Calibrating for Droplet size

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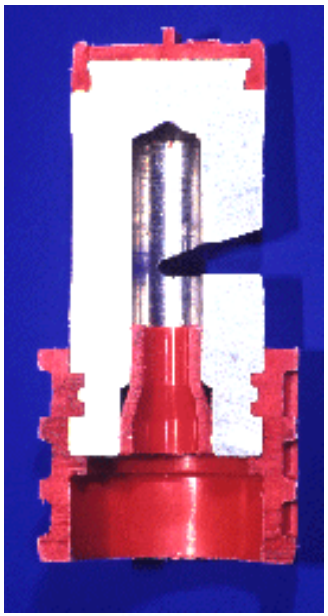
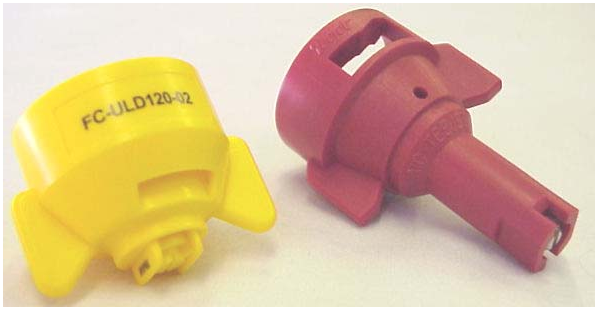
ADVICE?


Concern about droplets!

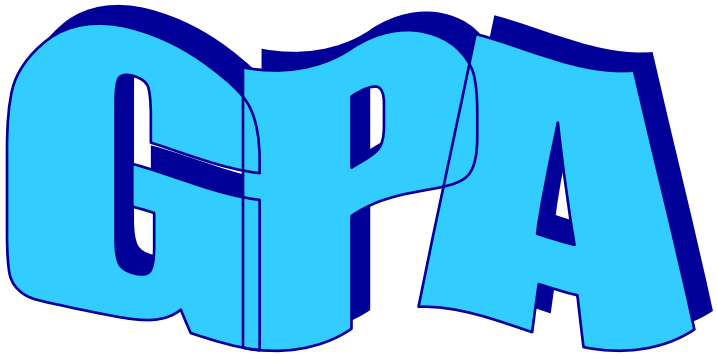
Nozzle Technology……

- Nozzles designed to reduce drift
- Improved drop size control
- Emphasis on ‘Spray Quality’





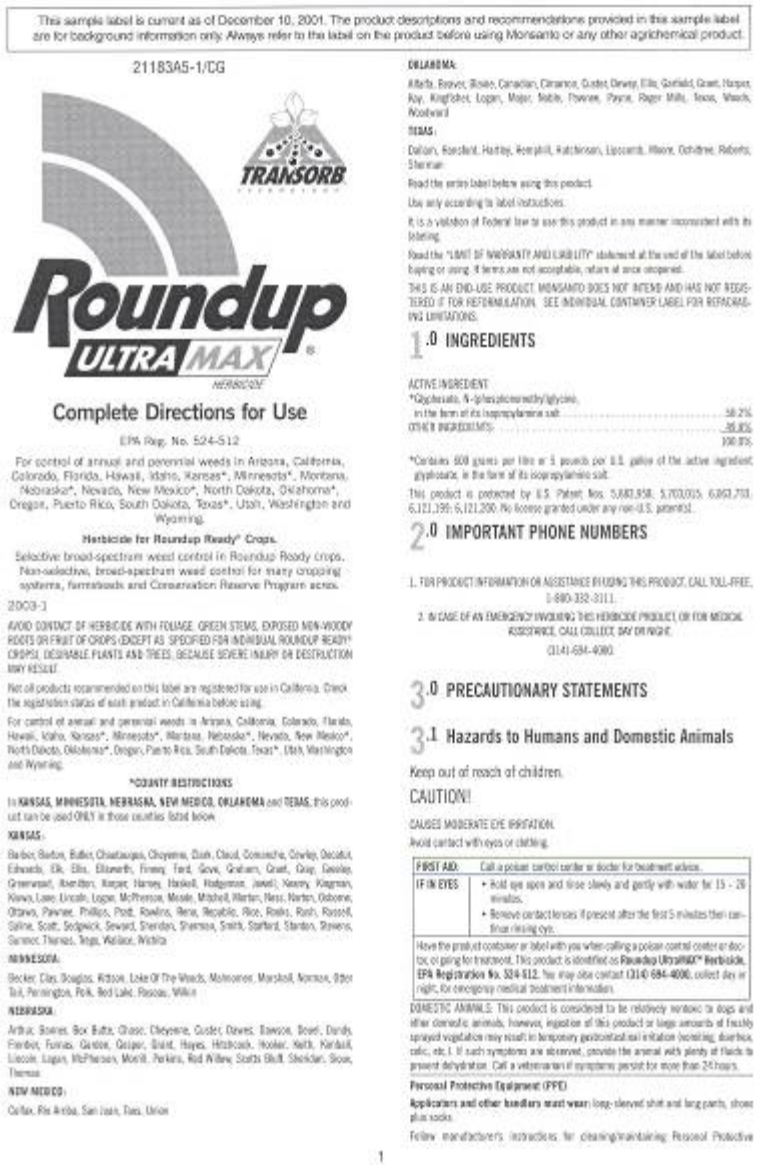
Calibration!!!!



Ensuring that the spray output is what it is supposed to be!

Calibration/Nozzle Selection:

- What is the first step?
- Use label to select the
  - **application volume**
  - product rate
- Choose an appropriate travel speed - MPH
- Effective width of application
  - **nozzle spacing**
- Calculate GPM – Flow rate per nozzle
- Select the correct size of nozzle!



This sample label is current as of December 10, 2001. The product descriptions and recommendations provided in this sample label are for background information only. Always refer to the label on the product before using Monsanto or any other agrichemical product.

21183A5-1/CG

TRANSORB

Roundup ULTRA MAX

Complete Directions for Use

EPA Reg. No. 524-512

For control of annual and perennial weeds in Arizona, California, Colorado, Florida, Hawaii, Idaho, Kansas*, Minnesota*, Montana, Nebraska*, Nevada, New Mexico*, North Dakota, Oklahoma*, Oregon, Puerto Rico, South Dakota, Texas*, Utah, Washington and Wyoming.

Herbicide for Roundup Ready® Crops.

Selective broad-spectrum weed control in Roundup Ready crops. Non-selective, broad-spectrum weed control for many cropping systems, farmsteads and Conservation Reserve Program acres.

2003-1

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY® CROPS), DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

For control of annual and perennial weeds in Arizona, California, Colorado, Florida, Hawaii, Idaho, Kansas*, Minnesota*, Montana, Nebraska*, Nevada, New Mexico*, North Dakota, Oklahoma*, Oregon, Puerto Rico, South Dakota, Texas*, Utah, Washington and Wyoming.

*COUNTY RESTRICTIONS

In KANSAS, MINNESOTA, NEBRASKA, NEW MEXICO, OKLAHOMA and TEXAS, this product can be used ONLY in those counties listed below.

KANSAS:

Barber, Barton, Butler, Chautauqua, Cheyenne, Clark, Cloud, Comanche, Cowley, Decatur, Edwards, Elk, Ellis, Ellsworth, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Haskell, Hodgeman, Jewell, Kearny, Kingman, Kiowa, Lane, Lincoln, Logan, McPherson, Meade, Mitchell, Morton, Ness, Norton, Osborne, Ottawa, Pawnee, Phillips, Pratt, Rawlins, Reno, Republic, Rice, Rooks, Rush, Russell, Saline, Scott, Sedgwick, Seward, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Trego, Wallace, Wichita

MINNESOTA:

Becker, Clay, Douglas, Kittson, Lake Of The Woods, Mahnomen, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin

NEBRASKA:

Arthur, Banner, Box Butte, Chase, Cheyenne, Custer, Dawes, Dawson, Deuel, Dundy, Frontier, Furnas, Gardner, Grosper, Grant, Hayes, Hitchcock, Hooker, Keith, Kimball, Lincoln, Logan, McPherson, Morrill, Perkins, Red Willow, Scotts Bluff, Sheridan, Sioux, Thomas

NEW MEXICO:

Colfax, Rio Arriba, San Juan, Taos, Union

OKLAHOMA:

Alfalfa, Beaver, Blaine, Canadian, Cimarron, Custer, Dewey, Ellis, Garfield, Grant, Harper, Kay, Kingfisher, Logan, Major, Noble, Pawnee, Payne, Roger Mills, Texas, Woods, Woodward

TEXAS:

Dallam, Hansford, Hartley, Hemphill, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, Sherman

Read the entire label before using this product.

Use only according to label instructions.

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

1.0 INGREDIENTS

ACTIVE INGREDIENT:
*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt 50.2%
OTHER INGREDIENTS: 49.8%
100.0%

*Contains 608 grams per litre or 5 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt.

This product is protected by U.S. Patent Nos. 5,668,858, 5,703,015, 6,063,731, 6,121,199, 6,121,200. No license granted under any non-U.S. patent(s).

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE, 1-800-332-3111.

2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT:
(314) 694-4000

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

CAUSES MODERATE EYE IRRITATION.

Avoid contact with eyes or clothing.

FIRST AID:	Call a poison control center or doctor for treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses if present after the first 5 minutes then continue rinsing eye.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. This product is identified as **Roundup UltraMAX® Herbicide, EPA Registration No. 524-512.** You may also contact (314) 694-4000, collect day or night, for emergency medical treatment information.

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals, however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining Personal Protective

1

Controls the Amount applied:

Nozzle Flow Rate is affected by:

- **Orifice size**
- **Pressure**
- **Solution characteristics**

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

	PSI	GPM	GPA 40" 4 MPH	5 MPH	6 MPH	8 MPH	10 MPH	12 MPH	15 MPH	20 MPH
1/8K-.50 TK-.50 (100)	10	0.05	-	-	-	-	-	-	-	-
	20	0.07	2.6	2.1	1.8	1.3	1.1	0.88	0.70	0.53
	30	0.087	3.2	2.6	2.2	1.6	1.3	1.1	0.86	0.65
	40	0.10	3.7	3.0	2.5	1.9	1.5	1.2	0.99	0.74
1/8K-.75 TK-.75 (100)	10	0.075	2.8	2.2	1.9	1.4	1.1	0.93	0.74	0.56
	20	0.11	4.1	3.3	2.7	2.0	1.6	1.4	1.1	0.82
	30	0.13	4.8	3.9	3.2	2.4	1.9	1.6	1.3	0.97
	40	0.15	5.6	4.5	3.7	2.8	2.2	1.9	1.5	1.1
1/8K-1 TK-1 (100)	10	0.10	3.7	3.0	2.5	1.9	1.5	1.2	0.99	0.74
	20	0.14	5.2	4.2	3.5	2.6	2.1	1.7	1.4	1.0
	30	0.17	6.3	5.0	4.2	3.2	2.5	2.1	1.7	1.3
	40	0.20	7.4	5.9	5.0	3.7	3.0	2.5	2.0	1.5
1/8K-1.5 TK-1.5 (50)	10	0.15	5.6	4.5	3.7	2.8	2.2	1.9	1.5	1.1
	20	0.21	7.8	6.2	5.2	3.9	3.1	2.6	2.1	1.6
	30	0.26	9.7	7.7	6.4	4.8	3.9	3.2	2.6	1.9
	40	0.30	11.1	8.9	7.4	5.6	4.5	3.7	3.0	2.2
[1/8K, 1/4K, TK]-2 TK-2 (50)	10	0.20	7.4	5.9	5.0	3.7	3.0	2.5	2.0	1.5
	20	0.28	10.4	8.3	6.9	5.2	4.2	3.5	2.8	2.1
	30	0.35	13.0	10.4	8.7	6.5	5.2	4.3	3.5	2.6
	40	0.40	14.9	11.9	9.9	7.4	5.9	5.0	4.0	3.0
[1/8K, 1/4K, TK]-2.5 TK-2.5 (50)	10	0.25	9.3	7.4	6.2	4.6	3.7	3.1	2.5	1.9
	20	0.35	13.0	10.4	8.7	6.5	5.2	4.3	3.5	2.6
	30	0.43	16.0	12.8	10.6	8.0	6.4	5.3	4.3	3.2
	40	0.50	18.6	14.9	12.4	9.3	7.4	6.2	5.0	3.7
[1/8K, 1/4K, TK]-3 [TK, TKT]-3 (50)	10	0.30	11.1	8.9	7.4	5.6	4.5	3.7	3.0	2.2
	20	0.42	15.6	12.5	10.4	7.8	6.2	5.2	4.2	3.1
	30	0.52	19.3	15.4	12.9	9.7	7.7	6.4	5.1	3.9
	40	0.60	22	17.8	14.9	11.1	8.9	7.4	5.9	4.5
[1/8K, TK]-4 (50) TK-4 (50)	10	0.40	14.9	11.9	9.9	7.4	5.9	5.0	4.0	3.0
	20	0.57	21	16.9	14.1	10.6	8.5	7.1	5.6	4.2
	30	0.69	26	20	17.1	12.8	10.2	8.5	6.8	5.1
	40	0.80	30	24	19.8	14.9	11.9	9.9	7.9	5.9
[1/8K, 1/4K, TK]-5 [TK, TKT]-5 (50)	10	0.50	18.6	14.9	12.4	9.3	7.4	6.2	5.0	3.7
	20	0.71	26	21	17.6	13.2	10.5	8.8	7.0	5.3
	30	0.87	32	26	22	16.1	12.9	10.8	8.6	6.5
	40	1.00	37	30	25	18.6	14.9	12.4	9.9	7.4
[1/8K, 1/4K, TK]-7.5 TK-7.5 (50)	10	0.75	28	22	18.6	13.9	11.1	9.3	7.4	5.6
	20	1.06	39	31	26	19.7	15.7	13.1	10.5	7.9
	30	1.30	48	39	32	24	19.3	16.1	12.9	9.7
	40	1.50	56	45	37	28	22	18.6	14.9	11.1
[1/8K, 1/4K, TK]-10 TK-10 (50)	10	1.00	37	30	25	18.6	14.9	12.4	9.9	7.4
	20	1.41	52	42	35	26	21	17.4	14.0	10.5
	30	1.73	64	51	43	32	26	21	17.1	12.8
	40	2.00	74	59	50	37	30	25	19.8	14.9
[1/8K, 1/4K]-12	10	1.20	45	36	30	22	17.8	14.9	11.9	8.9
	20	1.70	63	50	42	32	25	21	16.8	12.6
	30	2.08	77	62	51	39	31	26	21	15.4
	40	2.40	89	71	59	45	36	30	24	17.8
[1/8K, 1/4K]-15 TK-15	10	1.50	56	45	37	28	22	18.6	14.9	11.1
	20	2.12	79	63	52	39	31	26	21	15.7
	30	2.60	97	77	64	48	39	32	26	19.3
	40	3.00	111	89	74	56	45	37	30	22
[1/8K, 1/4K]-18	10	1.80	67	53	45	33	27	22	17.8	13.4
	20	2.55	95	76	63	47	38	32	25	19
	30	3.12	116	93	77	58	46	39	31	23
	40	3.60	134	107	89	67	53	45	36	27
[1/8K, 1/4K]-20 TK-20	10	2.00	74	59	50	37	30	25	19.8	14.9
	20	2.83	105	84	70	53	42	35	28	21
QCK-20	30	3.46	128	103	86	64	51	43	34	26
	40	4.00	149	119	99	74	59	50	40	30
1/4K-22	10	2.20	82	65	54	41	33	27	22	16.3
	20	3.11	115	92	77	58	46	38	31	23
	30	3.81	141	113	94	71	57	47	38	28
	40	4.40	163	131	109	82	65	54	44	33
1/4K-24	10	2.40	89	71	59	45	36	30	24	17.8
	20	3.34	126	101	84	63	50	42	34	25
	30	4.15	154	124	103	77	62	51	41	31
	40	4.80	178	143	119	89	71	59	48	36

	PSI	GPM	GPA 60" 4 MPH	5 MPH	6 MPH	8 MPH	10 MPH	12 MPH	15 MPH	20 MPH
1/4K-27	10	2.70	67	53	45	33	27	22	17.8	13.4
	20	3.82	95	76	63	47	38	32	25	18.9
	30	4.68	116	93	77	58	46	39	31	23
	40	5.40	134	107	89	67	53	45	36	27
3/8K-30 TK-30 QCK-30	10	3.00	74	59	50	37	30	25	19.8	14.9
	20	4.24	105	84	70	52	42	35	28	21
	30	5.20	129	103	86	64	51	43	34	26
	40	6.00	149	119	99	74	59	50	40	30
3/8K-35	10	3.50	87	69	58	43	35	29	23	17.3
	20	4.95	123	98	82	61	49	41	33	25
	30	6.06	150	120	100	75	60	50	40	30
	40	7.00	173	139	116	87	69	58	46	35
[3/8K, 1/2K]-40 QCK-40	10	4.00	99	79	66	50	40	33	26	19.8
	20	5.66	140	112	93	70	56	47	37	28
	30	6.93	172	137	114	86	69	57	46	34
	40	8.00	198	158	132	99	79	66	53	40
3/8K-45	10	4.50	111	89	74	56	45	37	30	22
	20	6.36	157	126	105	79	63	52	42	31
	30	7.79	193	154	129	96	77	64	51	39
	40	9.00	223	178	149	111	89	74	59	45
1/2K-50 QCK-50	10	5.00	124	99	83	62	50	41	33	25
	20	7.07	175	140	117	87	70	58	47	35
	30	8.66	214	171	143	107	86	71	57	43
	40	10.0	248	198	165	124	99	83	66	50
1/2K-60 QCK-60	10	6.00	149	119	99	74	59	50	40	30
	20	8.49	210	168	140	105	84	70	56	42
	30	10.4	257	206	171	129	103	86	69	51
	40	12.0	297	238	198	149	119	99	79	59
1/2K-70	10	7.00	173	139	116	87	69	58	46	35
	20	9.90	245	196	163	123	98	82	65	49
	30	12.1	300	240	200	150	120	100	80	60
	40	14.0	347	277	231	173	139	116	92	69
[1/2K, 3/4K]-80 QCK-80	10	8.00	198	158	132	99	79	66	53	40
	20	11.3	280	224	186	140	112	93	75	56
	30	13.9	344	275	229	172	138	115	92	69
	40	16.0	396	317	264	198	158	132	106	79
[1/2K, 3/4K]-90	10	9.00	223	178	149	111	89	74	59	45
	20	12.7	314	251	210	157	126	105	84	63
	30	15.6	386	309	257	193	154	129	103	77
	40	18.0	446	356	297	223	178	149	119	89
3/4K-100 QCK-100	10	10.0	248	198	165	124	99	83	66	50
	20	14.1	349	279	233	174	140	116	93	70
	30	17.3	428	343	285	214	171	143	114	86
	40	20.0	495	396	330	248	198	165	132	99
3/4K-110	10	11.0	272	218	182	136	109	91	73	54
	20	15.6	386	309	257	193	154	129	103	77
	30	19.1	473	378	315	236	189	158	126	95
	40	22.0	545	436	363	272	218	182	145	109
[1/2K, 3/4K]-120 QCK-120	10	12.0	297	238	198	149	119	99	79	59
	20	17.0	421	337	281	210	168	140	112	84
	30	20.8	515	412	343	257	206	172	137	103
	40	24.0	594	475	396	297	238	198	158	119
3/4K-140	10	14.0	347	277	231	173	139	116	92	69
	20	19.8	490	392	327	245	196	163	131	98
	30	24.2	599	479	399	299	240	200	160	120
	40	28.0	693	554	462	347	277	231	185	139
QCK-150	10	15.0	371	297	248	186	149	124	99	74
	20	21.2	525	420	350	262	210	175	140	105
	30	26.0	644	515	429	322	257	215	172	129
	40	30.0	743	594	495	371	297	248	198	149
3/4K-160	10	16.0	396	317	264	198	158	132	106	79
	20	22.6	559	447	373	280	224	186	149	112
	30	27.7	686	548	457	343	274	229	183	137
	40	32.0	792	634	528	396	317	264	211	158
3/4K-180 QCK-180	10	18.0	446	356	297	223	178	149	119	89
	20	25.5	631	505	421	316	252	210	168	126
	30	31.2	772	618	515	386	309	257	206	154
	40	36.0	891	713	594	446	356	297	238	178
3/4K-210 QCK-210	10	21.0	520	416	347	260	208	173	139	104
	20	29.7	735	588	490	368	294	245	196	147
	30	36.4	901	721	601	450	360	300	240	180
	40	42.0	1040	832	693	520	416	347	277	208

Note: Always double check your application rates.
Other spray angles, capacities, and materials may be available.
See your TeeJet Dealer or www.teejet.com for more information.

(B) = BSPT

Flow Rate Equation:

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

Equation

- Calculates for amount of flow from one nozzle
- Represents the size of nozzle to put on the sprayer

GPM Example Solution:

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

$$GPM = \frac{12 \times 12 \times 20}{5940}$$

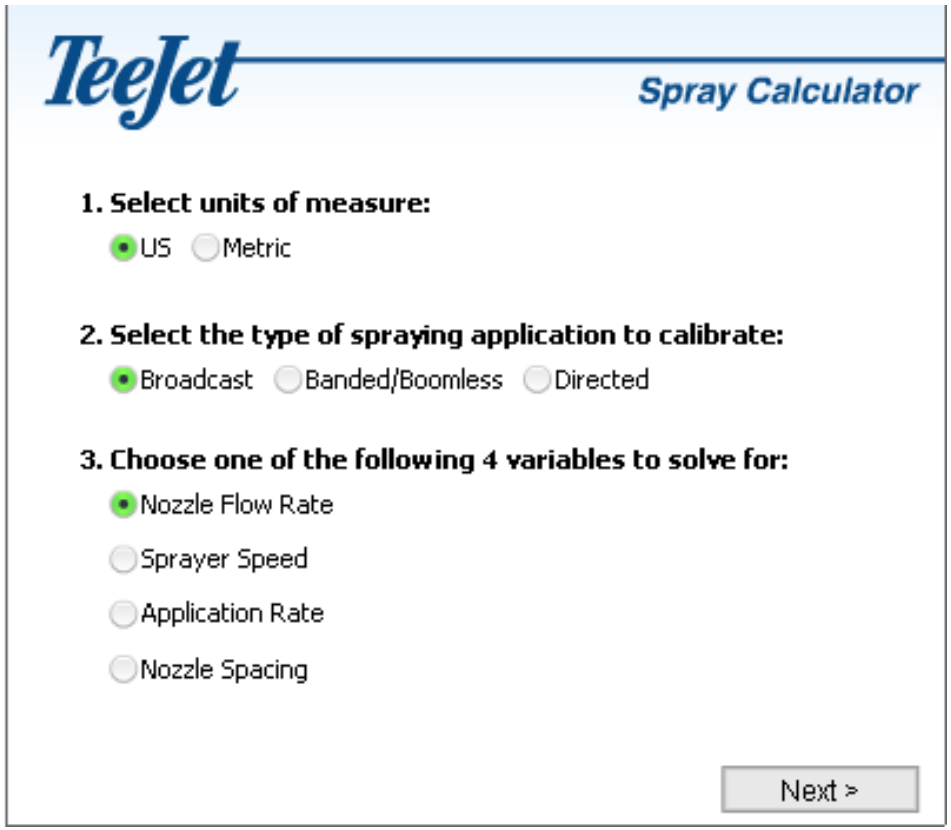
Answer **.48**

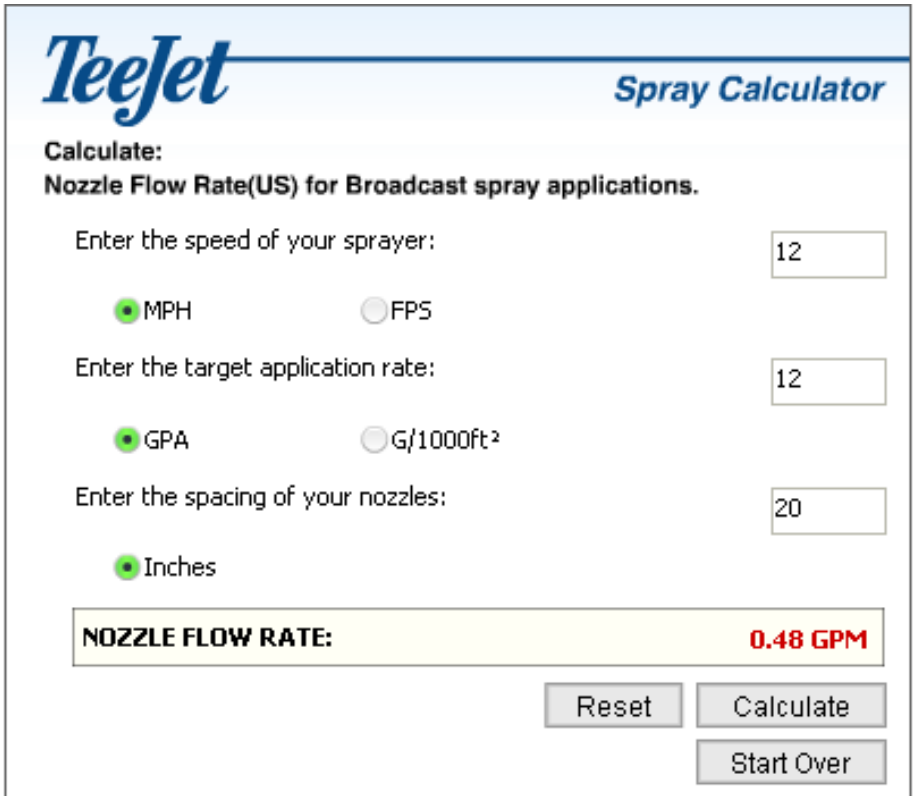
Selecting the proper nozzle….

- Calculate GPM (formula)
- Look under GPM column
- Match to pressure-psi
- Choose the size needed
- Operate at given pressure and speed used in formula to achieve GPA

.48

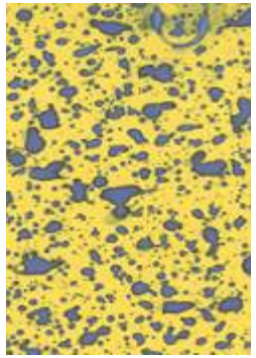
	PSI		GPA 20" 4 mph	5 mph	6 mph	7 mph	8 mph	9 mph	10 mph	12 mph	14 mph	16 mph	18 mph	20 mph	GAL/1000FT² 28" 2 mph	3 mph	4 mph	5 mph
D25143-UB-8504 TQ150-04, OC-04	15	0.24	17.8	14.3	11.9	10.2	8.9	7.9	7.1	5.9	5.1	4.5	4.0	3.6	0.82	0.54	0.41	0.33
	20	0.28	21	16.6	13.9	11.9	10.4	9.2	8.3	6.9	5.9	5.2	4.6	4.2	0.95	0.63	0.48	0.38
(DG, TJ60, TP, XR, XRC) 8004	30	0.35	26	21	17.3	14.9	13.0	11.6	10.4	8.7	7.4	6.5	5.8	5.2	1.2	0.79	0.60	0.48
(AI, AIC, DG, TJ60, TP, TT, XR, XRC) 11004 AIUB8504 1/4TTJ04 TF-2 (50)	40	0.40	30	24	19.8	17.0	14.9	13.2	11.9	9.9	8.5	7.4	6.6	5.9	1.4	0.91	0.68	0.54
	50	0.45	33	27	22	19.1	16.7	14.9	13.4	11.1	9.5	8.4	7.4	6.7	1.5	1.0	0.77	0.61
	60	0.49	36	29	24	21	18.2	16.2	14.6	12.1	10.4	9.1	8.1	7.3	1.7	1.1	0.83	0.67
	75	0.55	41	33	27	23	20	18.2	16.3	13.6	11.7	10.2	9.1	8.2	1.9	1.2	0.94	0.75
	90	0.60	45	36	30	25	22	19.8	17.8	14.9	12.7	11.1	9.9	8.9	2.0	1.4	1.0	0.82
TQ150-05	15	0.31	23	18.4	15.3	13.2	11.5	10.2	9.2									
	20	0.35	26	21	17.3	14.9	13.0	11.6	10.4									
(DG, TP, XR, XRC) 8005	30	0.43	32	26	21	18.2	16.0	14.2	12.8									
(AI, AIC, DG, TP, TT, XR, XRC) 11005 1/4TTJ05 TF-2.5 (50)	40	0.50	37	30	25	21	18.6	16.5	14.9									
	50	0.56	42	33	28	24	21	18.5	16.6									
	60	0.61	45	36	30	26	23	20	18.1									
	75	0.68	50	40	34	29	25	22	20									
	90	0.75	56	45	37	32	28	25	22									
TQ150-06 OC-06	15	0.37	27	22	18.3	15.7	13.7	12.2	11.0									
	20	0.42	31	25	21	17.8	15.6	13.9	12.5									
(TJ60, TP, XR, XRC) 8006	30	0.52	39	31	26	22	19.3	17.2	15.4									
(AI, TJ60, TP, TT, XR) 11006 1/4TTJ06 TF-3 (50)	40	0.60	45	36	30	25	22	19.8	17.8									
	50	0.67	50	40	33	28	25	22	19.9									
	60	0.73	54	43	36	31	27	24	22									
	75	0.82	61	49	41	35	30	27	24									
	90	0.90	67	53	45	38	33	30	27									
TQ150-08 OC-08	15	0.49	36	29	24	21	18.2	16.2	14.6									
	20	0.57	42	34	28	24	21	18.8	16.9									
(TJ60, TP, XR) 8008	30	0.69	51	41	34	29	26	23	20									
(AI, TJ60, TP, TT, XR) 11008 1/4TTJ08 TF-4 (50)	40	0.80	59	48	40	34	30	26	24									
	50	0.89	66	53	44	38	33	29	26	22	18.9	16.5	14.7	13.2	3.0	2.0	1.5	1.2
	60	0.98	73	58	49	42	36	32	29	24	21	18.2	16.2	14.6	3.3	2.2	1.7	1.3
	75	1.10	82	65	54	47	41	36	33	27	23	20	18.2	16.3	3.7	2.5	1.9	1.5
	90	1.20	89	71	59	51	45	40	36	30	25	22	19.8	17.8	4.1	2.7	2.0	1.6
(TP, XR) 8010 (TP, XR) 11010	15	0.61	45	36	30	26	23	20	18.1	15.1	12.9	11.3	10.1	9.1	2.1	1.4	1.0	0.83
	20	0.71	53	42	35	30	26	23	21	17.6	15.1	13.2	11.7	10.5	2.4	1.6	1.2	0.97
TJ60-8010 TJ60-11010 1/4TTJ10 TF-5 (50)	30	0.87	65	52	43	37	32	29	26	22	18.5	16.1	14.4	12.9	3.0	2.0	1.5	1.2
	40	1.00	74	59	50	42	37	33	30	25	21	18.6	16.5	14.9	3.4	2.3	1.7	1.4
	50	1.12	83	67	55	48	42	37	33	28	24	21	18.5	16.6	3.8	2.5	1.9	1.5
	60	1.22	91	72	60	52	45	40	36	30	26	23	20	18.1	4.1	2.8	2.1	1.7
	75	1.37	102	81	68	58	51	45	41	34	29	25	23	20	4.7	3.1	2.3	1.9
	90	1.50	111	89	74	64	56	50	45	37	32	28	25	22	5.1	3.4	2.6	2.0
(TP, XR) 8015 (TP, XR) 11015	15	0.92	68	55	46	39	34	30	27	23	19.5	17.1	15.2	13.7	3.1	2.1	1.6	1.3
	20	1.06	79	63	52	45	39	35	31	26	22	19.7	17.5	15.7	3.6	2.4	1.8	1.4
1/4TTJ15 TF-7.5 (50)	30	1.30	97	77	64	55	48	43	39	32	28	24	21	19.3	4.4	2.9	2.2	1.8
	40	1.50	111	89	74	64	56	50	45	37	32	28	25	22	5.1	3.4	2.6	2.0
	50	1.68	125	100	83	71	62	55	50	42	36	31	28	25	5.7	3.8	2.9	2.3
	60	1.84	137	109	91	78	68	61	55	46	39	34	30	27	6.3	4.2	3.1	2.5
	75	2.05	152	122	101	87	76	68	61	51	43	38	34	30	7.0	4.6	3.5	2.8


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
Nozzle Spacing
Next >


TeeJet
Spray Calculator
Calculate:
Nozzle Flow Rate(US) for Broadcast spray applications.
Enter the speed of your sprayer:
12
MPH
FPS
Enter the target application rate:
12
GPA
G/1000ft²
Enter the spacing of your nozzles:
20
Inches
NOZZLE FLOW RATE:
0.48 GPM
Reset
Calculate
Start Over

Spray Droplet Management!

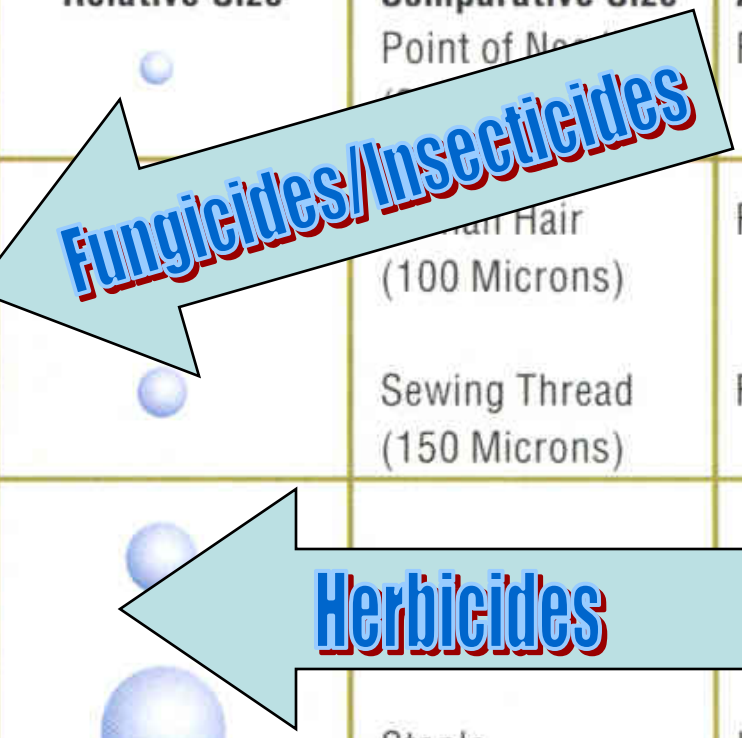
- Need knowledge of the product being used.
- Herbicide, Fungicide, Insecticide
  - Systemic
  - Contact



- What is the target?
  - Soil
  - Grass
  - Broadleaf (smooth, hairy, waxy)
  - Leaf orientation – time of day
  - Penetration into canopy

ASABE S-572 Droplet Size Standard

ASAE Standard				Comparative Size		
Symbol	Category	Code	Apx. VMD	Relative Size	Comparative Size	Atomization
VF	Very Fine	Red	>150		Point of No	Fog
F	Fine	Orange	151-250		Human Hair (100 Microns)	Fine Mist
M	Medium	Yellow	251-350		Sewing Thread (150 Microns)	Fine Drizzle
C	Coarse	Blue	351-450			
VC	Very Coarse	Green	451-550		Staple (420 Microns)	Light Rain
EC	Extremely Coarse	White	>551		#2 Pencil Lead (2000 Microns)	Thunderstorm



Source: Crop Life – July 2002

Calibration!!!!

The next phase!

Ensuring that the spray droplet spectrum is what it is supposed to be to maximize efficacy while minimizing drift!

A new concept for applicators!

Bayer CropScience

OLYMPUS™ FLEX Herbicide

For Post-emergence Control of Certain Grasses and Broadleaf Weeds in Fall-sown or Winter Wheat.

ACTIVE INGREDIENTS:

Propoxycarbazone-sodium (CAS No. 181274-15-7)	6.75%
Mesosulfuron-Methyl (CAS No. 208465-21-8)	4.50%
INERT INGREDIENTS	88.75%

Contains petroleum distillates.

Protected by U.S. Patent Nos. 5,648,315 and 5,688,745 **TOTAL :** 100.00%

This product is a water dispersible granule containing 6.75% Propoxycarbazone-sodium and 4.50% Mesosulfuron-methyl, by weight.

EPA Reg. No. 264-833 **EPA Est.**

APPLICATION INFORMATION

Thorough coverage of weeds is necessary to achieve good weed control. The use of nozzles and spray pressure that deliver **MEDIUM** spray droplets as indicated in the nozzle manufacturer's catalogs and in accordance with ASAE Standard S-572 are highly recommended for optimum spray coverage and canopy penetration.

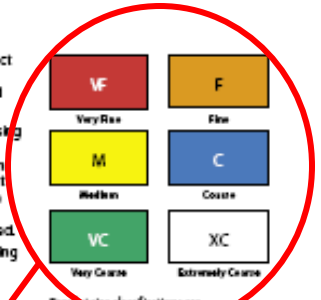
Drop Size Classification

Nozzle selection is often based upon droplet size. The droplet size from a nozzle becomes very important when the efficacy of a particular plant protection chemical is dependent on coverage, or the prevention of spray leaving the target area is a priority.

The majority of the nozzles used in agriculture can be classified as producing either fine, medium, coarse, or very coarse droplets. Nozzles that produce fine droplets are usually recommended for post-emergence applications, which require excellent coverage on the intended target area. The most common nozzles used in agriculture are those that produce medium-sized droplets. Nozzles producing medium- and coarse-sized droplets can be used for contact and systemic herbicides, pre-emergence surface-applied herbicides, insecticides and fungicides.

An important point to remember when choosing a spray nozzle that produces a droplet size in one of the six categories is that one nozzle can produce different droplet size classifications at different pressures. A nozzle might produce medium droplets at low pressures, while producing fine droplets as pressure is increased.

Droplet size classes are shown in the following tables to assist in choosing an appropriate spray tip.



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

Turbo TeeJet® (TT) and Turbo TeeJet® Duo (QJ90-2XTT)

	PSI										
	15	20	25	30	35	40	50	60	70	80	90
TTI 1001 QJ90-2XTTI1001	C	M	M	M	M	M	F	F	F	F	F
TTI 10015 QJ90-2XTTI10015	C	C	M	M	M	M	M	M	F	F	F
TTI 1002 QJ90-2XTTI1002	C	C	C	M	M	M	M	M	M	M	F
TTI 10025 QJ90-2XTTI10025	VC	C	C	C	M	M	M	M	M	M	F
TTI 1003 QJ90-2XTTI1003	VC	VC	C	C	C	C	M	M	M	M	M
TTI 1004 QJ90-2XTTI1004	XC	VC	VC	C	C	C	C	C	M	M	M
TTI 1005 QJ90-2XTTI1005	XC	VC	VC	VC	VC	C	C	C	C	M	M
TTI 1006 QJ90-2XTTI1006	XC	XC	VC	VC	VC	C	C	C	C	C	M
TTI 1008 QJ90-2XTTI1008	XC	XC	VC	VC	VC	VC	C	C	C	C	M

Air TeeJet® (AI) and AIC TeeJet® (AIC)

	PSI											
	30	35	40	45	50	55	60	70	80	90	100	115
AI 10015	VC	VC	VC	VC	VC	C	C	C	C	C	C	C
AI 1002	VC	VC	VC	VC	VC	VC	VC	C	C	C	C	C
AI 10025	VC	VC	VC	VC	VC	VC	VC	VC	C	C	C	C
AI 1003	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C	C
AI 1004	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C	C
AI 1005	XC	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C
AI 1006	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C
AI 1008	XC	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C
AI 1010	XC	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C

Turbo TwinJet® (TTJ60)

	PSI										
	15	20	25	30	35	40	50	60	70	80	90
TTJ60-11002	VC	C	C	C	C	C	M	M	M	M	M
TTJ60-110025	XC	VC	C	C	C	C	C	C	M	M	M
TTJ60-11003	XC	VC	C	C	C	C	C	C	C	M	M
TTJ60-11004	XC	VC	C	C	C	C	C	C	C	C	M
TTJ60-11005	XC	VC	C	C	C	C	C	C	C	C	C
TTJ60-11006	XC	XC	VC	VC	C	C	C	C	C	C	C

Turbo TeeJet® Induction (TTI)

	PSI											
	15	20	25	30	35	40	50	60	70	80	90	100
TTI 10015	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 1002	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 10025	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 1003	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 1004	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 1005	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC
TTI 1006	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC	XC

Droplet Selection/Calibration:

	PSI	DROP SIZE	CAPACITY ONE NOZZLE IN GPM	CAPACITY ONE NOZZLE IN OZ./MIN.	20" GPA 4 MPH	5 MPH	6 MPH	8 MPH	10 MPH	12 MPH	15 MPH	20 MPH	GALLONS PER 1000 SQ. FT. 2 MPH	3 MPH	4 MPH	5 MPH
AI110015 (100)	30	VC	0.13	17	9.7	7.7	6.4	4.8	3.9	3.2	2.6	1.9	0.44	0.29	0.22	0.18
	40	VC	0.15	19	11.1	8.9	7.4	5.6	4.5	3.7	3.0	2.2	0.51	0.34	0.26	0.20
	50	VC	0.17	22	12.6	10.1	8.4	6.3	5.0	4.2	3.4	2.5	0.58	0.39	0.29	0.23
	60	C	0.18	23	13.4	10.7	8.9	6.7	5.3	4.5	3.6	2.7	0.61	0.41	0.31	0.24
	70	C	0.20	26	14.9	11.9	9.9	7.4	5.9	5.0	4.0	3.0	0.68	0.45	0.34	0.27
	80	C	0.21	27	15.6	12.5	10.4	7.8	6.2	5.2	4.2	3.1	0.71	0.48	0.36	0.29
	90	C	0.23	29	17.1	13.7	11.4	8.5	6.8	5.7	4.6	3.4	0.78	0.52	0.39	0.31
	100	C	0.24	31	17.8	14.3	11.9	8.9	7.1	5.9	4.8	3.6	0.82	0.54	0.41	0.33
AI11002 (50)	30	VC	0.17	22	12.6	10.1	8.4	6.3	5.0	4.2	3.4	2.5	0.58	0.39	0.29	0.23
	40	VC	0.20	26	14.9	11.9	9.9	7.4	5.9	5.0	4.0	3.0	0.68	0.45	0.34	0.27
	50	VC	0.22	28	16.3	13.1	10.9	8.2	6.5	5.4	4.4	3.3	0.75	0.50	0.37	0.30
	60	VC	0.24	31	17.8	14.3	11.9	8.9	7.1	5.9	4.8	3.6	0.82	0.54	0.41	0.33
	70	C	0.26	33	19.3	15.4	12.9	9.7	7.7	6.4	5.1	3.9	0.88	0.59	0.44	0.35
	80	C	0.28	36	21	16.6	13.9	10.4	8.3	6.9	5.5	4.2	0.95	0.63	0.48	0.38
	90	C	0.30	38	22	17.8	14.9	11.1	8.9	7.4	5.9	4.5	1.0	0.68	0.51	0.41
	100	C	0.32	41	24	19.0	15.8	11.9	9.5	7.9	6.3	4.8	1.1	0.73	0.54	0.44
AI110025 (50)	30	VC	0.22	28	16.3	13.1	10.9	8.2	6.5	5.4	4.4	3.3	0.75	0.50	0.37	0.30
	40	VC	0.25	32	18.6	14.9	12.4	9.3	7.4	6.2	5.0	3.7	0.85	0.57	0.43	0.34
	50	VC	0.28	36	21	16.6	13.9	10.4	8.3	6.9	5.5	4.2	0.95	0.63	0.48	0.38
	60	VC	0.31	40	23	18.4	15.3	11.5	9.2	7.7	6.1	4.6	1.1	0.70	0.53	0.42
	70	VC	0.33	42	25	19.6	16.3	12.3	9.8	8.2	6.5	4.9	1.1	0.75	0.56	0.45
	80	C	0.35	45	26	21	17.3	13.0	10.4	8.7	6.9	5.2	1.2	0.79	0.60	0.48
	90	C	0.38	49	28	23	18.8	14.1	11.3	9.4	7.5	5.6	1.3	0.86	0.65	0.52
	100	C	0.40	51	30	24	19.8	14.9	11.9	9.9	7.9	5.9	1.4	0.91	0.68	0.54
AI11003 (50)	30	XC	0.26	33	19.3	15.4	12.9	9.7	7.7	6.4	5.1	3.9	0.88	0.59	0.44	0.35
	40	VC	0.30	38	22	17.8	14.9	11.1	8.9	7.4	5.9	4.5	1.0	0.68	0.51	0.41
	50	VC	0.34	44	25	20	16.8	12.6	10.1	8.4	6.7	5.0	1.2	0.77	0.58	0.46
	60	VC	0.37	47	27	22	18.3	13.7	11.0	9.2	7.3	5.5	1.3	0.84	0.63	0.50
	70	VC	0.40	51	30	24	19.8	14.9	11.9	9.9	7.9	5.9	1.4	0.91	0.68	0.54
	80	VC	0.42	54	31	25	21	15.6	12.5	10.4	8.3	6.2	1.4	0.95	0.71	0.57
	90	C	0.45	58	33	27	22	16.7	13.4	11.1	8.9	6.7	1.5	1.0	0.77	0.61
	100	C	0.47	60	35	28	23	17.4	14.0	11.6	9.3	7.0	1.6	1.1	0.80	0.64
AI11004 (50)	30	XC	0.35	45	26	21	17.3	13.0	10.4	8.7	6.9	5.2	1.2	0.79	0.60	0.48
	40	XC	0.40	51	30	24	19.8	14.9	11.9	9.9	7.9	5.9	1.4	0.91	0.68	0.54
	50	VC	0.45	58	33	27	22	16.7	13.4	11.1	8.9	6.7	1.5	1.0	0.77	0.61
	60	VC	0.49	63	36	29	24	18.2	14.6	12.1	9.7	7.3	1.7	1.1	0.83	0.67
	70	VC	0.53	68	39	31	26	19.7	15.7	13.1	10.5	7.9	1.8	1.2	0.90	0.72
	80	VC	0.57	73	42	34	28	21	16.9	14.1	11.3	8.5	1.9	1.3	0.97	0.78
	90	C	0.60	77	45	36	30	22	17.8	14.9	11.9	8.9	2.0	1.4	1.0	0.82
	100	C	0.63	81	47	37	31	23	18.7	15.6	12.5	9.4	2.1	1.4	1.1	0.86
	30	XC	0.43	55	32	26	21	16.0	12.8	10.6	8.5	6.4	1.5	0.97	0.73	0.58

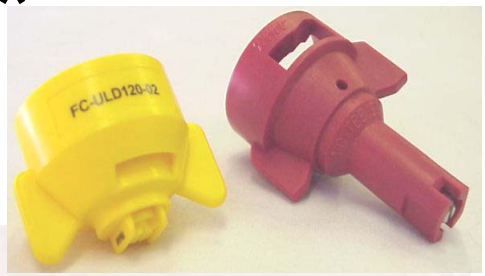
XR TeeJet® (XR) and XRC TeeJet® (XRC)

	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

Turbo TeeJet® (TT)

	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

Droplet Spectra Classification*



AI TeeJet® (AI) and AIC TeeJet® (AIC)

	PSI											
	30	35	40	45	50	55	60	70	80	90	100	115
AI110015	VC	VC	VC	VC	VC	C	C	C	C	C	C	C
AI11002	VC	VC	VC	VC	VC	VC	VC	C	C	C	C	C
AI110025	VC	VC	VC	VC	VC	VC	VC	VC	C	C	C	C
AI11003	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C	C
AI11004	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C	C
AI11005	XC	XC	XC	VC	VC	VC	VC	VC	VC	VC	C	C
AI11006	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C	C
AI11008	XC	XC	XC	XC	XC	VC	VC	VC	VC	VC	VC	C

HYPRO

Spray Tip Guide

HIGH QUALITY SPRAY TIPS FOR EVERY SPRAYING NEED

www.hypropumps.com

	Herbicides				Fungicides		Insecticides		Liquid Fertilizer
	Soil Incorporated	Pre-Emerge	Post-Emerge Contact	Post-Emerge Systemic	Contact	Systemic	Contact	Systemic	
Manufacturer's Recommended droplet size	VC	VC	C	VC	M	C	M	C	VC
	VC	C	M	C	F	M	F	M	VC
	C	M	F	M	VF	F	VF	F	C

Pressure range at which each tip is recommended

Spray Tips PSI Range	Spray Tip and Strainer	Droplet Size @ 40 PSI
30-100	AVI-11001	VC
15-115	GRD120-01	M
20-60	ADI-11001	M
30-60	30-01F80	F
30-60	30-01F110	F
15-70	TR80-01	VF
15-70	TR110-01	VF
	(100 M Strainer)	
30-100	AVI-110015	VC
15-115	ULD120-015	C
15-115	GRD120-025	M
15-70	LD015F80	M
15-70	LD015F110	M
30-60	ADI-110015	M
15-70	TR80-015	F
15-70	TR110-015	F
15-70	VP80-015	F
15-70	VP110-015	F
20-60	AXI-80015	F
20-60	AXI-110015	F
30-60	30-015F80	F
30-60	30-015F110	F
	(100 M Strainer)	

Pressure (PSI)	Flow Rate (GPM)	Gallons per Acre 20 Inch Tip Spacing MPH 4	5	6	7	8	10	12	14	16	18	20	GAL/1000 Ft² 20 Inch Tip Spacing MPH 2	3	4	5
15	0.06	4.5	3.6	3.0	2.5	2.2	1.8	1.5	1.3	1.1	1.0	0.9	0.20	0.14	0.10	0.08
20	0.07	5.2	4.2	3.5	3.0	2.6	2.1	1.7	1.5	1.3	1.2	1.0	0.24	0.16	0.12	0.10
30	0.09	6.7	5.3	4.5	3.8	3.3	2.7	2.2	1.9	1.7	1.5	1.3	0.31	0.20	0.15	0.12
40	0.10	7.4	5.9	5.0	4.2	3.7	3.0	2.5	2.1	1.9	1.7	1.5	0.34	0.23	0.17	0.14
50	0.11	8.2	6.5	5.4	4.7	4.1	3.3	2.7	2.3	2.0	1.8	1.6	0.38	0.25	0.19	0.15
60	0.12	8.9	7.1	5.9	5.1	4.5	3.6	3.0	2.5	2.2	2.0	1.8	0.41	0.27	0.20	0.16
70	0.13	9.7	7.7	6.4	5.5	4.8	3.9	3.2	2.8	2.4	2.1	1.9	0.44	0.30	0.22	0.18
80	0.14	10.4	8.3	6.9	5.9	5.2	4.2	3.5	3.0	2.6	2.3	2.1	0.48	0.32	0.24	0.19
90	0.15	11.1	8.9	7.4	6.4	5.6	4.5	3.7	3.2	2.8	2.5	2.2	0.51	0.34	0.26	0.20
100	0.16	11.9	9.5	7.9	6.8	5.9	4.8	4.0	3.4	3.0	2.6	2.4	0.55	0.36	0.27	0.22
115	0.17	12.6	10.1	8.4	7.2	6.3	5.0	4.2	3.6	3.2	2.8	2.5	0.58	0.39	0.29	0.23
15	0.09	6.7	5.3	4.5	3.8	3.3	2.7	2.2	1.9	1.7	1.5	1.3	0.31	0.20	0.15	0.12
20	0.11	8.2	6.5	5.4	4.7	4.1	3.3	2.7	2.3	2.0	1.8	1.6	0.38	0.25	0.19	0.15
30	0.13	9.7	7.7	6.4	5.5	4.8	3.9	3.2	2.8	2.4	2.1	1.9	0.44	0.30	0.22	0.18
40	0.15	11.1	8.9	7.4	6.4	5.6	4.5	3.7	3.2	2.8	2.5	2.2	0.51	0.34	0.26	0.20
50	0.17	12.6	10.1	8.4	7.2	6.3	5.0	4.2	3.6	3.2	2.8	2.5	0.58	0.39	0.29	0.23
60	0.18	13.4	10.7	8.9	7.6	6.7	5.3	4.5	3.8	3.3	3.0	2.7	0.61	0.41	0.31	0.25
70	0.20	14.9	11.9	9.9	8.5	7.4	5.9	5.0	4.2	3.7	3.3	3.0	0.68	0.45	0.34	0.27
80	0.21	15.6	12.5	10.4	8.9	7.8	6.2	5.2	4.5	3.9	3.5	3.1	0.72	0.48	0.36	0.29
90	0.23	17.1	13.7	11.4	9.8	8.5	6.8	5.7	4.9	4.3	3.8	3.4	0.78	0.52	0.39	0.31
100	0.24	17.8	14.3	11.9	10.2	8.9	7.1	5.9	5.1	4.5	4.0	3.6	0.82	0.55	0.41	0.33
115	0.25	18.6	14.9	12.4	10.6	9.3	7.4	6.2	5.3	4.6	4.1	3.7	0.85	0.57	0.43	0.34

Tip Filter Mesh Recommendation

ASABE S572 Droplet Classification at 40 psi

Gallons per minute at 40 psi:
015 = 0.15 gallons per minute at 40 psi

Spray tip part number tells you the type of spray tip (organized by droplet size):
ULD - Ultra Lo-Drift
AVI - Air Injected Anti-Drift
GRD - Guardian
LD - Lo-Drift

Gallons per acre
Information applies to all tips listed on the left

Gallons per 1000 ft²

Greenleaf Droplet chart:

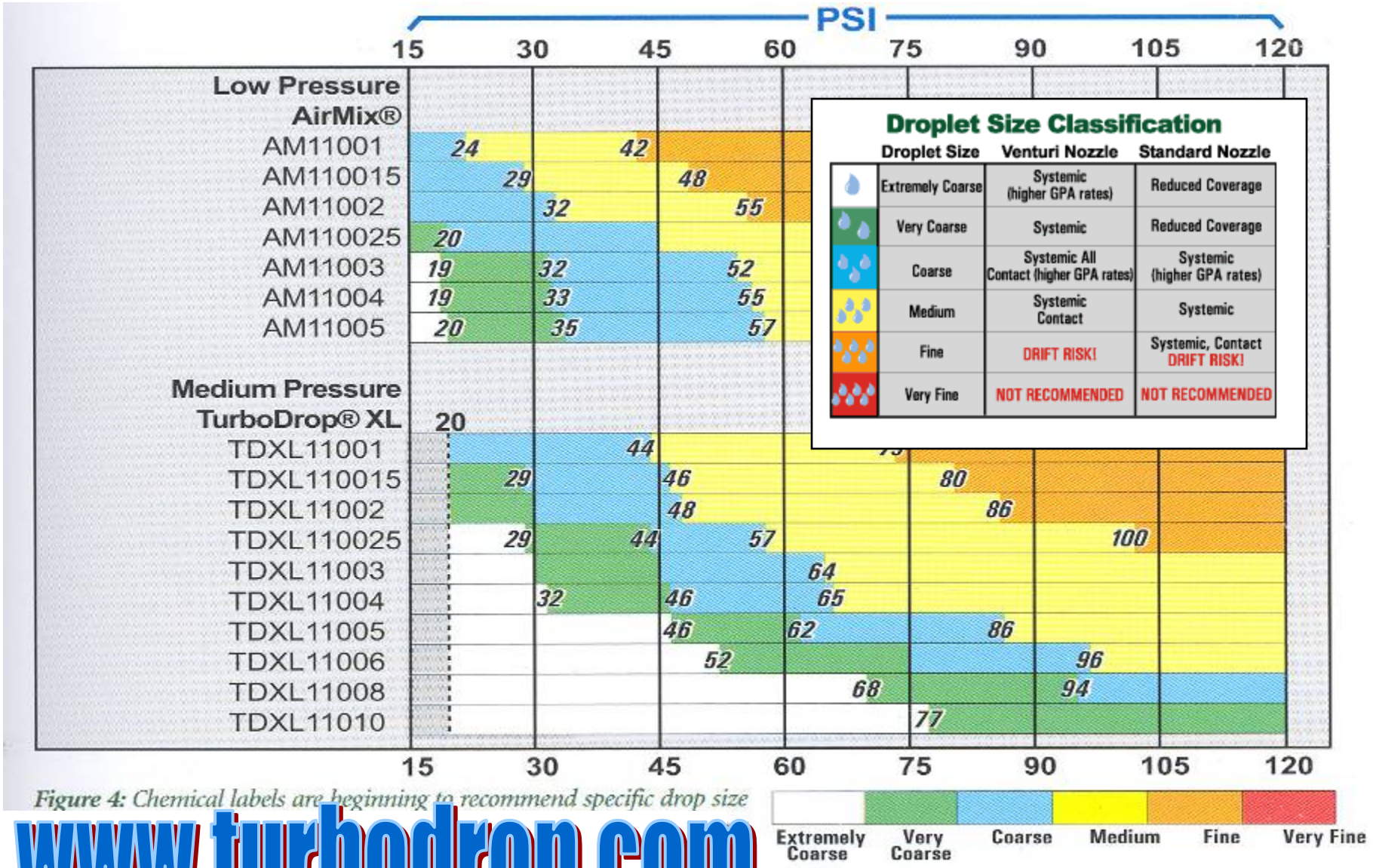


Figure 4: Chemical labels are beginning to recommend specific drop size

www.turbodrop.com

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Espanol Portuguese

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USDA Aerial Nozzle Atomization Models

F I X E D - W I N G

CP-03 NOZZLE

FOR USE ON FIXED-WING AIRCRAFT

AERIAL APPLICATORS SPRAY NOZZLE HANDBOOK
USDA ARS AGRICULTURAL HANDBOOK NO. XXX

I. W. Kirk, Agricultural Engineer, Areawide Pest Management Research Unit,
Southern Plains Agricultural Research Center, Agricultural Research Service, U. S. Department of Agriculture, 2771F&B Road, College Station, TX 77845-4966, USA.

Directions: Enter CP-03 nozzle settings, pressure, and airspeed in the cells highlighted below.
(Atomization parameters are valid only with nozzle and operational settings specified in the Acceptable Range.)

	Orifice Size, inches	Deflector Angle, degrees	Pressure, psi	Airspeed, mph
Acceptable Range:	.061 to .171	30 to 90	20 to 60	100 to 160
	0.125	30	60	130

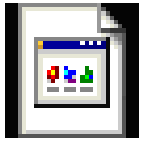
Atomization parameters are displayed in the box below.

CAUTION: Do not enter or clear data in the cells in this box!

$D_{V0.5}$ =	301 µm	= Volume median diameter
RS =	1.01	= Relative Span
%V<100µm =	6.62 %	= Percentage of spray volume in droplets smaller than 100 µm diameter.
%V<200µm =	17.51 %	= Percentage of spray volume in droplets smaller than 200 µm diameter.
DSC =	MEDIUM	= ASAE S572 AUG99 Droplet Spectra Classification

Values and classifications reported here are least-squares best-estimate predictions from experimental data collected in a wind tunnel.
Values reported from other laboratories may not yield the exact same values, but similar trends would be expected.
The ASAE droplet spectra classification category is based on droplet sizes in the mid-80% of the spectrum and not a single data point.

Shortcut to CP-03 NOZZLE MODEL FIXED-WING.lnk



Shortcut to CP STRAIGHT STREAM NOZZLE MODEL FIXED-WING.lnk

THE CP PRODUCTS COMPANY, INC.®

CP-65T-SHP NEW!	HIGH VOLUME Sprayer Turbo—Nylon body, poly selector and deflector tips, 6 Orifices—#10, #15, #20, #25, #30, #33 (Flat Fan Rates)

CP-65T-SL	LOW VOLUME Sprayer Turbo—Nylon body, poly selector and tips 6 Orifices—#1.5, #2, #3, #4, #5, #6 (Flat Fan Flow Rates)

The CP© Products Company Flow Rate Calculator for CP© Low Volume Sprayer Turbo Nozzles with Droplet Classifications

Enter your nozzle spacing and MPH in the row which matches the orifice and pressure you want to use. Then, click **Calculate** and read the GPA results in the same row.

Calculate

Enter your nozzle spacing and MPH in the row which matches the orifice and pressure you want to use. Read the GPA results in the same row in column #6.			Enter your nozzle spacing in inches.	Enter your speed in Miles Per Hour	Column #6 Gallons Per Acre
Orifice	**PSI**	**GPM**	**Spacing**	**MPH**	**GPA**
#1.5 with #2 Tip	60	0.18			
	50	0.17			
	40	0.15			
	35	0.14			
	30	0.13			

CP® Floater/Sprayer Nozzle Droplet Key

Nozzle Classification* Category Threshold Values+	Dv0.1	Dv0.5	Dv0.9
Very Fine (VF)	≤45.9µm	≤108.1µm	≤182.37µm
Fine (F)	≤70.7µm	≤166.96µm	≤342.29µm
Medium (M)	≤91.09µm	≤245.74µm	≤478.48µm
Coarse (C)	≤108.82µm	≤377.8µm	≤708.12µm
Very Coarse (VC)	≤129.22µm	≤434.9µm	≤1000.2µm
Extremely Coarse (XC)	≥129.22µm	≥434.9µm	≥1000.2µm

CP® 65-T-S Standard Sprayer Turbo Nozzle

Orifice ⇒ Def. Tip # PSI ⇩	3 #3 #7.5 #10	4 #3 #7.5 #10	5 #3	5 #7.5 #10	6 #3	6 #7.5	6 #10	8 #3	8 #7.5	8 #10	10 #3	10 #7.5	10 #10
30	XC	XC	XC	XC	VC	XC	XC	VC	XC	XC	VC	XC	XC
40	XC	XC	VC	XC	VC	XC	XC	C	VC	XC	C	VC	XC
50	XC	XC	VC	XC	VC	VC	XC	C	VC	XC	C	VC	XC
60	XC	XC	VC	XC	VC	VC	XC	C	VC	XC	C	VC	XC

Makers of Better Engineered
Sprayer Components for
Over 30 Years

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Some of the featured areas of our web site to help you make spraying safer, easier and more effective.

TIP WIZARD - An easy to use on-line computerized spray tip selector that helps you select the spray tip that is right for your application.

COMBO-JET® TIP-CAPS - Here you'll find COMBO-JET® all-in-one Tip-Cap & Strainer, the product that has become the new industry standard for it's ease of use.

TIPNOLOGY - Easy to read and use information on spray application. Application rates, droplet size, drift control...and more.

FEATURED PRODUCTS - This section has our latest innovations and featured products.

DOWN LOADS - Product literature, nozzle performance charts, price lists, it's all here and easy to print.

Safer, Easier, More Effective, Spray Application

Standard spray system
Search a specific spray tip

An easy to use on-line computerized spray nozzle selector that helps you select the spray nozzle that is right for your application.

The TIP WIZARD "Search a specific spray tip" function can display tip performance specifications based on either application rate or sprayer speed. Please select or enter the following information.

1. Tip Number — *COMBO-JET®* ER80-005 (Click arrow for list)

2. Nozzle Spacing — 20 Inches

Search by Application Rate
To search for per tip performance specifications based on an application rate, enter the rate below.

Application Rate _____ US Gal/Acre

:: Show Spray Tip Specifications ::

Search by Sprayer Speed
To search for per tip performance specifications based on a sprayer speed, enter the speed below.

Sprayer Speed _____ MPH

:: Show Spray Tip Specifications ::

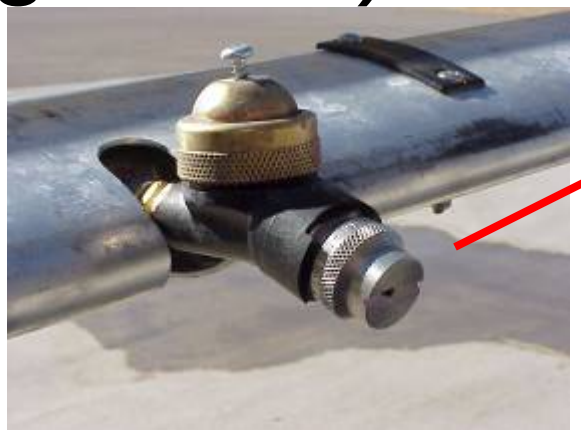
We recommend that you verify search results with our published Tip-Cap charts.

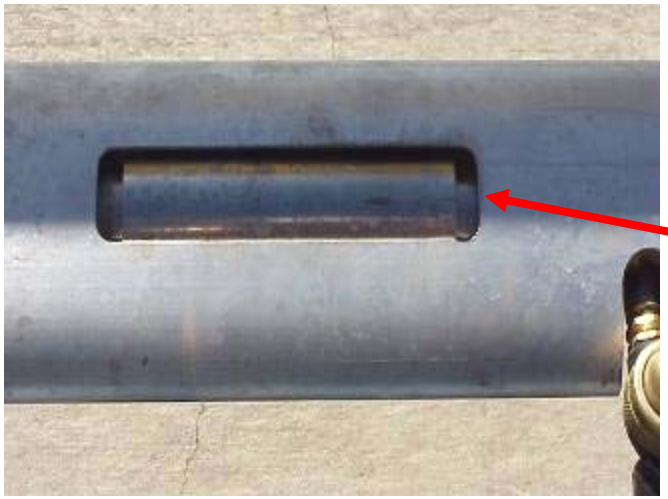
Spray tip output and droplet size are measured at 80 degrees F using clean water. Ambient temperatures and water condition may affect results.

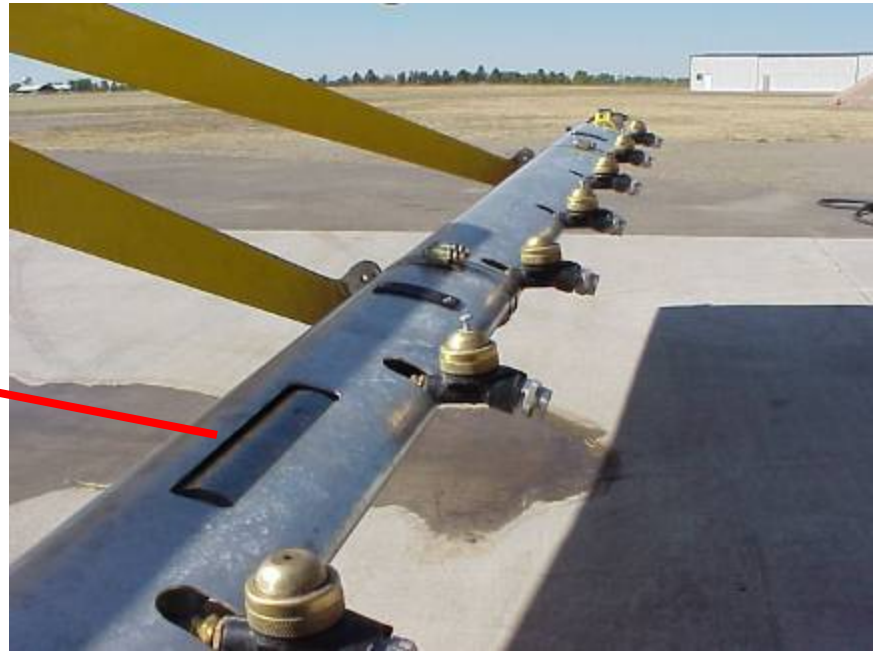
We recommend that you refer to and follow the information and recommendations for the specific product you are applying.

If you want to search using different application units go to *Change Currency or Application Units*.

JARBA (Rotating Boom)







Microsoft Excel - Jones Air Rotating Boom

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100% Arial 10 B

A1 f_x

Droplet Size Prediction Model for the Jones Air Rotating Boom Assembly

Environmental System
Certified Environmental Management
C10224

ULV

Input data	
Air Speed (knots)	130
Nozzle Orifice size	4
Fan Angle (deg)	80
Nozzle Angle to Airstream (deg)	60

Predicted droplet size	
D[v,0.1]	47
VMD	126
D[v,0.9]	216
Span	1.34

The University Of Queensland
The Centre for Pesticide Application and Safety
"...for a safer environment"

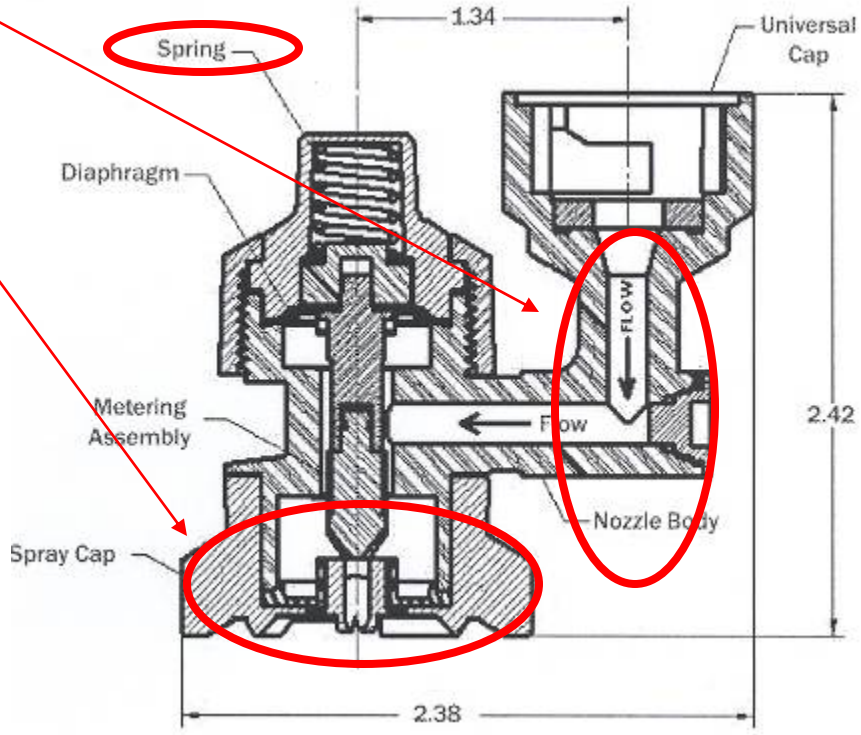
Results Based on 100% DC-TRON at 3bar

CP Swivel:

- Quick change angle device
- 15 degree increments
- Flexibility to increase the angle of attack
- This will influence the droplet spectrum?

VariTarget:

- Speed variations from 2-20 MPH
- Application rates of 5-40 GPA
- Spring tension
- Variable area pre orifice
- Variable area spray orifice
- Optimize spray droplet size
- Maintain efficacy and minimize drift

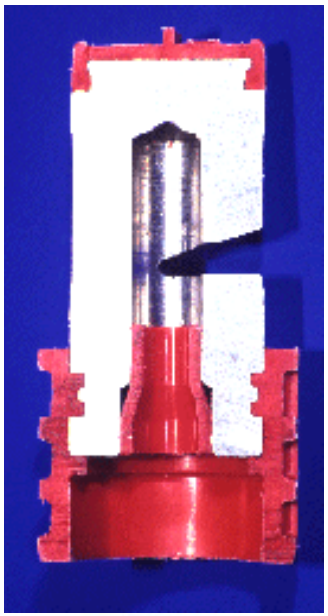


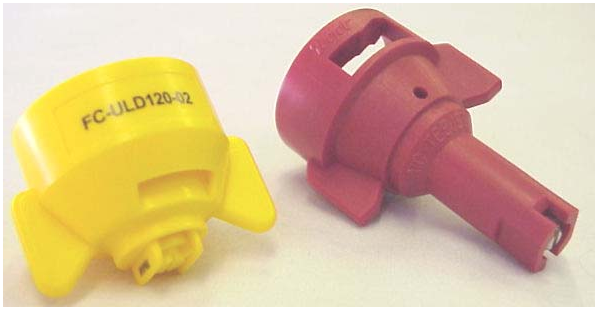
Pulse Width Modulation - PWM

Pulsed Emissions from Nozzles

Nozzle Technology……

- Nozzles designed to reduce drift
- Improved drop size control
- Emphasis on ‘Spray Quality’





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- Brand names appearing in this presentation are for identification and illustration purposes only.
- No endorsement is intended, nor is criticism implied of similar products not mentioned.


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