LOW DRIFT SPRAY
APPLICATION TECHNOLOGY

LIQUID FERTILISER
APPLICATION SPECIALISTS

LOW DRIFT
NO DRIFT



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All BfS products are British through and through

From initial concept to prototype design, evaluation, manufacturing, testing and production, everything is based in the UK. We are the only UK based nozzle manufacturer, and we were the first to introduce Air Inclusion Technology to the UK market.

Our first low drift nozzle was the Billericay Air Bubble Jet. This set the standard for low drift and we were the first to register a 3 star rated LERAP nozzle.

Since then we have introduced several other "Firsts".

- **The first LERAP rated nozzles (BfS Air Bubble Jets) to appear on the CRD website in 1999**
- **The first adjustable bar (BfS Dribble Bar) for liquid fertiliser application**
- **The first variable rate bar (BfS AutoStreamer) for variable rate application of liquid fertilisers**
- **The first variable rate nozzle (BfS 5Star) for application of liquid fertilisers**
- **The first 3* LERAP rated Low Drift Nozzle (BfS PulZar) designed for Pulse Width Modulation Systems**
- **The first 4* LERAP rated 90% DRT nozzle (BfS ExRay XC)**

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BfS Billericay Air Bubble Jets

75% LESS DRIFT 3 STAR LERAP RATED

Billericay Air Bubble Jets are the internationally renowned, and industry's leading air induction nozzles, invented by Billericay Farm Services.

Manufactured in Britain, these precision made nozzles can be used on boom sprayers, quad bike sprayers, knapsack sprayers etc. The nozzles fit any standard 8mm cap (available separately and in all colours) and are ISO colour coded according to size. The fan angle will vary slightly depending on the operating pressure, but will be in the range 100 to 110 degrees.



Sizes	Part No.	Sizes	Part No.
01 Orange	NNB002991	035 Red Brown	NNB002992
015 Green	NNB003001	04 Red	NNB003004
02 Yellow	NNB003002	05 Brown	NNB003005
025 Lilac	NNB003000	06 Grey	NNB003006
03 Blue	NNB003003	08 White	NNB003008

EFFECT OF AIR INCLUSION ON LEAF COVERAGE



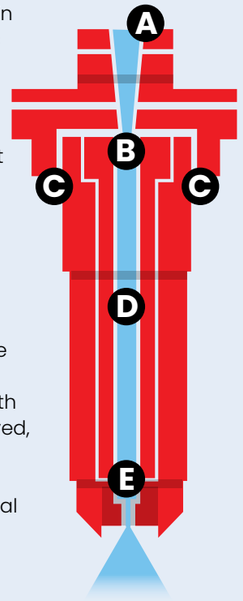
HOW DOES IT WORK?

The liquid being sprayed passes through a removable tapered nozzle **A** which accelerates the liquid and projects the flow into the tapered opening of the venturi **B**,

This creates a vacuum that causes air to be sucked in through the slots marked **C**.

The mixture of air and liquid is compressed as it passes through the mixing chamber **D** and is then sprayed through the fan nozzle **E**.

The BfS Air Bubble Jet ensures that spray contact with the leaf is improved, drift reduction is obtained and excellent chemical efficiency is achieved.



Air Bubble Jets Application Rate Chart

SIZE	NOZZLE PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	LITRES PER HECTARE Speed (kph) at 50cm nozzle spacing 4	6	8	10	12	14	16	18	20	★ LERAP Rating
ORANGE 01	1	0.23	XC	69	46	35	28	23	20	17	15	14	
	1.5	0.28	XC	85	57	42	34	28	24	21	19	17	
	2	0.33	VC	98	65	49	39	33	28	24	22	20	
	2.5	0.37	VC	110	73	55	44	37	31	27	24	22	
	3	0.40	C	120	80	60	48	40	34	30	27	24	
	3.5	0.43	C	130	86	65	52	43	37	32	29	26	
	4	0.46	C	139	92	69	55	46	40	35	31	28	
	4.5	0.49	C	147	98	73	59	49	42	37	33	29	
GREEN 015	1	0.35	XC	104	69	52	42	35	30	26	23	21	
	1.5	042	XC	127	85	64	51	42	36	32	28	25	
	2	0.49	XC	147	98	73	59	49	42	37	33	29	
	2.5	0.55	VC	164	110	82	66	55	47	41	37	33	
	3	0.60	VC	180	120	90	72	60	51	45	40	36	
	3.5	0.65	C	194	130	97	78	65	56	49	43	39	
	4	0.69	C	208	139	104	83	69	59	52	46	42	
	4.5	0.73	C	220	147	110	88	73	63	55	49	44	
YELLOW 02	1	0.47	XC	140	93	70	56	47	40	35	31	28	★★ JKi
	1.5	0.57	VC	171	114	86	69	57	49	43	38	34	
	2	0.66	C	198	132	99	79	66	57	50	44	40	
	2.5	0.74	C	221	148	111	89	74	63	55	49	44	
	3	0.81	C	242	162	121	97	81	69	61	54	48	
	3.5	0.87	C	262	175	131	105	87	75	65	58	52	
	4	0.93	C	280	187	140	112	93	80	70	62	56	
	4.5	0.99	M	297	198	149	119	99	85	74	66	59	
LILAC 025	1	0.58	UC	174	116	87	70	58	50	43	39	35	★★★ JKi
	1.5	0.71	XC	213	142	107	85	71	61	53	47	43	
	2	0.82	XC	246	164	123	98	82	70	62	55	49	
	2.5	0.92	XC	275	183	138	110	92	79	69	61	55	
	3	1.00	VC	301	201	151	121	100	86	75	67	60	
	3.5	1.08	C	325	217	163	130	108	93	81	72	65	
	4	1.16	C	348	232	174	139	116	99	87	77	70	
	4.5	1.23	C	369	246	185	148	123	105	92	82	74	
BLUE 03	1	0.69	XC	208	139	104	83	69	59	52	46	42	★★★ JKi
	1.5	0.85	XC	255	170	127	102	85	73	64	57	51	
	2	0.98	XC	294	196	147	118	98	84	74	65	59	
	2.5	1.10	VC	329	219	164	131	110	94	82	73	66	
	3	1.20	VC	360	240	180	144	120	103	90	80	72	
	3.5	1.30	C	389	259	194	156	130	111	97	86	78	
	4	1.39	C	416	277	208	166	139	119	104	92	83	
	4.5	1.47	C	441	294	221	176	147	126	110	98	88	
RED BROWN 035	1	0.81	XC	242	161	121	97	81	69	60	54	48	★★★ JKi
	1.5	0.99	XC	296	197	148	118	99	85	74	66	59	
	2	1.14	XC	342	228	171	137	114	98	86	76	68	
	2.5	1.27	VC	382	255	191	153	127	109	96	85	76	
	3	1.40	VC	419	279	209	168	140	120	105	93	84	
	3.5	1.51	C	452	302	226	181	151	129	113	101	90	
	4	1.61	C	484	322	242	193	161	138	121	107	97	
	4.5	1.71	C	513	342	257	205	171	147	128	114	103	
RED 04	1	0.93	XC	278	185	139	111	93	79	69	62	56	★★★ JKi
	1.5	1.13	XC	340	227	170	136	113	97	85	76	68	
	2	1.31	XC	393	262	197	157	131	112	98	87	79	
	2.5	1.46	VC	439	293	220	176	146	126	110	98	88	
	3	1.60	C	481	321	241	193	160	138	120	107	96	
	3.5	1.73	C	520	347	260	208	173	149	130	116	104	
	4	1.85	C	556	371	278	222	185	159	139	124	111	
	4.5	1.97	C	590	393	295	236	197	168	147	131	118	
BROWN 05	1	1.15	XC	346	231	173	138	115	99	86	77	69	★★★ JKi
	1.5	1.41	XC	423	282	212	169	141	121	106	94	85	
	2	1.63	XC	489	326	245	196	163	140	122	109	98	
	2.5	1.82	VC	547	364	273	219	182	156	137	121	109	
	3	2.00	C	599	399	299	240	200	171	150	133	120	
	3.5	2.16	C	647	431	323	259	216	185	162	144	129	
	4	2.31	C	692	461	346	277	231	198	173	154	138	
	4.5	2.45	C	734	489	367	293	245	210	183	163	147	
GREY 06	1	1.39	XC	416	277	208	166	139	119	104	92	83	★★★
	1.5	1.70	XC	509	339	255	204	170	145	127	113	102	
	2	1.96	XC	588	392	294	235	196	168	147	131	118	
	2.5	2.19	VC	657	438	329	263	219	188	164	146	131	
	3	2.40	VC	720	480	360	288	240	206	180	160	144	
	3.5	2.59	C	778	519	389	311	259	222	194	173	156	
	4	2.77	C	832	554	416	333	277	238	208	185	166	
	4.5	2.94	C	882	588	441	353	294	252	221	196	176	
WHITE 08	1	1.85	UC	554	369	277	221	185	158	138	123	111	
	1.5	2.26	XC	678	452	339	271	226	194	170	151	136	
	2	2.61	XC	783	522	392	313	261	224	196	174	157	
	2.5	2.92	XC	875	584	438	350	292	250	219	195	175	
	3	3.20	XC	959	639	479	384	320	274	240	213	192	
	3.5	3.45	VC	1036	691	518	414	345	296	259	230	207	
	4	3.69	VC	1107	738	554	443	369	316	277	246	221	
	4.5	3.92	VC	1175	783	587	470	392	336	294	261	235	

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BfS ABTJ
Air Bubble Twin Jet



2 FAN PATTERNS IMPROVES CROP COVERAGE





Improve pesticide coverage by angling the spray forward and backward

Very low drift Twin angled nozzle to improve target coverage while utilising a smaller droplet spectrum. The fan pattern is approx. 110° depending on operating pressure. This gives unsurpassed coverage of complex canopies. Provides better coverage with more drops per litre of spray compared to single air-induction nozzles.

Achieve excellent deposition on vertical surfaces (stems, leaves and ears of wheat) and also around clods in rough seedbeds. This combination of angles will also result in better penetration of fungicides and insecticides in leafy crops of potatoes, oilseed rape, maize, and vegetables.

It also means you can apply larger volumes of water per hectare, but with a smaller droplet spectrum from the double fans. Each fan is half the output of the total nozzle size. Usually, a larger volume means far bigger droplets, which can be a disadvantage in some situations. The BFS ABTJ Twin gives an even distribution of applied products and this will increase their efficacy.

ABTJ Air Bubble Twin Jet Application Chart

Size	Nozzle Pressure (bar)	Flow (l/min)	Litres per Hectare Speed (kph) at 50cm nozzle spacing 6	8	10	12	14	16	18	20
YELLOW 02	1	0.47	93	70	56	47	40	35	31	28
	2	0.66	132	99	79	66	57	50	44	40
	3	0.80	162	121	97	81	69	61	54	49
	4	0.93	187	140	112	93	80	70	62	56
	5	1.04	209	157	125	104	89	78	70	63
LILAC 025	1	0.58	116	187	70	58	50	43	39	35
	2	0.82	163	123	98	82	70	61	55	49
	3	1.00	200	151	121	100	86	75	67	60
	4	1.15	231	174	139	116	99	87	77	70
	5	1.30	259	194	156	130	111	97	86	78
BLUE 03	1	0.69	139	104	83	69	59	52	46	42
	2	0.98	196	147	118	98	84	74	65	59
	3	1.20	240	180	144	120	103	90	80	72
	4	1.39	277	208	166	139	119	104	92	83
	5	1.55	310	232	186	155	133	116	103	93
RED BROWN 035	1	0.81	161	121	97	81	69	60	54	48
	2	1.14	229	172	137	114	98	86	76	69
	3	1.40	280	210	168	140	120	105	93	84
	4	1.62	324	243	194	162	139	121	108	97
	5	1.81	362	272	217	181	155	136	121	109
RED 04	1	0.93	185	139	111	193	179	69	62	56
	2	1.31	261	196	157	131	112	98	87	79
	3	1.60	320	241	193	160	138	120	107	96
	4	1.85	370	278	222	185	159	139	124	111
	5	2.07	414	311	249	207	178	155	138	124
BROWN 05	1	1.15	231	173	138	115	199	86	77	69
	2	1.63	327	245	196	163	140	122	109	98
	3	2.00	400	299	240	200	171	150	133	120
	4	2.31	462	346	277	231	198	173	154	138
	5	2.58	515	387	309	258	221	193	172	155
GREY 06	1	1.39	277	208	166	139	119	104	92	83
	2	1.96	392	294	235	196	168	147	131	118
	3	2.40	480	360	288	240	206	180	160	144
	4	2.77	554	416	333	277	238	208	185	166
	5	3.10	620	465	372	310	266	232	207	186

Size	Part No.
02 Yellow	NNT002020
025 Lilac	NNT002025
03 Blue	NNT002030
035 Red/Brown	NNT002035
04 Red	NNT002040
05 Brown	NNT002050
06 Grey	NNT002060

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BfS ABJ-90 Ultra Low Drift Air Inclusion Nozzle



The ABJ-90 - the simple way to gain more spray days

The latest innovation from BFS Farm Services Ltd. The ABJ-90 is a 90% drift reducing nozzle, designed to enhance efficiency and precision in agricultural spraying.

Available in sizes 025, 03, 035, 04, 05 this nozzle offers versatility to suit various application volumes. It has achieved impressive results in in-house evaluation, with results of 75%, to over 90% less drift, depending on working pressure.

These ratings indicate the high level of performance and reliability that the ABJ-90 can offer.

While the design of the ABJ-90 resembles the standard bubblejet, its internals have been re designed to achieve a 90% drift reduction air inclusion nozzle.

The ABJ-90 is fully compliant, meeting the industry standards for quality and performance. Experience the benefits of the ABJ-90 and take your agricultural spraying to the next level.

Size	Part No.
025 Lilac	NNB090025
03 Blue	NNB090030
035 Red/Brown	NNB090035
04 Red	NNB090040
05 Brown	NNB090050

SIZE	NOZZLE PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	LITRES PER HECTARE Speed (kph) at 50cm nozzle spacing 4	6	8	10	12	14	16	18	20
LILAC 025	1	0.58	XC	174	116	87	70	58	50	43	39	35
	1.5	0.71	XC	213	142	107	85	71	61	53	47	43
	2	0.82	XC	246	164	123	98	82	70	62	55	49
	2.5	0.92	VC	275	183	138	110	92	79	69	61	55
	3	1.00	VC	301	201	151	121	100	86	75	67	60
	3.5	1.08	C	325	217	163	130	108	93	81	72	65
	4	1.16	C	348	232	174	139	116	99	87	77	70
	4.5	1.23	C	369	246	185	148	123	105	92	82	74
BLUE 03	1	0.69	XC	208	139	104	83	69	59	52	46	42
	1.5	0.85	XC	255	170	127	102	85	73	64	57	51
	2	0.98	XC	294	196	147	118	98	84	74	65	59
	2.5	1.10	VC	329	219	164	131	110	94	82	73	66
	3	1.20	C	360	240	180	144	120	103	90	80	72
	3.5	1.30	C	389	259	194	156	130	111	97	86	78
	4	1.39	C	416	277	208	166	139	119	104	92	83
	4.5	1.47	C	441	294	221	176	147	126	110	98	88
RED BROWN 035	1	0.81	XC	242	161	121	97	81	69	60	54	48
	1.5	0.99	XC	296	197	148	118	99	85	74	66	59
	2	1.14	VC	342	228	171	137	114	98	86	76	68
	2.5	1.27	VC	382	255	191	153	127	109	96	85	76
	3	1.40	C	419	279	209	168	140	120	105	93	84
	3.5	1.51	C	452	302	226	181	151	129	113	101	90
	4	1.61	C	484	322	242	193	161	138	121	107	97
	4.5	1.71	C	513	342	257	205	171	147	128	114	103
RED 04	1	0.93	XC	278	185	139	111	93	79	69	62	56
	1.5	1.13	XC	340	227	170	136	113	97	85	76	68
	2	1.31	XC	393	262	197	157	131	112	98	87	79
	2.5	1.46	VC	439	293	220	176	146	126	110	98	88
	3	1.60	C	481	321	241	193	160	138	120	107	96
	3.5	1.73	C	520	347	260	208	173	149	130	116	104
	4	1.85	C	556	371	278	222	185	159	139	124	111
	4.5	1.97	C	590	393	295	236	197	168	147	131	118
BROWN 05	1	1.15	XC	346	231	173	138	115	99	86	77	69
	1.5	1.41	XC	423	282	212	169	141	121	106	94	85
	2	1.63	XC	489	326	245	196	163	140	122	109	98
	2.5	1.82	VC	547	364	273	219	182	156	137	121	109
	3	2.00	VC	599	399	299	240	200	171	150	133	120
	3.5	2.16	C	647	431	323	259	216	185	162	144	129
	4	2.31	C	692	461	346	277	231	198	173	154	138
	4.5	2.45	C	734	489	367	293	245	210	183	163	147

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BfS STS-80 Narrow Angle Range



An air inclusion, 80° nozzle for use where nozzle body centres are at 25cm or 33cm spacing.

This allows for a lower boom height to be maintained to achieve the double overlap required for even application, and this lower boom height also results in less drift.

A narrow angle spray nozzle produces fewer fine droplets at the edge of the spray pattern, compared to a 110° fan pattern. Thus 80° nozzles produce potentially less drift than 110° nozzles, so by combining this with a lower boom height, results in extremely low levels of drift which is what all operators need to strive for – more active ingredient on the target. Currently available in three sizes to apply from 70 litres per ha to 260 litres per ha at 12 kph (25cm spacing), and between 52 litres per ha and 196 litres per ha at 12 kph (33.3 cm spacing)

Size	Part No.
015 Green	NNBSTS015
02 Yellow	NNBSTS020
025 Lilac	NNBSTS025

25cm NOZZLE SPACING

NOZZLE	PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	Speed (kph) 6	8	10	12	14	16	18	20
STS-80 GREEN 015	1	0.35	M	139	104	83	69	59	52	46	42
	2	0.49	M	196	147	118	98	84	73	65	59
	3	0.60	M	240	180	144	120	103	90	80	72
	4	0.69	M	277	208	166	139	119	104	92	83
	5	0.77	M	310	232	186	155	133	116	103	93
STS-80 YELLOW 02	1	0.46	C	185	139	111	92	79	69	62	55
	2	0.65	C	261	196	157	131	112	98	87	78
	3	0.80	M	320	240	192	160	137	120	107	96
	4	0.92	M	370	277	222	185	158	139	123	111
	5	1.03	M	413	310	248	207	177	155	138	124
STS-80 LILAC 025	1	0.58	VC	231	173	139	115	99	87	77	69
	2	0.82	C	327	245	196	163	140	122	109	98
	3	1.00	M	400	300	240	200	171	150	133	120
	4	1.15	M	462	346	277	231	198	173	154	139
	5	1.29	M	516	387	310	258	221	194	172	155

33.3cm NOZZLE SPACING

NOZZLE	PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	Speed (kph) 6	8	10	12	14	16	18	20
STS-80 GREEN 015	1	0.35	M	105	79	63	52	45	39	35	31
	2	0.49	M	148	111	89	74	64	56	49	45
	3	0.60	M	182	136	109	91	78	68	61	55
	4	0.69	M	210	157	126	105	90	79	70	63
	5	0.77	M	235	176	141	117	101	88	78	70
STS-80 YELLOW 02	1	0.46	C	140	105	84	70	60	52	47	42
	2	0.65	C	198	148	119	99	85	74	66	59
	3	0.80	M	242	182	145	121	104	91	81	73
	4	0.92	M	280	210	168	140	120	105	93	84
	5	1.03	M	313	235	188	156	134	117	104	94
STS-80 LILAC 025	1	0.58	VC	175	131	105	87	75	66	58	52
	2	0.82	C	247	186	148	124	106	93	82	74
	3	1.00	M	303	227	182	152	130	114	101	91
	4	1.15	M	350	262	210	175	150	131	117	105
	5	1.29	M	391	293	235	196	168	147	130	117

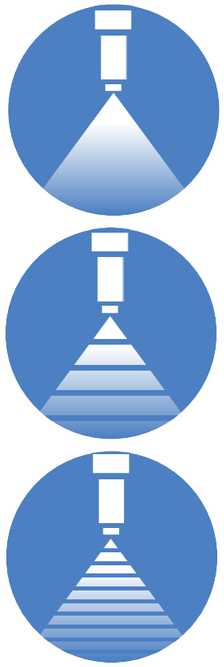
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BfS PulZar PWM Nozzle

The low drift option for any PWM system

Working with North American innovators, BfS has developed a low drift nozzle for use with Pulse Width Modulation (PWM) nozzle bodies.

Since the early days of the introduction of PWM, BfS have been marketing PulZar nozzles throughout north America and Canada and now these PWM systems are offered as an option on sprayers in the UK, so the BFS PulZar nozzle is being marketed as the best PWM low drift option for these machines.



How they work

PWM controls each nozzle separately, and the flow rate from each nozzle is managed by rapidly switching the nozzle control solenoid on and off. The duration that the nozzle is "on" is called the Duty Cycle and varying this duty cycle provides the operator with the ability to control the volume output from each nozzle.

- The system pressure, spray quality and fan pattern remain consistent.
- The system can cope with a five-fold change in forward speed without affecting output.

PWM systems will enable the correct application from each nozzle even when going around a corner, where the outer edge of the boom is travelling much faster than the inner edge, so giving a lower rate of application. PWM corrects this by changing the duty cycle at each nozzle to compensate accordingly.

Flat fan nozzles have been the main nozzle used but these are prone to create small, driftable droplets. The PulZar is a low drift nozzle perfectly suited to PWM systems, with up to 75% lower drift than conventional flat fans.

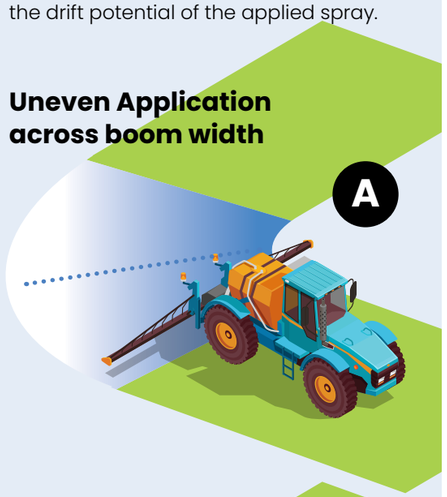
Note: Other spray nozzles may not work effectively on PWM systems. BfS can provide the necessary advice if required.

TURN COMPENSATION

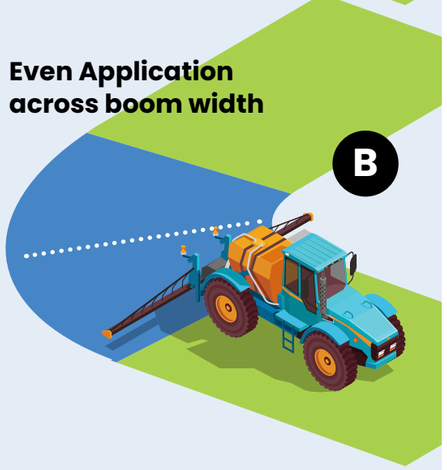
Figure A: Shows a standard system where on a turn the outside boom edge travels far quicker than the inside boom edge, resulting in differential application over that area, shown as a colour gradient from outside to inside.

Figure B: On the other hand, demonstrates how a PWM system will compensate for this speed difference by changing the duty cycle at each nozzle, while maintaining the overall system pressure, droplet size and the drift potential of the applied spray.

Uneven Application across boom width



Even Application across boom width



Size	Part No	LERAP * rating
015 Green	NNC003001	★★
02 Yellow	NNC003002	★★
025 Lilac	NNC003000	★★★
03 Blue	NNC003003	★★★
04 Red	NNC003004	★★★
05 Brown	NNC003005	★★★
06 Grey	NNC003006	★★★
08 White	NNC003008	

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PulZar PWM Application Chart

NOZZLE	PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	LITRES PER HECTARE AT 30% OR 100% DUTY CYCLE Speed (kph) at 50cm nozzle spacing																★ LERAP Rating
				30%	100%	30%	100%	30%	100%	30%	100%	30%	100%	30%	100%	30%	100%	30%	100%	
				6		8		10		12		14		16		18		20		
PULZAR GREEN 015	1	0.35	M	21	69	16	52	12	42	10	35	9	30	8	26	7	23	6	21	★★
	2	0.49	M	29	98	22	73	18	59	15	49	13	42	11	37	10	33	9	29	
	3	0.60	M	36	120	27	90	22	72	18	60	15	51	14	45	12	40	11	36	
	4	0.69	M	42	139	31	104	25	83	21	69	18	59	16	52	14	46	12	42	
	5	0.77	M	46	155	35	116	28	93	23	77	20	66	17	58	15	52	14	46	
PULZAR YELLOW 02	1	0.47	VC	28	93	21	70	17	56	14	47	12	40	11	35	9	31	8	28	★★
	2	066	C	40	132	30	99	24	79	20	66	17	57	15	50	13	44	12	40	
	3	0.81	M	48	162	36	121	29	97	24	81	21	69	18	61	16	54	15	48	
	4	0.93	M	56	187	42	140	34	112	28	93	24	80	21	70	19	62	17	56	
	5	1.04	M	63	209	47	157	38	125	31	104	27	89	78	78	21	70	19	63	
PULZAR LILAC 025	1	0.58	VC	35	116	26	87	21	70	17	58	15	50	13	43	12	39	10	35	★★★
	2	0.82	C	49	164	37	123	30	98	25	82	21	70	18	62	16	55	15	49	
	3	1.00	M	60	201	45	151	36	121	30	100	26	86	23	75	20	67	18	60	
	4	1.16	M	70	232	52	174	42	139	35	116	30	99	26	87	23	77	21	70	
	5	1.30	M	78	259	58	194	47	156	39	130	33	111	29	97	26	86	23	78	
PULZAR BLUE 03	1	0.69	XC	42	139	31	104	25	83	21	69	18	59	16	52	14	46	12	42	★★★
	2	0.98	C	59	196	44	147	35	118	29	98	25	84	22	74	20	65	18	59	
	3	1.20	C	72	240	54	180	43	144	36	120	31	103	27	90	24	80	22	72	
	4	1.39	M	83	277	62	208	50	166	42	139	36	119	31	104	28	92	25	83	
	5	1.55	M	93	310	70	232	56	186	46	155	40	133	35	116	31	103	28	93	
PULZAR RED 04	1	0.93	XC	56	185	42	139	33	111	28	93	24	79	21	69	19	62	17	56	★★★
	2	1.31	C	79	262	59	197	47	157	39	131	34	112	29	98	26	87	24	79	
	3	1.60	C	96	321	72	241	58	193	48	160	41	138	36	120	32	107	29	96	
	4	1.85	C	111	371	83	278	67	222	56	185	48	159	42	139	37	124	33	111	
	5	2.07	M	124	414	93	311	75	249	62	207	53	178	47	155	41	138	37	124	
PULZAR BROWN 05	1	1.15	VC	69	231	52	173	41	138	35	115	30	99	26	86	23	77	21	69	★★★
	2	1.63	C	98	326	73	245	59	196	49	163	42	140	37	122	33	109	29	98	
	3	2.00	C	120	399	90	299	72	240	60	200	51	171	45	150	40	133	36	120	
	4	2.31	C	138	461	104	346	83	277	69	231	59	198	52	173	46	154	41	138	
	5	2.58	C	155	515	116	387	93	309	77	258	66	221	58	193	52	172	46	155	
PULZAR GREY 06	1	1.39	XC	83	277	62	208	50	166	42	139	36	119	31	104	28	92	25	83	★★★
	2	1.96	VC	118	392	88	294	71	235	59	196	50	168	44	147	39	131	35	118	
	3	2.40	VC	144	480	108	360	86	288	72	240	62	206	54	180	48	160	43	144	
	4	2.77	VC	166	554	125	416	100	333	83	277	71	238	62	208	55	185	50	166	
	5	3.10	VC	186	620	139	465	112	372	93	310	80	266	70	232	62	207	56	186	
PULZAR WHITE 08	1	1.85	UC	111	369	83	277	66	221	55	185	47	158	42	138	37	123	33	111	
	2	2.61	XC	157	522	117	392	94	313	78	261	67	224	59	196	52	174	47	157	
	3	3.20	XC	192	639	144	479	115	384	96	320	82	274	72	240	64	213	58	192	
	4	3.69	XC	221	738	166	554	133	443	111	369	95	316	83	277	74	246	66	221	
	5	4.13	C	248	825	186	619	149	495	124	413	106	354	93	310	83	275	74	248	

LERAP Rating applies to spraying at 2 to 2.5bar, 50cm nozzle height, traveling between 4kph-12kph, when used at 100% duty cycle or as a standard nozzle.

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BfS ExRay XC Extended Range Nozzles

Achieve up to 90% drift reduction, and cover a wider application rate (volume) from each nozzle size in use. Get the same rates of coverage that you would normally need 3 nozzles to achieve.

The nozzles are available as either straight down or angled (30 degree) versions.





90% LESS DRIFT 4 STAR LERAP RATED

Size	STRAIGHT Part No.	ANGLED Part No.	LERAP * rating
01	NNB004100	NNB004109	
015	NNB004150	NNB004159	
02	NNB004200	NNB004209	
025	NNB004250	NNB004259	★★★★
03	NNB004300	NNB004309	★★★
035	NNB004350	NNB004359	
04	NNB004400	NNB004409	★★★★
05	NNB004500	NNB004509	★★★★
06	NNB004600	NNB004609	

Note: ExRay XC 01 nozzles cannot be used at pressures below 2 bar.
ExRay XC 015 and 02 nozzles cannot be used at pressures below 1.5 bar.



How they work

ExRay XC nozzle features an extra, variable, pre-orifice to achieve the "Extended Range" of output, simply by varying the operating pressure. Incorporating Air Induction technology, the number of driftable droplets generated is minimised allowing up to 90% drift reduction to be achieved, even at practical working pressures (2 to 3 bar).

Full CRD approval and listing on their Equipment register, these were the first 4* nozzles to achieve a LERAP 4* rating.

ExRay XC nozzles are supplied ready-made up with three component parts, plus a standard ISO 8mm cap and will fit any nozzle body that accepts nozzle filters.

The ExRay XC valve and cap assembly replaces the standard cap seal and the nozzle is fitted into the cap in the normal way.

Use the Exray XC nozzles at 70cm above the target for optimal spray coverage and results.



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ExRay XC Application Rate Chart

Use Exray XC at 70cm above the target

SIZE	NOZZLE PRESSURE (Bar)	FLOW (l/min)	SPRAY QUALITY	LITRES PER HECTARE Speed (kph) at 50cm nozzle spacing 6	8	10	12	14	16	18	20	★ LERAP Rating	Nozzle Assembly
ExRay XC ORANGE 01	1	N/A	Do not use at or below 2.0 bar pressure										
	1.5	N/A											
	2	0.34	XC	68	51	41	34	29	26	23	20		
	2.5	0.42	VC	84	63	50	42	36	31	28	25		
	3	0.46	C	92	69	55	46	39	35	31	28		
	3.5	0.52	C	104	78	62	52	45	39	35	31		
	4	0.58	M	116	87	70	58	50	44	39	35		
	4.5	0.62	M	124	93	74	62	53	47	41	37		
	5	0.66	M	132	99	79	66	57	50	44	40		
ExRay XC GREEN 015	1	N/A	Do not use at or below 1.5 bar pressure										
	1.5	0.32	UC	64	48	38	32	27	24	21	19		
	2	0.42	XC	84	63	50	42	36	32	28	25		
	2.5	0.57	VC	114	86	69	57	49	43	38	34		
	3	0.62	C	124	93	74	62	53	47	41	37		
	3.5	0.72	C	144	108	86	72	62	54	48	43		
	4	0.76	C	152	114	91	76	65	57	51	46		
	4.5	0.83	M	166	125	100	83	71	62	55	50		
	5	0.85	M	170	128	102	85	73	64	57	51		
ExRay XC YELLOW 02	1	N/A	Do not use at or below 1.5 bar pressure										
	1.5	0.38	UC	76	57	46	38	33	29	25	23		
	2	0.52	XC	104	78	62	52	45	39	35	31		
	2.5	0.76	VC	152	114	91	76	65	57	51	46		
	3	0.69	VC	138	103	83	69	59	52	46	41		
	3.5	0.90	C	180	135	108	90	77	68	60	54		
	4	1.00	C	200	150	120	100	86	75	67	60		
	4.5	1.05	C	210	158	126	105	90	79	70	63		
	5	1.10	M	220	165	132	110	94	83	73	66		
ExRay XC LILAC 025	1	0.50	UC	100	75	60	50	43	38	33	30		
	1.5	0.60	XC	120	90	72	60	51	45	40	36	★★★★	
	2	0.75	VC	150	113	90	75	64	56	50	45	★★★★	
	2.5	0.91	C	181	136	109	91	78	68	60	54	★★★	
	3	1.00	C	200	150	120	100	86	75	67	60	★★★	
	3.5	1.10	C	220	165	132	110	94	83	73	66		
	4	1.20	C	240	180	144	120	103	90	80	72		
	4.5	1.30	M	260	195	156	130	111	98	87	78		
	5	1.40	M	280	210	168	140	120	105	93	84		
ExRay XC BLUE 03	1	0.70	XC	140	105	84	70	60	53	47	42		
	1.5	0.85	XC	170	128	102	85	73	64	57	51	★★★★	
	2	0.95	VC	190	143	114	95	81	71	63	57	★★★★	
	2.5	1.11	VC	221	166	133	111	95	83	74	66	★★★	
	3	1.20	C	240	180	144	120	103	90	80	72	★★★	
	3.5	1.30	C	260	195	156	130	111	98	87	78		
	4	1.40	C	280	210	168	140	120	105	93	84		
	4.5	1.50	C	300	225	180	150	129	113	100	90		
	5	1.60	C	320	240	192	160	137	120	107	96		
ExRay XC RED BROWN 035	1	0.75	XC	150	113	90	75	64	56	50	45		
	1.5	0.90	VC	180	135	108	90	77	68	60	54		
	2	1.05	VC	210	158	126	105	90	79	70	63		
	2.5	1.25	C	249	187	149	125	107	93	83	75		
	3	1.40	C	280	210	168	140	120	105	93	84		
	3.5	1.50	C	300	225	180	150	129	113	100	90		
	4	1.60	C	320	240	192	160	137	120	107	96		
	4.5	1.70	C	340	255	204	170	146	128	113	102		
	5	1.80	C	360	270	216	180	154	135	120	108		
ExRay XC RED 04	1	0.70	UC	140	105	84	70	60	53	47	42		
	1.5	0.90	XC	180	135	108	90	77	68	60	54		
	2	1.10	XC	220	165	132	110	94	83	73	66	★★★★	
	2.5	1.45	VC	289	217	173	145	124	108	96	87	★★★	
	3	1.60	VC	320	240	192	160	137	120	107	96	★★★	
	3.5	1.70	VC	340	255	204	170	146	128	113	102		
	4	1.90	VC	380	285	228	190	163	143	127	114		
	4.5	2.00	C	400	300	240	200	171	150	133	120		
	5	2.20	C	440	330	264	220	189	165	147	132		
ExRay XC BROWN 05	1	1.05	XC	210	158	126	105	90	79	70	63		
	1.5	1.29	XC	258	194	155	129	111	97	86	77		
	2	1.53	XC	306	230	184	153	131	115	102	92		
	2.5	1.75	VC	351	263	211	175	150	132	117	105	★★★★	
	3	1.96	VC	392	294	235	196	168	147	131	118	★★★★	
	3.5	2.12	VC	424	318	254	212	182	159	141	127		
	4	2.30	VC	460	345	276	230	197	173	153	138		
	4.5	2.53	VC	506	380	304	253	2117	190	169	152		
	5	2.64	VC	528	396	317	264	226	198	176	158		
ExRay XC GREY 06	1	1.00	UC	200	150	120	100	86	75	67	60		
	1.5	1.40	UC	280	210	168	140	120	105	93	84		
	2	1.80	XC	360	270	216	180	154	135	120	108		
	2.5	2.27	XC	454	340	272	227	194	170	151	136		
	3	2.45	XC	490	368	294	245	210	184	163	147		
	3.5	2.70	XC	540	405	324	270	231	203	180	162		
	4	2.95	XC	590	443	354	295	253	221	197	177		
	4.5	3.20	XC	640	480	384	320	274	240	213	192		
	5	3.44	XC	688	516	413	344	295	258	229	206		

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Do not mix different valve/nozzle/washer combinations or variable output will result.
When performing a calibration test ensure the system pressure is set to 3 bar

BfS Fairway 90 Amenity Nozzle



Better for the environment and the operator

Great coverage from this extended range nozzle, capable of being used from 2 to 5 bar pressure without significantly increasing drift.

Perfect for use in all urban areas, golf courses, playing fields, caravan and camp sites, local authority parks and gardens

Fairway 90	Part No.
01 Orange	NNB005100
015 Green	NNB005150
02 Yellow	NNB005200
025 Lilac	NNB005250
03 Blue	NNB005300
035 Red Brown	NNB005350
04 Red	NNB005400
05 Brown	NNB005500
06 Grey	NNB005600

Nozzle	Pressure	Flow	Spray Quality *	Output in Litres/Ha (at nozzle height of 70cm and nozzle spacing of 50cm)				
				Speed (KPH)				
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 LILAC 025	2	0.75	VC	225	150	113	90	75
	2.5	0.91	C	272	181	136	109	91
	3	1.00	C	300	200	150	120	100
	3.5	1.10	C	330	220	165	132	110
	4	1.20	C	360	240	180	144	120
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 BLUE 03	2	0.95	VC	285	190	143	114	95
	2.5	1.11	VC	332	221	166	133	111
	3	1.20	C	360	240	180	144	120
	3.5	1.30	C	390	260	195	156	130
	4	1.40	C	420	280	210	168	140
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 RED BROWN 035	2	1.05	VC	315	210	158	126	105
	2.5	1.25	C	374	249	187	149	125
	3	1.40	C	420	280	210	168	140
	3.5	1.50	C	450	300	225	180	150
	4	1.60	C	480	320	240	192	160
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 RED 04	2	1.10	XC	330	220	165	132	110
	2.5	1.45	VC	434	289	217	173	145
	3	1.60	VC	480	320	240	192	160
	3.5	1.70	VC	510	340	255	204	170
	4	1.90	VC	570	380	285	228	190
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 BROWN 05	2	1.53	XC	459	306	230	184	153
	2.5	1.75	VC	526	351	263	211	175
	3	1.96	VC	588	392	294	235	196
	3.5	2.12	VC	636	424	318	254	212
	4	2.30	VC	690	460	345	276	230
	Bar	L/Min	*	4	6	8	10	12
Fairway 90 GREY 06	2	1.80	XC	540	360	270	216	180
	2.5	2.27	XC	681	454	340	272	227
	3	2.45	XC	735	490	368	294	245
	3.5	2.70	XC	810	540	405	324	270
	4	2.95	XC	885	590	443	354	295

* Spray Quality Coding		
Category	Symbol	Colour
Extremely Fine	XF	Purple
Very Fine	VF	Red
Fine	F	Orange
Medium	M	Yellow
Coarse	C	Blue
Very Coarse	VC	Green
Extremely Coarse	XC	White
Ultra Coarse	UC	Black

Use Fairway 90 nozzles at 70cm above the target for optimal spray coverage and result

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Standard 'Wide range' Nozzle



BfS do make a flat fan for use when low drift nozzles are not appropriate.

However, they should not be used in anything but the best spraying conditions when drift onto non-target areas will not occur.



Ceramic Sizes	Part No.
02 Yellow	NNA003111
03 Blue	NNA003112
04 Red	NNA003113
05 Brown	NNA003114
06 Grey	NNA003115

Plastic Sizes	Part No.
015 Green	NNA003101
02 Yellow	NNA003102
025 Lilac	NNA003027
03 Blue	NNA003103
04 Red	NNA003104
05 Brown	NNA003105
06 Grey	NNA003106
08 White	NNA003108
10 Black	NNA003110

SIZE	NOZZLE PRESSURE (Bar)	FLOW (l/min)	LITRES PER HECTARE Speed (kph) at 50cm nozzle spacing 6	8	10	12	14	16	18	20
GREEN 015	1	0.35	69	52	42	35	30	26	23	21
	2	0.49	98	73	59	49	42	37	33	29
	3	0.60	120	90	72	60	51	45	40	36
	4	0.69	139	104	83	69	59	52	46	42
	5	0.77	155	116	93	77	66	58	52	46
YELLOW 02	1	0.49	92	69	55	46	40	35	31	28
	2	0.66	132	99	79	66	57	50	44	40
	3	0.80	162	121	97	81	69	61	54	49
	4	0.93	187	140	112	93	80	70	62	56
	5	1.04	209	157	125	104	89	78	70	63
LILAC 025	1	0.58	116	87	70	58	50	43	39	35
	2	0.82	163	123	98	82	70	61	55	49
	3	1.00	200	151	121	100	86	75	67	60
	4	1.15	231	174	139	116	99	87	77	70
	5	1.30	259	194	156	130	111	97	86	78
BLUE 03	1	0.69	139	104	83	69	59	52	46	42
	2	0.98	196	147	118	98	84	74	65	59
	3	1.20	240	180	144	120	103	90	80	72
	4	1.39	277	208	166	139	119	104	92	83
	5	1.55	310	232	186	155	133	116	103	93
RED 04	1	0.92	184	139	111	93	79	69	62	55
	2	1.31	261	196	157	131	112	98	87	79
	3	1.60	320	241	193	160	138	120	107	96
	4	1.85	370	278	222	185	159	139	124	111
	5	2.07	414	311	249	207	178	155	138	124
BROWN 05	1	1.16	231	173	139	115	99	87	77	69
	2	1.63	327	245	196	163	140	122	109	98
	3	2.00	400	299	240	200	171	150	133	120
	4	2.31	462	346	277	231	198	173	154	138
	5	2.58	515	387	309	258	221	193	172	155
GREY 06	1	1.39	277	208	166	139	119	104	92	83
	2	1.96	392	294	235	196	168	147	131	118
	3	2.40	480	360	288	240	206	180	160	144
	4	2.77	554	416	333	277	238	208	185	166
	5	3.10	620	465	372	310	266	232	207	186
WHITE 08	1	1.85	369	277	221	185	158	138	123	111
	2	2.61	523	392	314	261	224	196	174	157
	3	3.20	640	480	384	320	274	240	213	192
	4	3.70	739	554	443	370	317	277	246	222
	5	4.13	826	620	496	413	354	310	275	248
BLACK 10	1	2.31	461	346	277	231	198	173	154	138
	2	3.26	653	489	392	326	280	245	218	196
	3	4.00	799	599	480	400	343	300	266	240
	4	4.61	923	692	554	461	395	346	308	277
	5	5.16	1032	774	619	516	442	387	344	310

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Other Nozzle Options

We are the UK's official distributor for Agrotop nozzles and spraying accessories



BfS ABCJ Hollow Cone Air Induction Nozzle

025 nozzle for effective coverage from all angles to give superior control of insects and late season fungicides from the 80° fan angle. Air inclusion gives superior drift reduction for a hollow cone nozzle design.

These are a great idea also for use in knapsack sprayers to reduce operator exposure and drift onto sensitive vegetation. Can be used at low pressures.

Size	Part No.
025 Lilac	NNA004125



Flat Fan 80° degree range

These flat fan nozzles are ideally suited to booms with 25 and 33cm nozzle spacing, where a fine spray is required. Suitable for PWM but expect more drift than from the BfS STS-80 range, which are the preferred low drift option.

Size	Part No.
02 Yellow 80	NNA003182
03 Blue 80	NNA003183
04 Red 80	NNA003184
05 Brown 80	NNA003185
06 Grey 80	NNA003024
08 White 80	NNA003025
10 Black 80	NNA003026



APE 80° Ceramic range

Standard flat fan 80° ceramic nozzle.
Hard wearing.

Size	Part No.
01 Orange 80	NNF002012
015 Green 80	NNF002014
02 Yellow 80	NNF002011
04 Red 80	NNF002013



Airmix OC 80° (offset nozzle)

Low pressure off-centre air-inclusion nozzle for a sharp cut off on the outer nozzle of the boom, to protect the field margins. Also for use in knapsack sprayers for simple edge spraying.

Size	Part No.
02 Yellow OC80	NNA003308
025 Lilac OC80	NNA003309
03 Blue OC80	NNA003310
04 Red OC80	NNA003311
05 Brown OC80	NNA003312

ATR 80° Hollow Cone ceramic



Ideal cone nozzle for orchards and vineyards, but very drift prone.

Size	Part No.
01 Orange	NNF002008
015 Green	NNF002006
02 Yellow	NNF002007
025 Lilac	NNF002002
03 Blue	NNF002021
04 Red	NNF002003
05 Brown	NNF002009
06 Grey	NNF002010
08 White	NNF002017



AVI 80° ceramic

015, 02, 025, 03, 04 Venturi air inclusion (11mm nozzle) Ideal low drift flat fan nozzle for orchards and vineyards.

Size	Part No.
015 Green	NNF002018
02 Yellow	NNF002015
025 Lilac	NNF002020
03 Blue	NNF002019
04 Red	NNF002016



Tip Cap plastic range

Size	Part No.
015 Green Tipcap plastic	NNA003001
02 Yellow Tipcap plastic	NNA003002
03 Blue Tipcap plastic	NNA003003
04 Red Tipcap plastic	NNA003004
05 Brown Tipcap plastic	NNA003005
06 Grey Tipcap plastic	NNA003006
08 White Tipcap plastic	NNA003008
10 Black Tipcap plastic	NNA003010
12 Turquoise Tipcap plastic	NNA003012
16 Purple Tipcap plastic	NNA003016
20 Light Blue Tipcap plastic	NNA003020

Tip Cap ceramic range

Ceramic flat fan incorporated in the cap to make removal/replacement and storage simple. Colour coded to the nozzle flow range. Includes sealing washer.

Size	Part No.
015 Green Tipcap Ceramic	NNA002001
02 Yellow Tipcap Ceramic	NNA002002
03 Blue Tipcap Ceramic	NNA002003
04 Red Tipcap Ceramic	NNA002004
05 Brown Tipcap Ceramic	NNA002005
06 Grey Tipcap Ceramic	NNA002006
08 White Tipcap Ceramic	NNA002007



BfS Angled Caps



British designed and manufactured, this exciting spraying innovation from Billericay Farm Services offers sprayer operators the opportunity of achieving the benefits of angling the spray forwards or backwards, whilst using their existing nozzles.

Angled Caps provide a 30° spray angle using all standard 8mm nozzles

- **Improved vegetation coverage**
- **Increased chemical efficacy**
- **Enhanced disease control**

Why use them?
Research has shown that angling the spray at 30° and alternating the nozzles forwards and straight down across the boom improves spray deposition.

The need to purchase additional, more expensive speciality nozzles is eliminated.





Colour code	Part No.
Black	NCF000100
Orange	NCF000110
Green	NCF000115
Yellow	NCF000120
Lilac	NCF000125
Blue	NCF000130
Red Brown	NCF000135
Red	NCF000140
Brown	NCF000150
Grey	NCF000160
White	NCF000180
Replacement Seal	NCF000101

Twin Caps

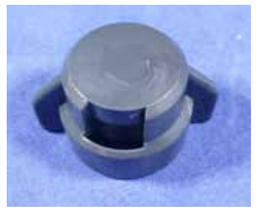


The Twin Cap is designed to hold two Billericay Air Bubble Jets at an angle of 30 degrees forward and 30 degrees rearward facing to get improved crop coverage with increased volumes, while maintaining a specified spray quality. Will hold standard flat fans or a blanking nozzle if this is required.

Part No	NTB000011

Blanking Nozzle/Cap





Blanking Nozzle	NTA000001
Blanking Cap	NCA000021

Nozzle Filters

Full range of dome and cylinder filters available for in-line and nozzle filtration.

Various sizes from 25 mesh to 200 mesh.

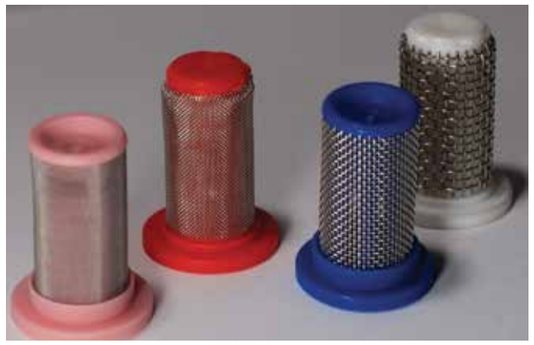
Colour code	Part No.
24 mesh White	NSA000002
50 mesh Blue	NSA000003
100 mesh Red	NSA000001
200 mesh Pink	NSA000009
Hardi filter: 50 mesh blue	NSA000203

Standard Nozzle Caps



Available in all colours as an 8mm nozzle size, and in select colours as an 11mm nozzle size.

Part No	8mm	11mm
Orange	NCA000012	
Green	NCA000001	
Yellow	NCA000002	
Lilac	NCA000000	
Blue	NCA000003	NCA000314
Red Brown	NCA002992	
Red	NCA000004	NCA000315
Brown	NCA000005	NCA000311
Grey	NCA000006	
White	NCA000004	
Black	NCA000021	NCA000304
Nozzle Washer	NWA000003	



Other caps are kept in stock, Hardi for example, so please ask if you have any special requirements.

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Low Drift Knapsack Nozzle Pack

A nozzle for every knapsack application, low drift to protect the operator and the environment

A convenient pack of 4 assorted nozzles and a nozzle filter to cater for any knapsack application:

BfS AirBubble Jet - 025
For general purpose use, where low drift is necessary for most pesticide applications. 110° fan pattern.

BfS Hollow Cone ABCJ - 025
The angled fan from this low drift, hollow cone nozzle, ensures great coverage for fungicide and insecticides. 80° fan pattern.

Airmix Deflector tip - 025
Air inclusion large droplets for increased drift control. Ideal for herbicides where drift can not be tolerated. 80 to 130° fan pattern.

BfS Wide Range Flat Fan - 025
For use under glass where drift will not be a problem.





Nozzle filter - 100 mesh
to keep particulate debris out of the nozzle to reduce blockages.

All 025 nozzles to suit walking pace use of 1m per second. Official flow rate of 1.0 litre/minute at 3 bar operating pressure.

Knapsack Nozzle Pack MKM001199

	Nozzle	Pressure (Bar)	L/Min	Output at Speed 3.6 kph (Litres / ha)		Swath Width (Coverage Width)		Spot Treatment Output (mls)		
				0.5m	**1.0m**	**50cm**	**100cm**	**seconds**		
	Bubble Jet			**1m/s**	**1m/s**	Nozzle Height (cm)		1	2	3
	ABJ 025	1.0	0.58	192	96	30	60	9.6	19.2	28.9
		1.5	0.71	236	118	30	60	11.8	23.6	35.4
		2.0	0.82	272	136	25	50	13.6	27.2	40.8
		2.5	0.91	304	152	25	50	15.2	30.4	45.6
		3.0	1.00	333	167	25	50	16.7	33.3	50.0
	Flat Fan			**1m/s**	**1m/s**			**1**	**2**	**3**
	WR 025	1.0	0.58	192	96	17.5	35	9.6	19.2	28.9
		1.5	0.71	236	118	17.5	35	11.8	23.6	35.4
		2.0	0.82	272	136	17.5	35	13.6	27.2	40.8
		2.5	0.91	304	152	17.5	35	15.2	30.4	45.6
		3.0	1.00	333	167	17.5	35	16.7	33.3	50.0
	Cone Jet			**1m/s**	**1m/s**			**1**	**2**	**3**
	ABCJ 025 Cone	1.0	0.58	192	96	30	60	9.6	19.2	28.9
		1.5	0.71	236	118	30	60	11.8	23.6	35.4
		2.0	0.82	272	136	30	60	13.6	27.2	40.8
		2.5	0.91	304	152	30	60	15.2	30.4	45.6
		3.0	1.00	333	167	30	60	16.7	33.3	50.0
	Anvil Nozzle			**1m/s**	**1m/s**			**1**	**2**	**3**
	DT AN 025 Airmix	1.5	0.71	236	118	30	60	11.8	23.6	35.4
		2.0	0.82	272	136	21	42	13.6	27.2	40.8
		2.5	0.91	304	152	14.5	29	15.2	30.4	45.6
		3.0	1.00	333	167	12	24	16.7	33.3	50.0

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BfS FlowCheck

Easy and effective method of checking the flow output of nozzles. No need for a jug or a stop watch.



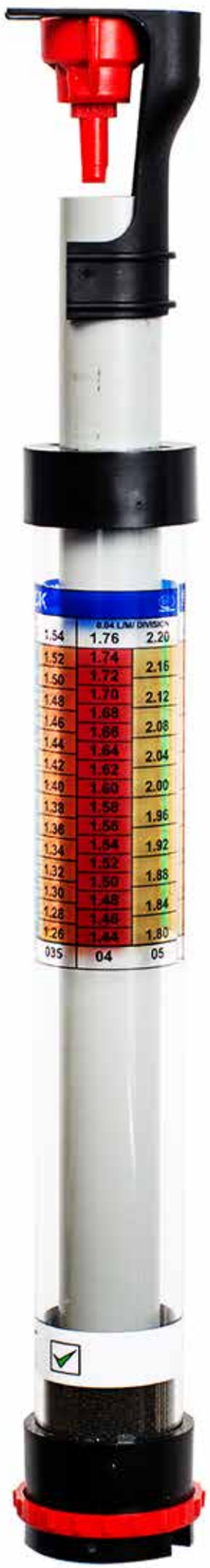


Simply set the dial at the base of the FlowCheck to the nozzle size being tested e.g. 03, hang the FlowCheck(s) on the boom under the nozzle (can be a single one or a number spread across the boom), turn on the pump, set the boom pressure to 3 bar and the FlowCheck will indicate the flow, within a few seconds.

Also available in sets of 5 in a carry case, for sprayer test examiners.

Part No LTS000007





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BfS
Dribble Bar II



The Dribble Bar II has a re-designed flow control disc now with 11 settings giving extra application rate options, but retains the unique “dial-a-rate setting” flow rate adjustment. It accurately applies liquid fertiliser through four equally-spaced openings along the Dribble Bar.

The application rates can be pre-set to one of eleven different flow rates by a simple fingertip adjustment of the flow control disc. No need to remove the Dribble Bar or have multiple nozzles to cover your required rates of application.



Dribble Bar II Features

- **Accurate:** Allows precision targeting of liquid fertiliser, eradicates application overlap, and therefore reduces potential crop lodging
- **Effective:** Provides an efficient and flexible method of application at any boom height.
- **Economic:** More efficient utilisation of labour and machines and reduces waste.
- **Safe:** Minimises the risk of crop scorch.

TeeJet/EF3/Euro NFB200401



Stabilisers

Hooks adjacent Dribble Bars together to keep them in line.

Dribble Bars NFB200412



BfS Dribble Bar II Application Chart

YELLOW DISC	NOZZLE PRESSURE (Bar)	FLOW (l/min)	LITRES PER HECTARE Speed (kph) at 50cm nozzle spacing 5	6	7	8	9	10	11	12	13	14	15
POSITION *	1	1.08	259	216	185	162	144	130	118	108	100	93	86
	1.25	1.21	290	242	207	182	161	145	132	121	112	104	97
	1.5	1.29	310	258	221	194	172	155	141	129	119	111	103
	1.75	1.41	338	282	242	212	188	169	154	141	130	121	113
	2	1.48	355	296	254	222	197	178	161	148	137	127	118
	2.5	1.62	389	324	278	243	216	194	177	162	150	139	130
POSITION ▼	1	1.12	269	224	192	168	149	134	122	112	103	96	90
	1.25	1.24	298	248	213	186	165	149	135	124	114	106	99
	1.5	1.34	322	268	230	201	179	161	146	134	124	115	107
	1.75	1.44	346	288	247	216	192	173	157	144	133	123	115
	2	1.52	365	304	261	228	203	182	166	152	140	130	122
	2.5	1.70	408	340	291	255	227	204	185	170	157	146	136
POSITION 1	1	1.35	324	270	231	203	180	162	147	135	125	116	108
	1.25	1.54	370	308	264	231	205	185	168	154	142	132	123
	1.5	1.67	401	334	286	251	223	200	182	167	154	143	134
	1.75	1.80	432	360	309	270	240	216	196	180	166	154	144
	2	1.90	456	380	326	285	253	228	207	190	175	163	152
	2.5	2.04	490	408	350	306	272	245	223	204	188	175	163
POSITION 2	1	1.76	422	352	302	264	235	211	192	176	162	151	141
	1.25	1.95	468	390	334	293	260	234	213	195	180	167	156
	1.5	2.12	509	424	363	318	283	254	231	212	196	182	170
	1.75	2.23	535	446	382	335	297	268	243	223	206	191	178
	2	2.34	562	468	401	351	312	281	255	234	216	201	187
	2.5	2.54	610	508	435	381	339	305	277	254	234	218	203
POSITION 3	1	2.20	528	440	377	330	293	264	240	220	203	189	176
	1.25	2.45	588	490	420	368	327	294	267	245	226	210	196
	1.5	2.68	643	536	459	402	357	322	292	268	247	230	214
	1.75	2.82	677	564	483	423	376	338	308	282	260	242	226
	2	2.96	710	592	507	444	395	355	323	296	273	254	237
	2.5	3.24	778	648	555	486	432	389	353	324	299	278	259
POSITION 4	1	2.57	617	514	441	386	343	308	280	257	237	220	206
	1.25	2.79	670	558	478	419	372	335	304	279	258	239	223
	1.5	3.02	725	604	518	453	403	362	329	302	279	259	242
	1.75	3.21	770	642	550	482	428	385	350	321	296	275	257
	2	3.34	802	668	573	501	445	401	364	334	308	286	267
	2.5	3.66	878	732	627	549	488	439	399	366	338	314	293
POSITION 5	1	2.92	701	584	501	438	389	350	319	292	270	250	234
	1.25	3.22	773	644	552	483	429	386	351	322	297	276	258
	1.5	3.46	830	692	593	519	461	415	377	346	319	297	277
	1.75	3.67	881	734	629	551	489	440	400	367	339	315	294
	2	3.79	910	758	650	569	505	455	413	379	350	325	303
	2.5	4.18	1003	836	717	627	557	502	456	418	386	358	334
POSITION 6	1	3.79	910	758	650	569	505	455	413	379	350	325	303
	1.25	4.28	1027	856	734	642	571	514	467	428	395	367	342
	1.5	4.62	1109	924	792	693	616	554	504	462	426	396	370
	1.75	4.98	1195	996	854	747	664	598	543	498	460	427	398
	2	5.28	1267	1056	905	792	704	634	576	528	487	453	422
	2.5	5.66	1358	1132	970	849	755	679	617	566	522	485	453
POSITION 7	1	4.36	1046	872	747	654	581	523	476	436	402	374	349
	1.25	4.82	1157	964	826	723	643	578	526	482	445	413	386
	1.5	5.23	1255	1046	897	785	679	628	571	523	483	448	418
	1.75	5.60	1344	1120	960	840	747	672	611	560	517	480	448
	2	6.12	1469	1224	1049	918	816	734	668	612	565	525	490
	2.5	6.65	1596	1330	1140	998	887	798	725	665	614	570	532
POSITION 8	1	4.58	1099	916	785	687	611	550	500	458	423	393	366
	1.25	5.08	1219	1016	871	762	677	610	554	508	469	435	406
	1.5	5.46	1310	1092	936	819	728	655	596	546	504	468	437
	1.75	5.92	1421	1184	1015	888	789	710	646	592	546	507	474
	2	6.52	1565	1304	1118	978	869	782	711	652	602	559	522
	2.5	7.20	1728	1440	1234	1080	960	864	785	720	665	617	576
POSITION 9	1	4.74	1138	948	813	711	632	569	517	474	438	406	379
	1.25	5.30	1272	1060	909	795	707	636	578	530	489	454	424
	1.5	5.72	1373	1144	981	858	763	686	624	572	528	490	458
	1.75	6.20	1488	1240	1063	930	827	744	676	620	572	531	496
	2	6.72	1613	1344	1152	1008	896	806	733	672	620	576	538
	2.5	7.48	1795	1496	1282	1122	997	898	816	748	690	641	598

The application rates in this chart have been measured using water. These figures are given as a guide and the operator should adjust speed and pressure to suit local conditions. **Please note that pressures higher than 2.5bar can damage the Dribble Bar II and care must be taken when using automatic controllers.**

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BfS AutoStreamer variable rate Liquid Fertiliser Applicator

Provides true variable rate liquid fertiliser application

The AutoStreamer developed and manufactured by BfS works on sprayers with flow based rate controllers. Accurate application of liquid fertiliser is made simple as the operator has only to enter the litres per hectare required, factor in the specific gravity (SG) and begin to apply.

Changing the application rate is equally simple and undertaken from within the cab. The AutoStreamer is manufactured in chemical resistant, glass reinforced plastic and is easily fitted to most boom sprayers.

AutoStreamer Features

- **Precision:** Ensures the accurate placement of liquid fertilisers right up to the edge of the crop.
- **Efficiency:** Allows the application of liquid fertilisers under a wide range of conditions at full rate right up to the crop boundaries.
- **Accuracy:** Use at any boom height with no overlap or underlap, and no off target contamination.
- **Protection:** Minimises crop scorch. Stabilised streams of liquid with large droplets that tend to roll off crop leaves.

How does it work?
Using a quad-valve manifold system, where each valve is encased in a specially developed rubber sleeve, the AutoStreamer allows the operator to achieve a ten-fold increase in flow rate from a three-fold increase in pressure. The unique manifold directs the flow of liquid fertiliser into four individual outlets 12.5cm apart across the whole boom width. Hooks on each end allow for adjacent bars to be loosely attached together to keep them in line. Nitrile bands available to join them.



Part No.
NFB300004

Colour code	Part No.
Teejet /EF3 /Euro	NFB500001
Agrifac	NFB500010
Stabiliser band	NFB300004

For confirmation of details see our AutoStreamer leaflet.

BfS AutoStreamer Application Chart

Litres per Hectare	Speed range in Kph, between 0.75 bar to 2.6 bar pressure														
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
60											■	■	■	■	■
120			■	■	■	■	■	■	■	■	■	■	■	■	■
180	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
240	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
300	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
400	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
500	■	■	■	■	■	■	■	■	■	■					
600	■	■	■	■	■	■	■								
700	■	■	■	■	■										
800	■	■	■	■											
900	■	■	■												
1000	■	■													
1100	■														

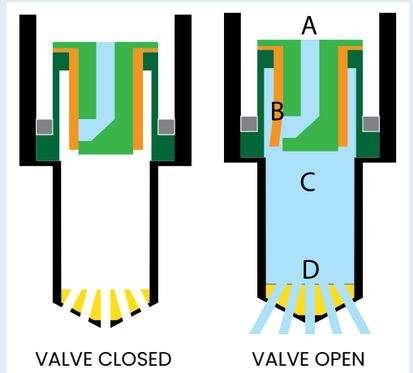


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BfS 5 Star / 5 Star Plus Liquid Fertiliser Nozzles





How does it work?
5 Star consists of a five hole, fertiliser nozzle housing with a bayonet fitting. The nozzle incorporates an internal auto-valve that comprises a chamber and metering orifice surrounded by a resilient, but flexible, sheath. The sheath is manufactured using a specially developed material, which is expandable and reacts consistently and proportionately to increase / decrease in pressure. When there is no flow / pressure the flexible sheath closes the exit aperture in the support plug. As pressure is increased the sheath expands in response to the increase and liquid flows out of the aperture and into a chamber at a rate directly proportional to the increase in pressure and then exits as five consistent streams through the five orifices.

5 Star	NFB400103
5 Star Plus	NFB400104

5 Star and **5 Star Plus** are single fertiliser caps specifically designed for flow based controllers. Designed to operate at 70cms above target, the 5 streams provide excellent coverage reducing the risk of scorch damage to the crop.

One nozzle will have the same output range as 3 standard ISO fertiliser caps. Suitable for Easy Fit 3 nozzle bodies and a multitude of boom configurations.



5 Star
Application Range Litres

Litres Per Hectare	Speed KPH Range using 1.25bar to 2.75bar														
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
60									■	■	■	■	■	■	■
80							■	■	■	■	■	■	■	■	■
100				■	■	■	■	■	■	■	■	■	■	■	■
140		■	■	■	■	■	■	■	■	■	■	■	■	■	■
180	■	■	■	■	■	■	■	■	■	■	■				
200	■	■	■	■	■	■	■	■	■	■					
240	■	■	■	■	■	■	■								
280	■	■	■	■	■										
300	■	■	■	■	■										
350	■	■	■												
400	■	■													
450	■														
500															

5 Star Plus
Application Range Litres

30N SG 1.3 Litres Per Hectare	Speed KPH Range using 1.0bar to 2.5bar														
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
60															
80												■	■	■	■
100										■	■	■	■	■	■
140						■	■	■	■	■	■	■	■	■	■
180				■	■	■	■	■	■	■	■	■	■	■	■
200			■	■	■	■	■	■	■	■	■	■	■	■	■
240		■	■	■	■	■	■	■	■	■	■	■	■	■	■
280	■	■	■	■	■	■	■	■	■	■	■	■	■		
300	■	■	■	■	■	■	■	■	■	■	■				
350	■	■	■	■	■	■	■	■	■						
400	■	■	■	■	■	■	■								
450	■	■	■	■	■	■									
500	■	■	■	■	■										

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BfS Nova
Liquid Fertiliser applicator cap





Nova comes from the same stable as the Bfs 5 Star and BfS 5 Star Plus, however this model is compatible with all types of sprayer controller, unlike the 5 star and 5 Star Plus which are flow based only.

Boom nozzle spacing should be 50 cm along the boom and the cap 70 cm above target to get optimum distribution.

02 Yellow	NFB400220
03 Blue	NFB400230
04 Red	NFB400240
05 Brown	NFB400250
06 Grey	NFB400260
08 White	NFB400280
10 Light Blue	NFB400310
15 Light Green	NFB400315

BfS Nova liquid fertiliser cap distributes liquid fertiliser from 5 streams, to evenly cover the 50cm distance between nozzle bodies.

Designed to be used either as a standalone nozzle, or in conjunction with the BfS Dribblebar II, for those difficult to fit positions where a Dribble Bar will not fit and a cap is required.

Boom height should be 70cm above the target. Use at the lower end of the pressure range, wherever possible, to reduce the risk of crop scorch from smaller droplets.

Now available in 8 different ISO sizes to suit many different application rates, there is certainly one to match your requirements.



BfS Nova
Application Chart

Nozzle (Dribble Bar II Setting)	Pressure (bar)	Flow Rate (l/min)*	Litres per Hectare @ 50cm nozzle spacing										
Speed kph >			5	6	7	8	9	10	11	12	13	14	15
NOVA 02	1	0.47	113	94	81	71	63	56	51	47	43	40	38
	1.5	0.57	137	114	98	86	76	68	62	57	53	49	46
	2	0.66	158	132	113	99	88	79	72	66	61	57	53
	2.5	0.74	178	148	127	111	99	89	81	74	68	63	59
	3	0.81	194	162	139	122	108	97	88	81	75	69	65
NOVA 03	1	0.69	166	138	118	104	92	83	75	69	64	59	55
	1.5	0.85	204	170	146	128	113	102	93	85	78	73	68
	2	0.98	235	196	168	147	131	118	107	98	90	84	78
	2.5	1.10	264	220	189	165	147	132	120	110	102	94	88
	3	1.20	288	240	206	122	160	144	131	120	111	103	96
NOVA 04 (*)	1	0.90	217	181	155	135	120	108	98	90	83	77	72
	1.5	1.27	304	253	217	190	169	152	138	127	117	108	101
	2	1.29	308	257	220	193	171	154	140	129	119	110	103
	2.5	1.46	350	292	250	219	195	175	159	146	135	125	117
	3	1.60	384	320	274	240	213	192	175	160	148	137	128
NOVA 05 (Δ)	1	1.06	254	212	182	159	141	127	116	106	98	91	85
	1.5	1.35	323	269	231	202	179	161	147	135	124	115	108
	2	1.63	391	326	279	245	217	196	178	163	150	140	130
	2.5	1.82	437	364	312	273	243	218	199	182	168	156	146
	3	2.00	480	400	343	300	267	240	218	200	185	171	160
NOVA 06 (1)	1	1.35	324	270	231	203	180	162	147	135	125	116	108
	1.5	1.63	390	325	279	244	217	195	177	163	150	139	130
	2	2.00	480	400	343	300	267	240	218	200	185	171	160
	2.5	2.19	526	438	375	329	292	263	239	219	202	188	175
	3	2.40	576	480	411	360	320	288	262	240	222	206	192
NOVA 08 (2)	1	1.76	422	352	302	264	235	211	192	176	162	151	141
	1.5	2.18	522	435	373	326	290	261	237	218	201	186	174
	2	2.56	614	512	439	384	341	307	279	256	236	219	205
	2.5	2.92	701	584	501	438	389	350	319	292	270	250	234
	3	3.20	768	640	549	480	427	384	349	320	295	274	256
NOVA 10 (4)	1	2.31	554	462	396	347	308	277	252	231	213	198	185
	1.5	3.10	744	620	531	465	413	372	338	310	286	266	248
	2	3.27	784	653	560	490	435	392	356	327	301	280	261
	2.5	4.00	960	800	686	600	533	480	436	400	369	343	320
	3	4.38	1052	876	751	657	584	526	478	438	404	376	351
NOVA 15 (6)	1	3.46	830	692	593	519	461	415	377	346	319	297	277
	1.5	4.65	1115	930	797	697	620	558	507	465	429	398	372
	2	4.90	1176	980	840	735	653	588	534	490	452	420	392
	2.5	6.00	1440	1200	1029	900	800	720	655	600	554	514	480
	3	6.57	1577	1315	1127	986	876	789	717	657	607	563	526

At pressure over 2.5 bar some atomisation may occur, and result in an increased risk of crop scorch.
Use at a boom height of 70cm
*Flow rates calculated using water at 20°C

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How to reduce drift

BfS were, and still are, at the forefront of low drift spray nozzle technology. To reduce drift onto non-target plants, and to safeguard the environment, try these ways to reduce undesirable spray drift :

- Do not spray in windy weather – a light air or breeze is preferable, and do not spray if droplets are blown towards sensitive areas
- Choose a nozzle with a 3-star (75% lower drift) or 4-star (90% lower drift) LERAP rating – BfS have several options
- Use a higher volume of water through a nozzle with a larger orifice, producing larger, less drift prone droplets
- Slow down – Less air movement to affect the smaller droplets
- Alternate adjacent nozzles to face forwards and downwards so there is less droplet impact which will result in smaller, drift prone droplets being created
- Lower the boom (but consistent with the correct overlap and even spray pattern from the nozzles chosen) as the time it takes a droplet to move from the nozzle to the target is critical for drift control. The shorter the time the better.
- Operate the system at a lower pressure – this creates larger droplets which are less prone to drift
- Try an 80° fan angle nozzle if it suits your sprayer - These produce a lower number of small driftable droplets
- Ensure spraying equipment is maintained to a high standard and calibrated on a regular basis

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