

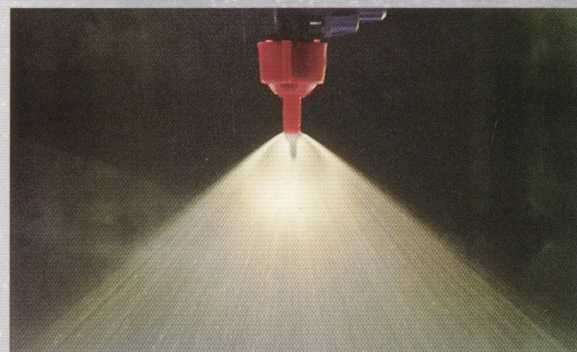
Bubble Jet Nozzle Useful Information

SPRAYING WITHOUT COMPROMISE!

Billericay Farm Services (BFS), inventors of the original air bubble jet concept, has become known throughout the world for this innovative spraying aid. The success of this simple retrofit, yet technically advanced spray nozzle, has brought the Company's name to the forefront of farmers and growers throughout the UK and many countries beyond.

In a paper presented by Libby Powell of Morley Research Centre at the International Pesticide Application Conference, comparisons of droplet size between three different Air-Induction nozzles of the same size (0.8 l/min at 3.0 Bar) were reported from work carried out at Silsoe Research Institute. This work showed that the BFS Air Bubble Jet produced smaller droplets than the other two Air-Induction nozzles tested when spraying water only. The Air Bubble Jet showed a Volume Mean Diameter range of 320 to 360 µm compared to the competing nozzles range of a much larger droplet size of 450 to 570 µm.

Conclusions drawn from this work suggest that when an e.c. formulation is added to the spray tank this has the effect of reducing droplet size regardless of the number of components within the tank mix. This suggests that selection of a specific nozzle is more critical than the tank mix applied.



THE PROBLEM

Conventional jets form both large and small droplets. The large ones run off the target surface and small ones drift away. Result *minimum* spraying effectiveness.

THE SOLUTION

Reduce the number of very small droplets that are susceptible to drift and create air bubbles in the larger droplets which, on contact with the leaf collapse, allowing the spray liquid to disperse evenly. Result *maximum* spraying effectiveness

The success of the Air Bubble Jet is set to continue for years to come. Nowhere will this be more evident than in the United Kingdom where legislative powers are putting more and more pressure on farmers, with particular emphasis on the environmental aspects of the spraying operation.

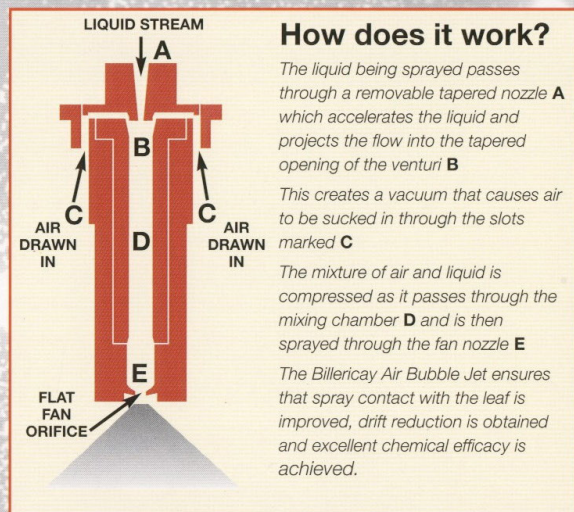
The LERAP top rating 3 star award for Billericay Air Bubble Jets allow the spraying of category B pesticides as close as one metre to water bodies regardless of their size or rate of chemical applied. This is a major reduction on the 5 metre buffer zone currently in force for non-approved nozzles.

Drift reductions of over 75% can be achieved with Air Bubble Jets compared with conventional nozzles when the spray is applied at the pressure of 2 bar.

Independent Support of the Billericay Air Bubble Jet has been confirmed from the results of trials carried out by Zeneca on its top selling herbicides, Touchdown, Fusillade 250W, Gramoxone and Grasp.

These results showed no evidence of any reduction in the relative efficacy of air bubble jets when compared to conventional nozzles at the spray rate of 200 litres per hectare.

Billericay Farm Services express its gratitude for the permission to reproduce tables, pictures and diagrams from the paper "Defining the size of target for air induction nozzles." Published in the International Advances in Pesticide Application" by the Association of Applied Biologists. Authors are E S Powell, J H Orson (Morley Research Centre), P C H Miller (Silsoe Research Institute), P Kudsk & S Mathiassen (Danish Institute of Agricultural Sciences). This work was financially supported by the Home Grown Cereals Authority) (HGCA) and their permission to reproduce this data is also gratefully acknowledged. Full details may be found on the HGCA web site. www.hgca.com



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



SPRAY RULE THREAT

Spray Operators who ignore buffer zone regulations (Local Environment Assessments for Pesticides) will face prosecution if caught, DEFRA has warned.

The warning follows a case, which resulted in a farmer in Lincolnshire being fined £2,600 plus costs of £1,400 after pleading guilty to two charges of failing to carry out a LERAP assessment.

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Nozzle Chart For Standard 110° Bubble Jet Nozzles

Nozzle	Pressure Bar	Flow L/Min	6	8	10	12	14	16
			kph	kph	kph	kph	kph	kph
015 - Green	2	0.49	98	73	59	49	42	37
	3	0.6	120	90	72	60	51	45
	4	0.69	139	104	83	69	59	52
	5	0.77	155	116	93	77	66	58
	6	0.85	170	127	102	85	73	64
02 - Yellow	2	0.65	131	98	78	65	56	49
	3	0.8	160	120	96	80	69	60
	4	0.92	185	139	111	92	79	69
	5	1.04	209	157	125	104	89	78
	6	1.14	229	171	137	114	98	86
025 - Lilac	2	0.82	163	122	98	82	70	61
	3	1	200	150	120	100	86	75
	4	1.15	231	173	139	115	99	87
	5	1.3	259	194	156	130	111	97
	6	1.42	284	213	170	142	122	107
03 - Blue	2	0.98	196	147	118	98	84	73
	3	1.2	240	180	144	120	103	90
	4	1.39	277	208	166	139	119	104
	5	1.55	310	232	186	155	133	116
	6	1.7	339	255	204	170	145	127
04 - Flame Red	2	1.31	261	196	157	131	112	98
	3	1.6	320	240	192	160	137	120
	4	1.85	370	277	222	185	158	139
	5	2.07	414	311	249	207	178	155
	6	2.27	454	340	272	227	194	170
05 - Brown	2	1.63	327	245	196	163	140	122
	3	2	400	300	240	200	171	150
	4	2.31	462	346	277	231	198	173
	5	2.58	515	387	309	258	221	193
	6	2.82	565	423	339	282	242	212
06 - Grey	2	1.96	392	294	235	196	168	147
	3	2.4	480	360	288	240	206	180
	4	2.77	554	416	333	277	238	208
	5	3.1	620	465	372	310	266	232
	6	3.39	679	509	407	339	291	255
08 - White	2	2.61	523	392	314	261	224	196
	3	3.2	640	480	384	320	274	240
	4	3.7	739	554	443	370	317	277
	5	4.13	826	620	496	413	354	310
	6	4.53	905	679	543	453	388	339



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