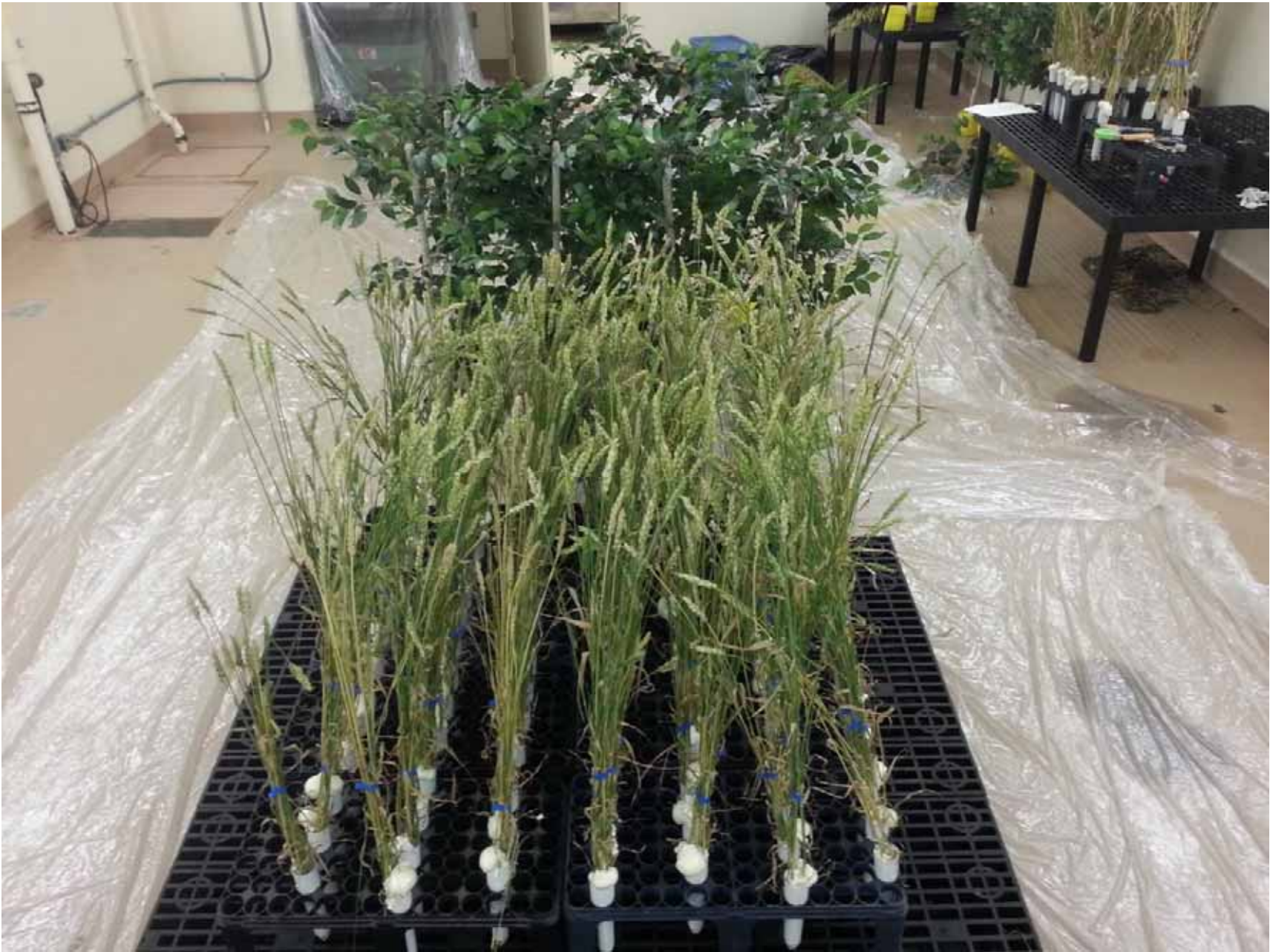
Sprays



THE

TAKE-HOME MESSAGE

- Size nozzle properly;
- Identify the spray quality of your nozzles;
- Select the coarsest spray that gives adequate coverage;
- Keep booms low and level.

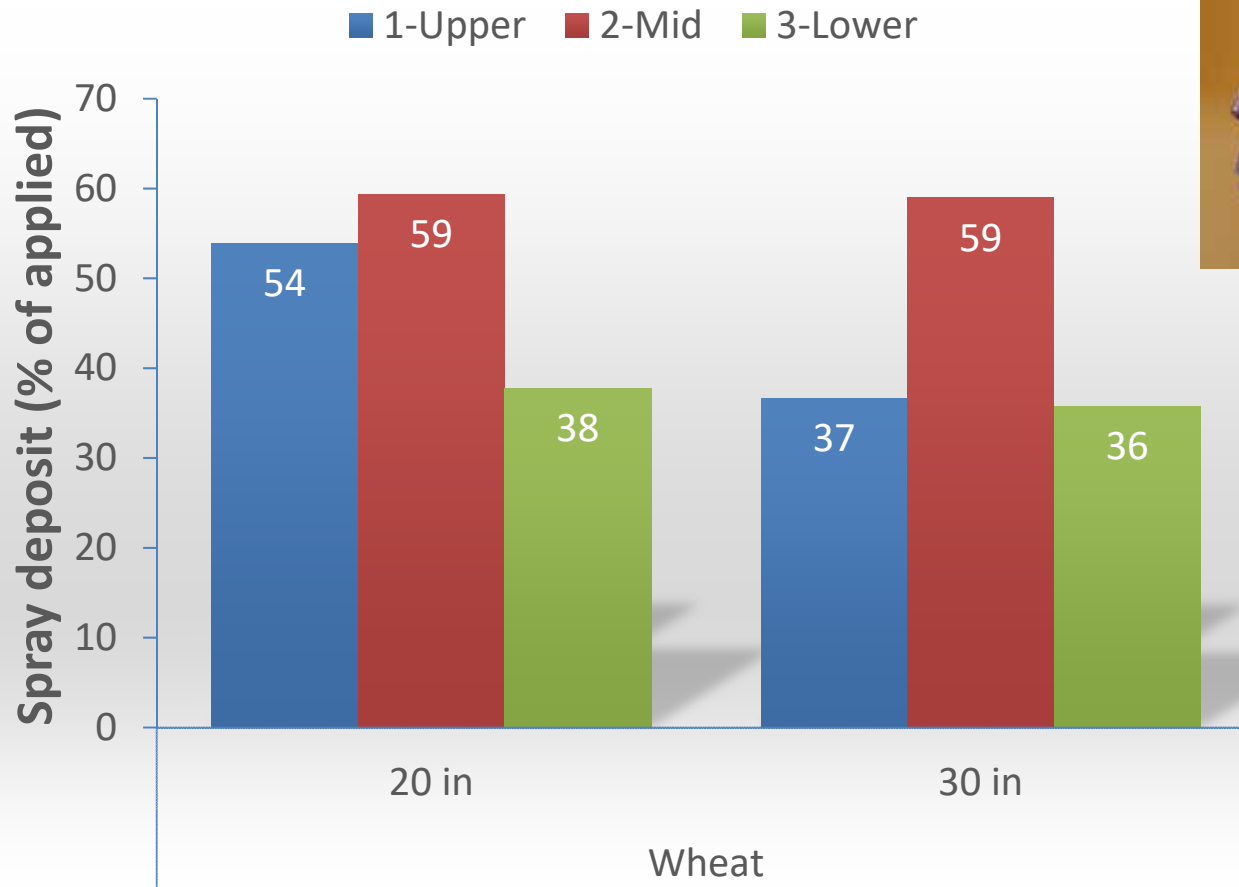




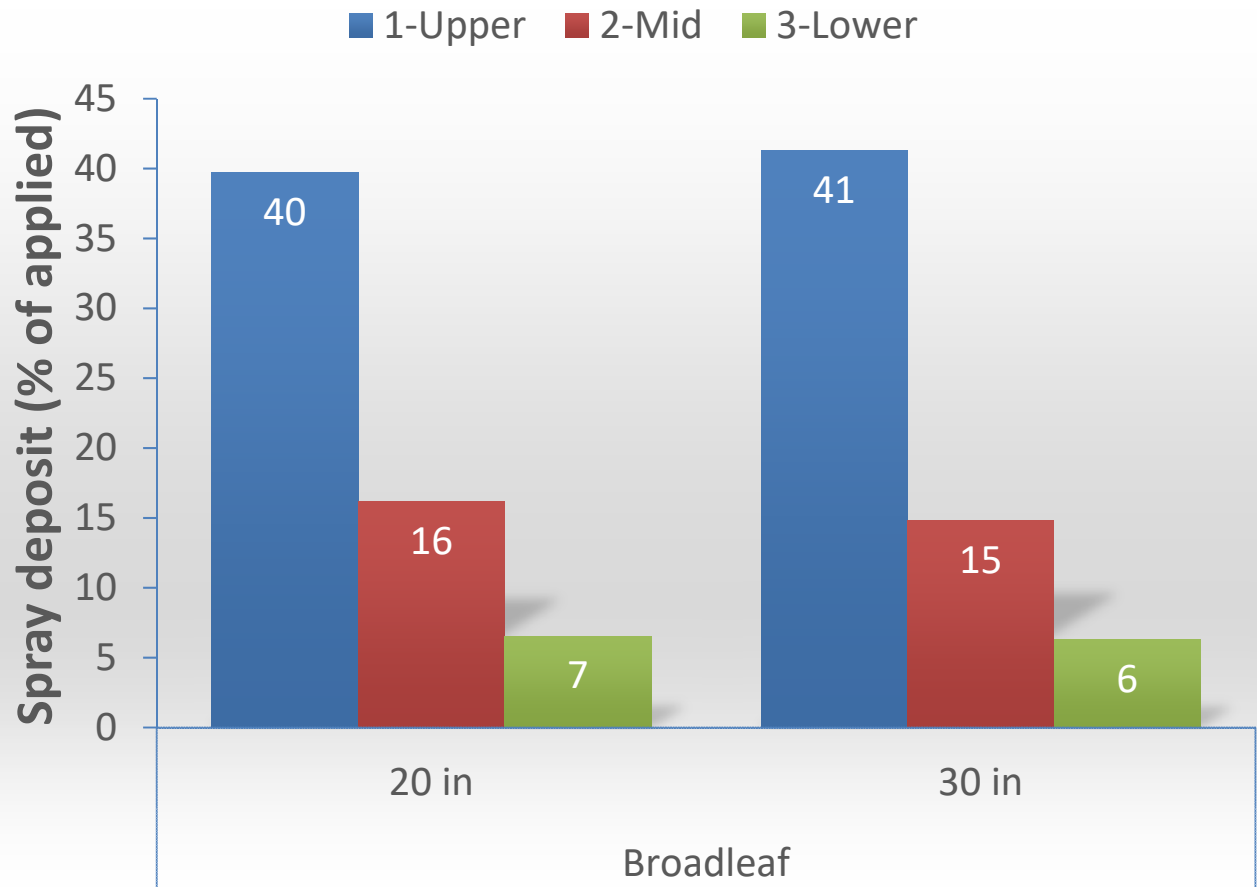




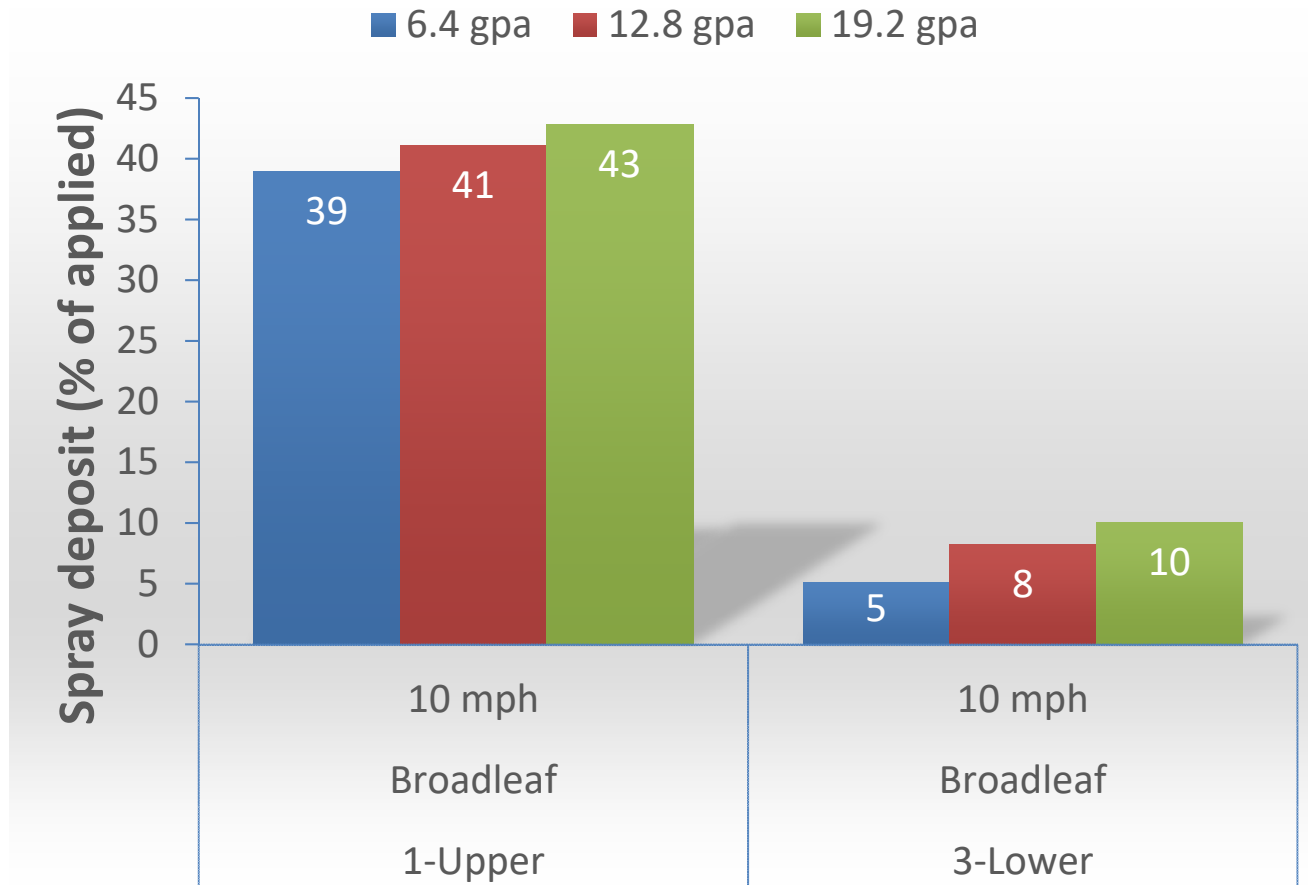
Boom Height – Twin Fan, Wheat



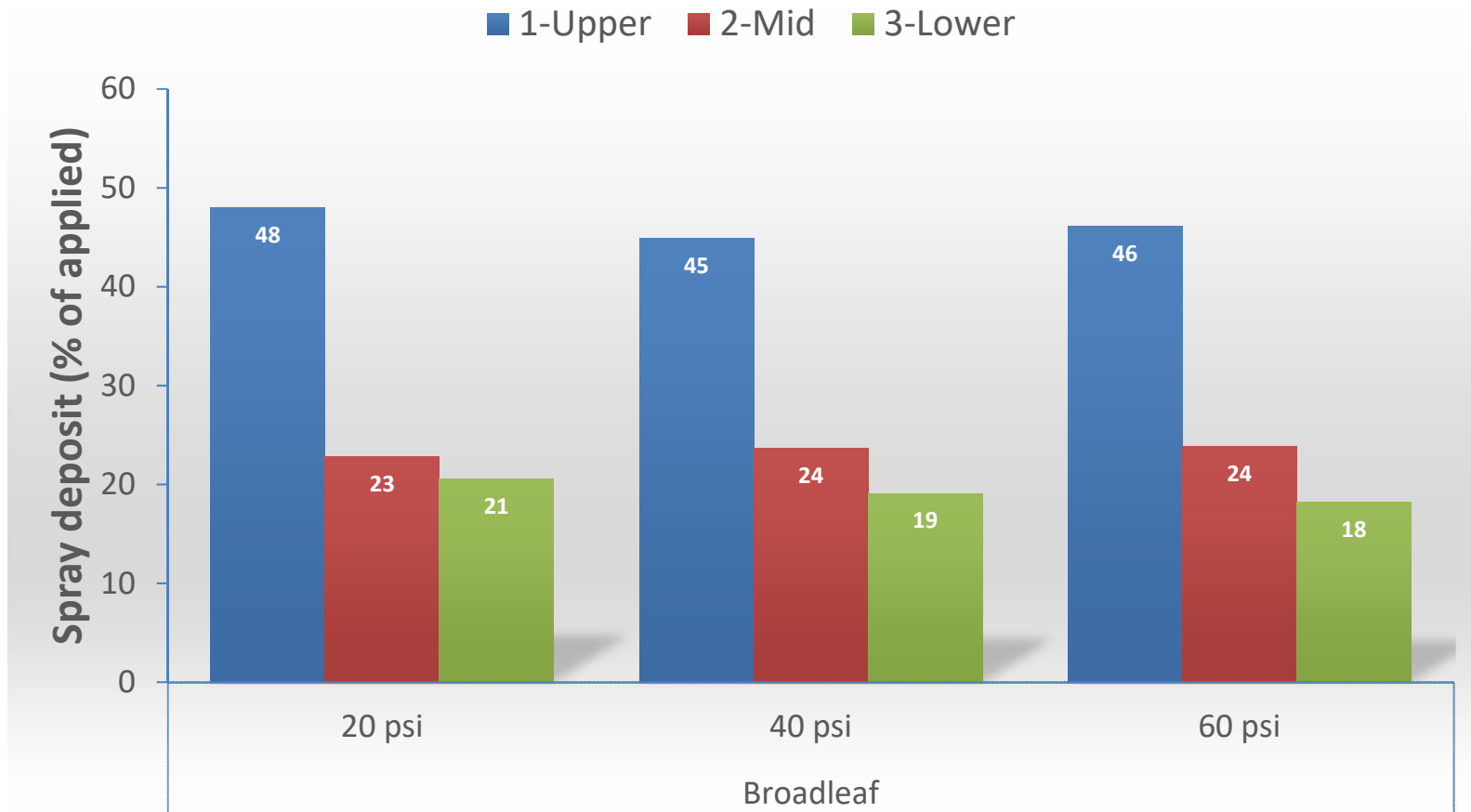
Boom Height - Broadleaf



Water Volume – Broadleaf 10 mph

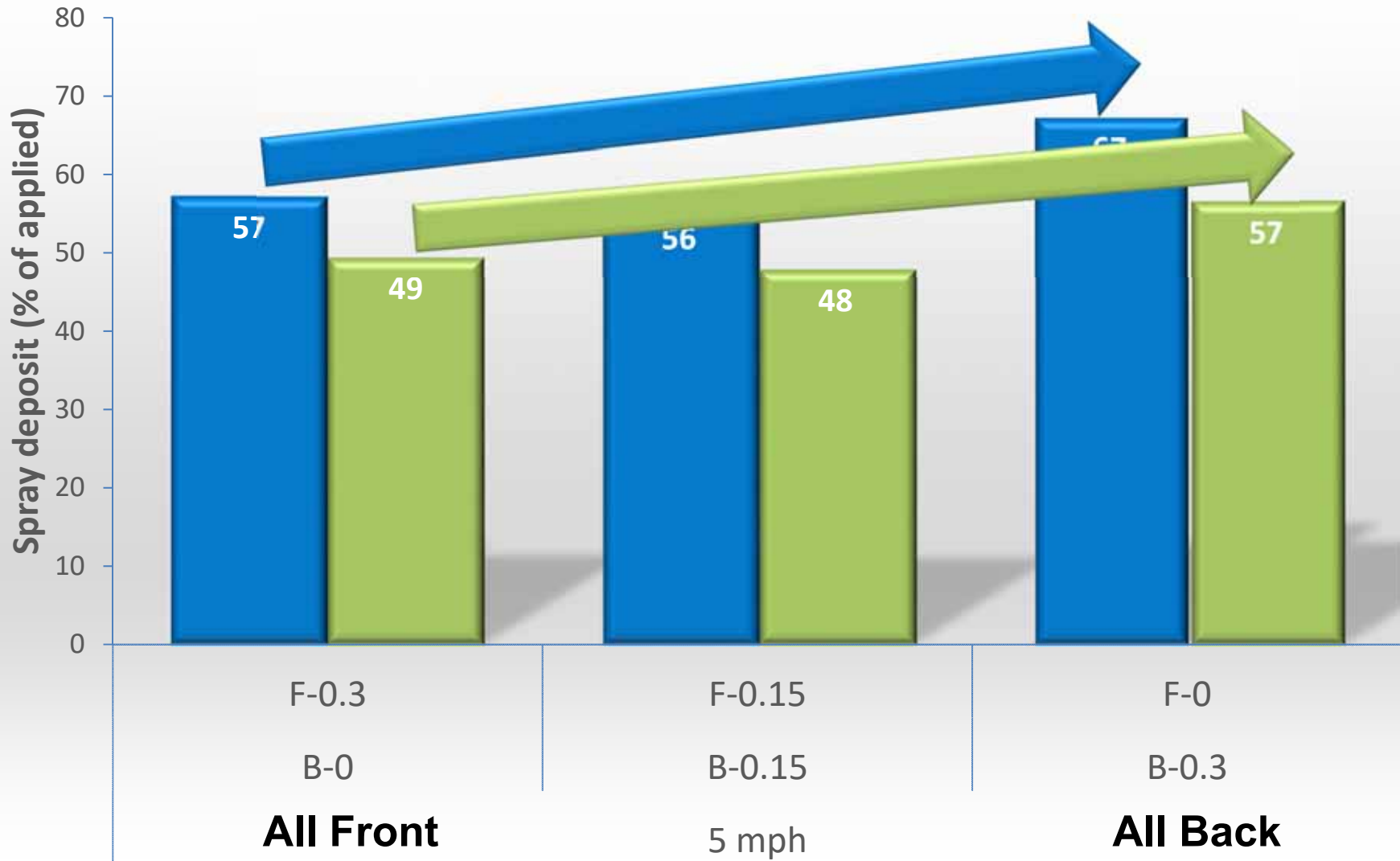


Spray Pressure - Broadleaf



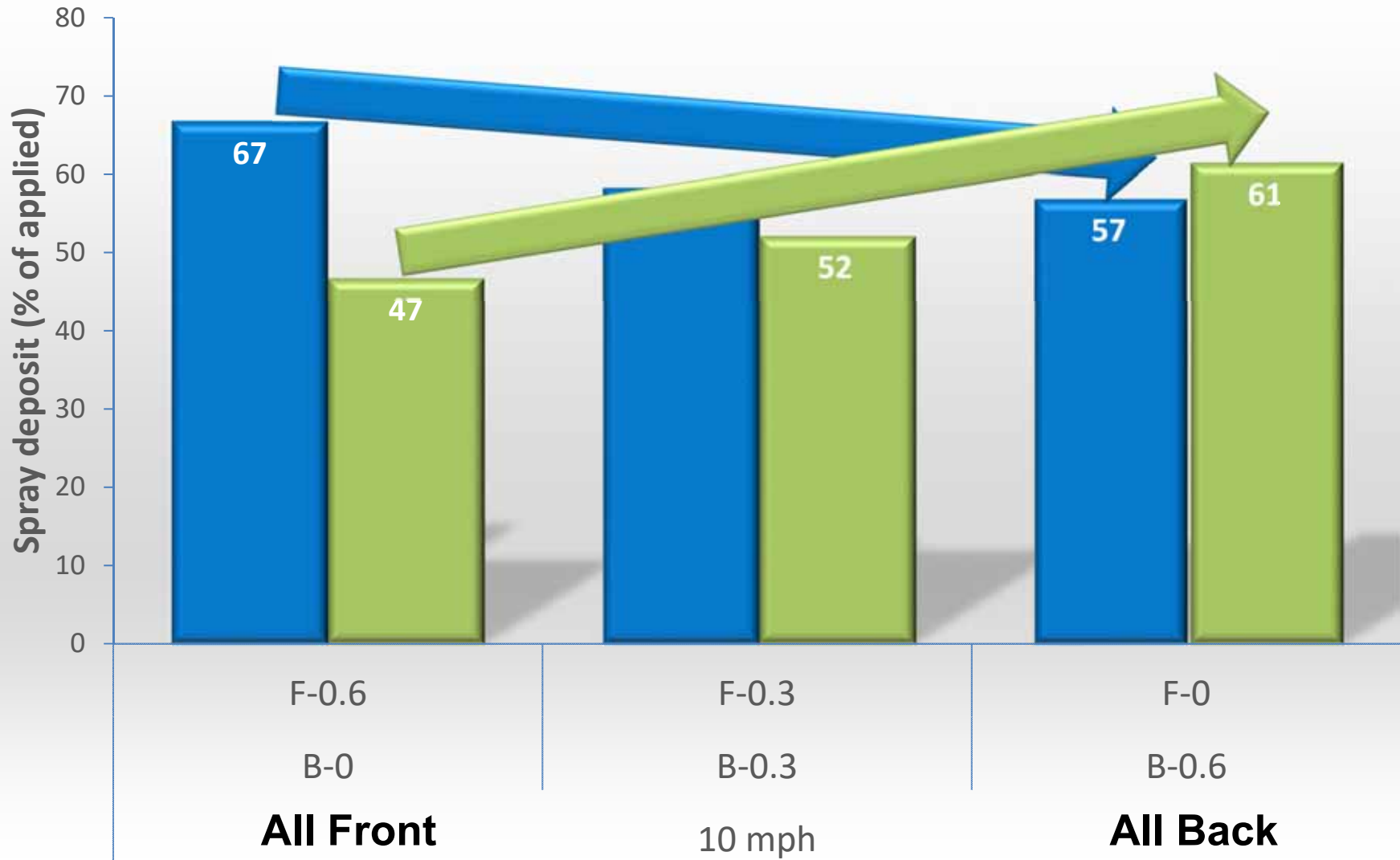
Twin Fan, Wheat

■ 2-Upper ■ 3-Mid



Twin Fan, Wheat

■ 2-Upper ■ 3-Mid

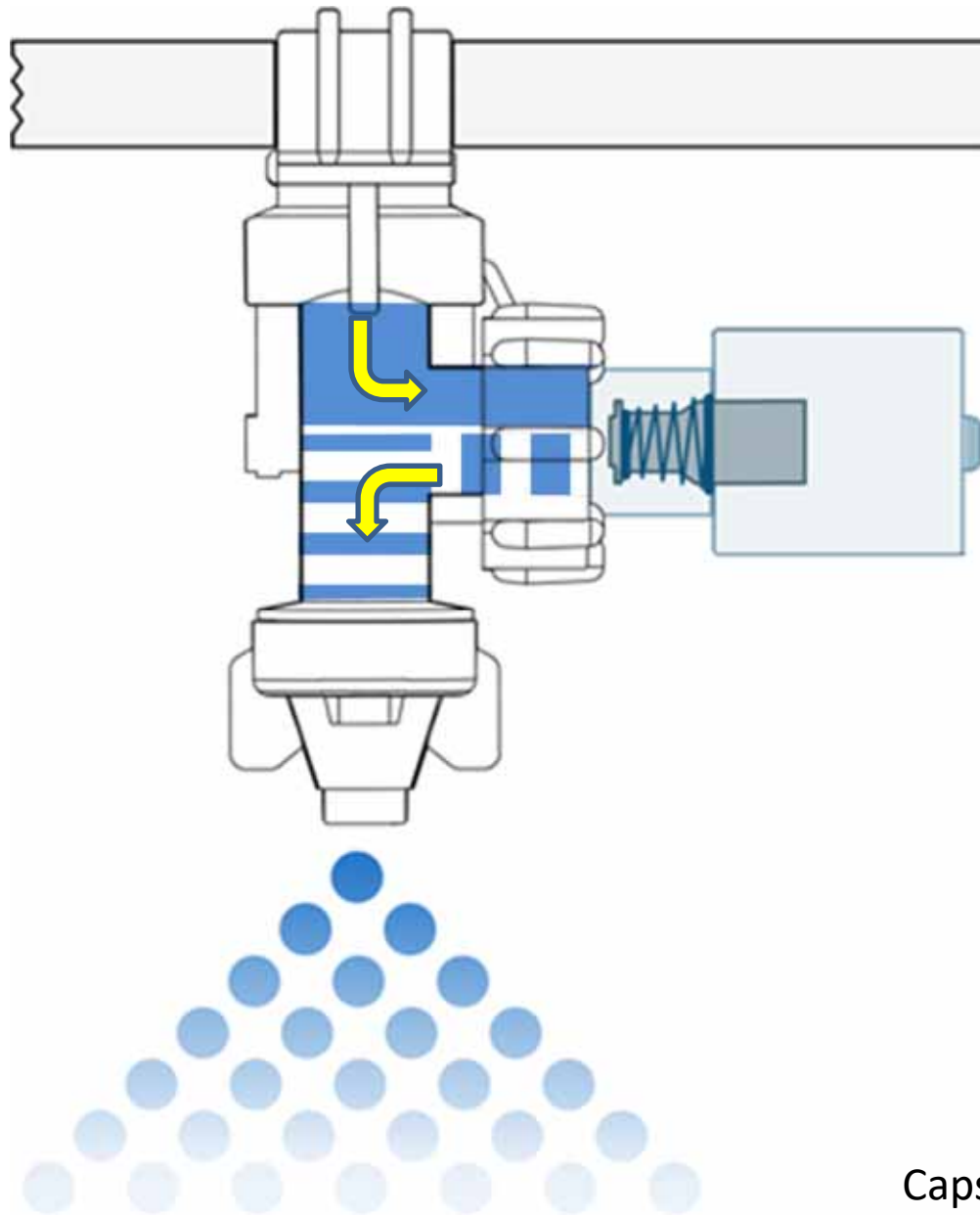


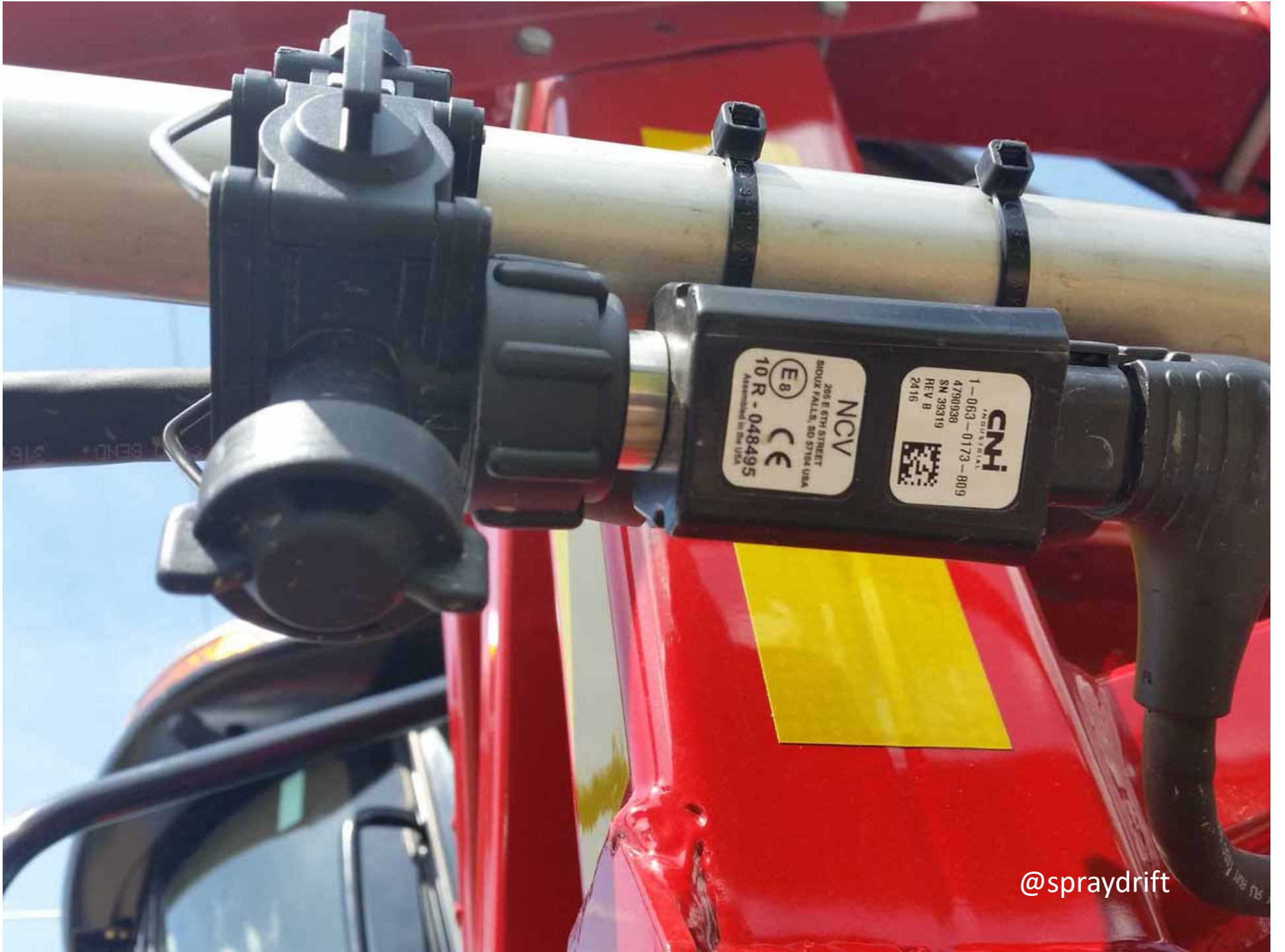
Pulse Width Modulation

Pulse Width Modulation

Sprayers101







@spraydrift























NOZZLE ACTIVATION
BASED ON GPS SPRAY CONTROLLER

PRECISE CONTROL
DOWN TO THE NOZZLE SPACING

ELIMINATE
MISAPPLICATION AND WASTE

Weed Detection



WEEDit

The Weedit precision spraying technology reduces the usage of herbicides by up to 90% in spring and fall cleaning saving time and money. It enables a more efficient and environmentally friendly way of farming.



Here's our [product description PDF](#)

Find out more on www.weed-it.com

Read [an article in the Western Producer on WEEDit](#)







São Desidério - Bahia
Brasil

Sprayer



BLUE RIVER TECHNOLOGY

See & Spray Machines

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See & Spray

cotton test – 0.5 mph

December 2016



Spray

Learn more about spraying

Sprayers 101



Jason Deveau

[@spray_guy](https://twitter.com/spray_guy)



Tom Wolf

[@nozzle_guy](https://twitter.com/nozzle_guy)



www.sprayers101.com