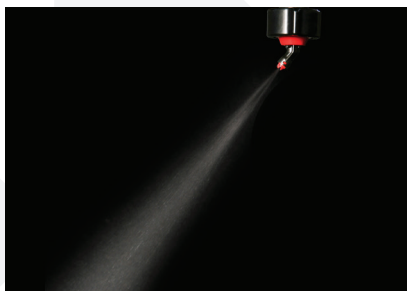


HYPRO® 3D NOZZLE

INCLINED ALL-PURPOSE NOZZLE FOR OPTIMUM SPRAY COVERAGE

Features & Benefits

- Designed in partnership with Syngenta using wind tunnel research and more than 10 years of agronomic field trials
- Proven to deliver up to a 10% increase in pre-emerge weed control compared to a conventional flat fan (Syngenta UK Trials - 0.6 l/ha Liberator (diflufenican+ flufenacet) + 4 l/ha Defy (Prosulfacarb) applied November 2015)
- Creates the optimum droplet size for coverage, fewer droplets bounce off or drift away
- 60-75% drift reduction compared to flat fan nozzles, achieving 2 Star LERAP rating at specific nozzle size/pressure combinations
- Inclined spray is designed to be installed alternating forward and backward on boom to provide 3-dimensional coverage on vertical targets such as grass weeds, soil clods and broad leaved canopies
- PWM compatible; Install 3D nozzles facing the same direction when using with PWM systems at less than 30 Hz
- FastCap version utilizes the SnapLock cap technology, reducing installation torque requirement by 73% (Internal testing - standard FastCap versus SnapLock cap)



Engineered spray incline designed to provide the best coverage on hard to hit targets



Install facing in alternating directions along the boom to provide coverage on both sides of the target



Designed to ensure even spray distribution on both sides of the boom when the nozzles are installed in alternating directions

HYPRO® 3D Nozzle

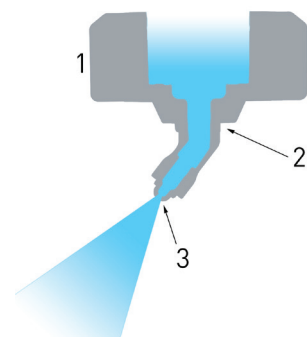
Specifications

U.S. Units

Nozzle Size	Droplet Size	Pressure (PSI)	Flow (GPM)	Speed (MPH) - 20 inch nozzle spacing											
				Gallons per Acre											
				5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	
015	C	10*	0.08	4.5	3.0	2.2	1.8	1.5	1.3	1.1	1.0	0.9	0.8	0.7	
	M	15*	0.09	5.5	3.6	2.7	2.2	1.8	1.6	1.4	1.2	1.1	1.0	0.9	
	M	20	0.11	6.3	4.2	3.2	2.5	2.1	1.8	1.6	1.4	1.3	1.1	1.1	
	F	30	0.13	7.7	5.1	3.9	3.1	2.6	2.2	1.9	1.7	1.5	1.4	1.3	
	F	40	0.15	8.9	5.9	4.5	3.6	3.0	2.5	2.2	2.0	1.8	1.6	1.5	
	F	50	0.17	10.0	6.6	5.0	4.0	3.3	2.8	2.5	2.2	2.0	1.8	1.7	
	F	60	0.18	10.9	7.3	5.5	4.4	3.6	3.1	2.7	2.4	2.2	2.0	1.8	
	F	70	0.20	11.8	7.9	5.9	4.7	3.9	3.4	2.9	2.6	2.4	2.1	2.0	
	F	80	0.21	12.6	8.4	6.3	5.0	4.2	3.6	3.2	2.8	2.5	2.3	2.1	
F	90	0.23	13.4	8.9	6.7	5.3	4.5	3.8	3.3	3.0	2.7	2.4	2.2		
02	M	10*	0.10	5.9	4.0	3.0	2.4	2.0	1.7	1.5	1.3	1.2	1.1	1.0	
	M	15*	0.12	7.3	4.8	3.6	2.9	2.4	2.1	1.8	1.6	1.5	1.3	1.2	
	M	20	0.14	8.4	5.6	4.2	3.4	2.8	2.4	2.1	1.9	1.7	1.5	1.4	
	M	30	0.17	10.3	6.9	5.1	4.1	3.4	2.9	2.6	2.3	2.1	1.9	1.7	
	F	40	0.20	11.9	7.9	5.9	4.8	4.0	3.4	3.0	2.6	2.4	2.2	2.0	
	F	50	0.22	13.3	8.9	6.6	5.3	4.4	3.8	3.3	3.0	2.7	2.4	2.2	
	F	60	0.24	14.5	9.7	7.3	5.8	4.8	4.2	3.6	3.2	2.9	2.6	2.4	
	F	70	0.26	15.7	10.5	7.9	6.3	5.2	4.5	3.9	3.5	3.1	2.9	2.6	
	F	80	0.28	16.8	11.2	8.4	6.7	5.6	4.8	4.2	3.7	3.4	3.1	2.8	
F	90	0.30	17.8	11.9	8.9	7.1	5.9	5.1	4.5	4.0	3.6	3.2	3.0		
025	C	10*	0.13	7.4	5.0	3.7	3.0	2.5	2.1	1.9	1.7	1.5	1.4	1.2	
	M	15*	0.15	9.1	6.1	4.5	3.6	3.0	2.6	2.3	2.0	1.8	1.7	1.5	
	M	20	0.18	10.5	7.0	5.3	4.2	3.5	3.0	2.6	2.3	2.1	1.9	1.8	
	M	30	0.22	12.9	8.6	6.4	5.1	4.3	3.7	3.2	2.9	2.6	2.3	2.1	
	M	40	0.25	14.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.5	
	F	50	0.28	16.6	11.1	8.3	6.6	5.5	4.7	4.2	3.7	3.3	3.0	2.8	
	F	60	0.31	18.2	12.1	9.1	7.3	6.1	5.2	4.5	4.0	3.6	3.3	3.0	
	F	70	0.33	19.6	13.1	9.8	7.9	6.5	5.6	4.9	4.4	3.9	3.6	3.3	
	F	80	0.35	21.0	14.0	10.5	8.4	7.0	6.0	5.3	4.7	4.2	3.8	3.5	
F	90	0.38	22.3	14.9	11.1	8.9	7.4	6.4	5.6	5.0	4.5	4.1	3.7		
03	VC	10*	0.15	8.9	5.9	4.5	3.6	3.0	2.5	2.2	2.0	1.8	1.6	1.5	
	C	15*	0.18	10.9	7.3	5.5	4.4	3.6	3.1	2.7	2.4	2.2	2.0	1.8	
	M	20	0.21	12.6	8.4	6.3	5.0	4.2	3.6	3.2	2.8	2.5	2.3	2.1	
	M	30	0.26	15.4	10.3	7.7	6.2	5.1	4.4	3.9	3.4	3.1	2.8	2.6	
	M	40	0.30	17.8	11.9	8.9	7.1	5.9	5.1	4.5	4.0	3.6	3.2	3.0	
	M	50	0.34	19.9	13.3	10.0	8.0	6.6	5.7	5.0	4.4	4.0	3.6	3.3	
	F	60	0.37	21.8	14.5	10.9	8.7	7.3	6.2	5.5	4.8	4.4	4.0	3.6	
	F	70	0.40	23.6	15.7	11.8	9.4	7.9	6.7	5.9	5.2	4.7	4.3	3.9	
	F	80	0.42	25.2	16.8	12.6	10.1	8.4	7.2	6.3	5.6	5.0	4.6	4.2	
F	90	0.45	26.7	17.8	13.4	10.7	8.9	7.6	6.7	5.9	5.3	4.9	4.5		
35	VC	10*	0.18	10.4	6.9	5.2	4.2	3.5	3.0	2.6	2.3	2.1	1.9	1.7	
	C	15*	0.21	12.7	8.5	6.4	5.1	4.2	3.6	3.2	2.8	2.5	2.3	2.1	
	C	20	0.25	14.7	9.8	7.4	5.9	4.9	4.2	3.7	3.3	2.9	2.7	2.5	
	M	30	0.30	18.0	12.0	9.0	7.2	6.0	5.1	4.5	4.0	3.6	3.3	3.0	
	M	40	0.35	20.8	13.9	10.4	8.3	6.9	5.9	5.2	4.6	4.2	3.8	3.5	
	M	50	0.39	23.2	15.5	11.6	9.3	7.7	6.6	5.8	5.2	4.6	4.2	3.9	
	M	60	0.43	25.5	17.0	12.7	10.2	8.5	7.3	6.4	5.7	5.1	4.6	4.2	
	M	70	0.46	27.5	18.3	13.8	11.0	9.2	7.9	6.9	6.1	5.5	5.0	4.6	
	F	80	0.49	29.4	19.6	14.7	11.8	9.8	8.4	7.4	6.5	5.9	5.3	4.9	
F	90	0.53	-	20.8	15.6	12.5	10.4	8.9	7.8	6.9	6.2	5.7	5.2		
04	XC	10*	0.20	11.9	7.9	5.9	4.8	4.0	3.4	3.0	2.6	2.4	2.2	2.0	
	VC	15*	0.24	14.5	9.7	7.3	5.8	4.8	4.2	3.6	3.2	2.9	2.6	2.4	
	C	20	0.28	16.8	11.2	8.4	6.7	5.6	4.8	4.2	3.7	3.4	3.1	2.8	
	M	30	0.35	20.6	13.7	10.3	8.2	6.9	5.9	5.1	4.6	4.1	3.7	3.4	
	M	40	0.40	23.8	15.8	11.9	9.5	7.9	6.8	5.9	5.3	4.8	4.3	4.0	
	M	50	0.45	26.6	17.7	13.3	10.6	8.9	7.6	6.6	5.9	5.3	4.8	4.4	
	M	60	0.49	29.1	19.4	14.5	11.6	9.7	8.3	7.3	6.5	5.8	5.3	4.8	
	M	70	0.53	-	21.0	15.7	12.6	10.5	9.0	7.9	7.0	6.3	5.7	5.2	
	F	80	0.57	-	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.6	
F	90	0.60	-	23.8	17.8	14.3	11.9	10.2	8.9	7.9	7.1	6.5	5.9		
05	XC	10*	0.25	14.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.5	
	VC	15*	0.31	18.2	12.1	9.1	7.3	6.1	5.2	4.5	4.0	3.6	3.3	3.0	
	C	20	0.35	21.0	14.0	10.5	8.4	7.0	6.0	5.3	4.7	4.2	3.8	3.5	
	C	30	0.43	25.7	17.1	12.9	10.3	8.6	7.3	6.4	5.7	5.1	4.7	4.3	
	M	40	0.50	29.7	19.8	14.9	11.9	9.9	8.5	7.4	6.6	5.9	5.4	5.0	
	M	50	0.56	-	22.1	16.6	13.3	11.1	9.5	8.3	7.4	6.6	6.0	5.5	
	M	60	0.61	-	24.2	18.2	14.5	12.1	10.4	9.1	8.1	7.3	6.6	6.1	
	M	70	0.66	-	26.2	19.6	15.7	13.1	11.2	9.8	8.7	7.9	7.1	6.5	
	M	80	0.71	-	28.0	21.0	16.8	14.0	12.0	10.5	9.3	8.4	7.6	7.0	
M	90	0.75	-	29.7	22.3	17.8	14.9	12.7	11.1	9.9	8.9	8.1	7.4		
06	XC	10*	0.30	17.8	11.9	8.9	7.1	5.9	5.1	4.5	4.0	3.6	3.2	3.0	
	VC	15*	0.37	21.8	14.5	10.9	8.7	7.3	6.2	5.5	4.8	4.4	4.0	3.6	
	C	20	0.42	25.2	16.8	12.6	10.1	8.4	7.2	6.3	5.6	5.0	4.6	4.2	
	C	30	0.52	-	20.6	15.4	12.3	10.3	8.8	7.7	6.9	6.2	5.6	5.1	
	C	40	0.60	-	23.8	17.8	14.3	11.9	10.2	8.9	7.9	7.1	6.5	5.9	
	M	50	0.67	-	26.6	19.9	15.9	13.3	11.4	10.0	8.9	8.0	7.2	6.6	
	M	60	0.73	-	29.1	21.8	17.5	14.5	12.5	10.9	9.7	8.7	7.9	7.3	
	M	70	0.79	-	-	23.6	18.9	15.7	13.5	11.8	10.5	9.4	8.6	7.9	
	M	80	0.85	-	-	25.2	20.2	16.8	14.4	12.6	11.2	10.1	9.2	8.4	
M	90	0.90	-	-	26.7	21.4	17.8	15.3	13.4	11.9	10.7	9.7	8.9		
08	XC	10*	0.40	23.8	15.8	11.9	9.5	7.9	6.8	5.9	5.3	4.8	4.3	4.0	
	VC	15*	0.49	29.1	19.4	14.5	11.6	9.7	8.3	7.3	6.5	5.8	5.3	4.8	
	VC	20	0.57	-	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.6	
	C	30	0.69	-	27.4	20.6	16.5	13.7	11.8	10.3	9.1	8.2	7.5	6.9	
	C	40	0.80	-	-	23.8	19.0	15.8	13.6	11.9	10.6	9.5	8.6	7.9	
	M	50	0.89	-	-	26.6	21.3	17.7	15.2	13.3	11.8	10.6	9.7	8.9	
	M	60	0.98	-	-	29.1	23.3	19.4	16.6	14.5	12.9	11.6	10.6	9.7	
	M	70	1.06	-	-	-	25.1	21.0	18.0	15.7	14.0	12.6	11.4	10.5	
	M	80	1.13	-	-	-	26.9	22.4	19.2	16.8	14.9	13.4	12.2	11.2	
M	90	1.20	-	-	-	28.5	23.8	20.4	17.8	15.8	14.3	13.0	11.9		

Droplet size based on ASABE S572.1 standard.

*For pressures lower than 15 PSI, nozzle spray angle may be reduced and will require a boom height of 30in to maintain spray distribution.



1. SnapLock cap version available for easy installation and removal
2. Angled bore for superior coverage and drift reduction
3. Highly engineered exit orifice for droplet uniformity, reduced drift and uniform spray across the boom



Hypro Spray IT App

HYPRO® 3D Nozzle

Specifications

Metric Units

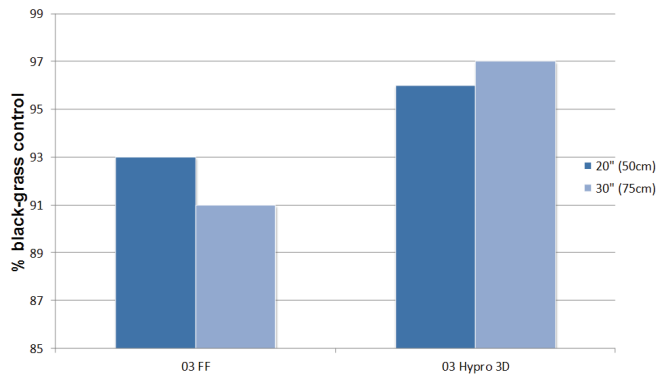
Size	Spray Quality	Pressure BAR	Flow (L/Min)	Application Rate L/Ha - 50cm spacing KM/H																Drift Reduction Standards	
				6	8	10	12	14	16	18	20	22	24	26	28	30	LERAP				
015	C	0.7*	0.29	58	43	35	29	25	22	19	17	16	14	13	12	12					
	M	1*	0.35	69	52	42	35	30	26	23	21	19	17	16	15	14					
	M	1.5	0.42	85	64	51	42	36	32	28	25	23	21	20	18	17					
	F	2	0.49	98	73	59	49	42	37	33	29	27	24	23	21	20					
	F	2.5	0.55	110	82	66	55	47	41	37	33	30	27	25	23	22					
	F	3	0.60	120	90	72	60	51	45	40	36	33	30	28	26	24					
	F	4	0.69	139	104	83	69	59	52	46	42	38	35	32	30	28					
	F	5	0.77	155	116	93	77	66	58	52	46	42	39	36	33	31					
02	F	6	0.85	170	127	102	85	73	64	57	51	46	42	39	36	34					
	M	0.7*	0.39	77	58	46	39	33	29	26	23	21	19	18	17	15					
	M	1*	0.46	92	69	55	46	40	35	31	28	25	23	21	20	18					
	M	1.5	0.57	113	85	68	57	48	42	38	34	31	28	26	24	23					
	M	2	0.65	131	98	78	65	56	49	44	39	36	33	30	28	26					
	F	2.5	0.73	146	110	88	73	63	55	49	44	40	37	34	31	29					
	F	3	0.80	160	120	96	80	69	60	53	48	44	40	37	34	32					
	F	4	0.92	185	139	111	92	79	69	62	55	50	46	43	40	37					
025	F	5	1.03	207	155	124	103	89	77	69	62	56	52	48	44	41					
	F	6	1.13	226	170	136	113	97	85	75	68	62	57	52	48	45					
	C	0.7*	0.48	97	72	58	48	41	36	32	29	26	24	22	21	19					
	M	1*	0.58	115	87	69	58	49	43	38	35	31	29	27	25	23					
	M	1.5	0.71	141	106	85	71	61	53	47	42	39	35	33	30	28					
	M	2	0.82	163	122	98	82	70	61	54	49	45	41	38	35	33					
	M	2.5	0.91	183	137	110	91	78	68	61	55	50	46	42	39	37					
	M	3	1.00	200	150	120	100	86	75	67	60	55	50	46	43	40					
03	M	4	1.15	231	173	139	115	99	87	77	69	63	58	53	49	46					
	F	5	1.29	258	194	155	129	111	97	86	77	70	65	60	55	52					
	F	6	1.41	283	212	170	141	121	106	94	85	77	71	65	61	57					
	VC	0.7*	0.580	116	87	70	58	50	43	39	35	32	29	27	25	23					
	C	1*	0.693	139	104	83	69	59	52	46	42	38	35	32	30	28					
	M	1.5	0.849	170	127	102	85	73	64	57	51	46	42	39	36	34					
	M	2	0.980	196	147	118	98	84	73	65	59	53	49	45	42	39	★★ 50-75% 0.7-1.0 BAR				
	M	2.5	1.095	219	164	131	110	94	82	73	66	60	55	51	47	44					
35	M	3	1.200	240	180	144	120	103	90	80	72	65	60	55	51	48					
	F	4	1.386	277	208	166	139	119	104	92	83	76	69	64	59	55					
	F	5	1.549	310	232	186	155	133	116	103	93	85	77	72	66	62					
	F	6	1.70	339	255	204	170	145	127	113	102	93	85	78	73	68					
	VC	0.7*	0.676	135	101	81	68	58	51	45	41	37	34	31	29	27					
	C	1*	0.808	162	121	97	81	69	61	54	48	44	40	37	35	32					
	M	1.5	0.990	198	148	119	99	85	74	66	59	54	49	46	42	40	★★ 50-75% 0.7-1.0 BAR				
	M	2	1.143	229	171	137	114	98	86	76	69	62	57	53	49	46					
04	M	2.5	1.278	256	192	153	128	110	96	85	77	70	64	59	55	51					
	M	3	1.400	280	210	168	140	120	105	93	84	76	70	65	60	56					
	M	4	1.617	323	242	194	162	139	121	108	97	88	81	75	69	65					
	M	5	1.807	361	271	217	181	155	136	120	108	99	90	83	77	72					
	F	6	1.98	396	297	238	198	170	148	132	119	108	99	91	85	79					
	VC	0.7*	0.773	155	116	93	77	66	58	52	46	42	39	36	33	31					
	VC	1*	0.924	185	139	111	92	79	69	62	55	50	46	43	40	37					
	C	1.5	1.131	226	170	136	113	97	85	75	68	62	57	52	48	45	★★ 50-75% 0.7-1.0 BAR				
05	M	2	1.306	261	196	157	131	112	98	87	78	71	65	60	56	52					
	M	2.5	1.461	292	219	175	146	125	110	97	88	80	73	67	63	58					
	M	3	1.600	320	240	192	160	137	120	107	96	87	80	74	69	64					
	M	4	1.848	370	277	222	185	158	139	123	111	101	92	85	79	74					
	M	5	2.066	413	310	248	207	177	155	138	124	113	103	95	89	83					
	F	6	2.26	453	339	272	226	194	170	151	136	123	113	104	97	91					
	VC	0.7*	0.966	193	145	116	97	83	72	64	58	53	48	45	41	39					
	VC	1*	1.155	231	173	139	115	99	87	77	69	63	58	53	49	46					
06	C	1.5	1.414	283	212	170	141	121	106	94	85	77	71	65	61	57					
	C	2	1.633	327	245	196	163	140	122	109	98	89	82	75	70	65	★★ 50-75% 0.7-1.0 BAR				
	M	2.5	1.826	365	274	219	183	156	137	122	110	100	91	84	78	73					
	M	3	2.000	400	300	240	200	171	150	133	120	109	100	92	86	80					
	M	4	2.309	462	346	277	231	198	173	154	139	126	115	107	99	92					
	M	5	2.582	516	387	310	258	221	194	172	155	141	129	119	111	103					
	M	6	2.83	566	424	339	283	242	212	189	170	154	141	131	121	113					
	08	VC	0.7*	1.159	232	174	139	116	99	87	77	70	63	58	54	50	46				
VC		1*	1.386	277	208	166	139	119	104	92	83	76	69	64	59	55					
C		1.5	1.697	339	255	204	170	145	127	113	102	93	85	78	73	68					
C		2	1.960	392	294	235	196	168	147	131	118	107	98	90	84	78					
C		2.5	2.191	438	329	263	219	188	164	146	131	120	110	101	94	88					
M		3	2.400	480	360	288	240	206	180	160	144	131	120	111	103	96					
M		4	2.771	554	416	333	277	238	208	185	166	151	139	128	119	111					
M		5	3.098	620	465	372	310	266	232	207	186	169	155	143	133	124					
08	M	6	3.39	679	509	407	339	291	255	226	204	185	170	157	145	136					
	VC	0.7*	1.55	309	232	185	155	132	116	103	93	84	77	71	66	62					
	VC	1*	1.85	370	277	222	185	158	139	123	111	101	92	85	79	74					
	VC	1.5	2.26	453	339	272	226	194	170	151	136	123	113	104	97	91					
	C	2	2.61	523	392	314	261	224	196	174	157	143	131	121	112	105					
	C	2.5	2.92	584	438	351	292	250	219	195	175	159	146	135	125	117					
	C	3	3.20	640	480	384	320	274	240	213	192	175	160	148	137	128					
	M	4	3.70	739	554	443	370	317	277	246	222	202	185	171	158	148					
08	M	5	4.13	826	620	496	413	354	310	275	248	225	207	191	177	165					
	M	6	4.53	905	679	543	453	388	339	302	272	247	224	209	194	181					

HYPRO® 3D Nozzle

Agronomically Proven Superior to Flat Fan Spray Nozzles

3D Nozzle Outperforms Flat Fan

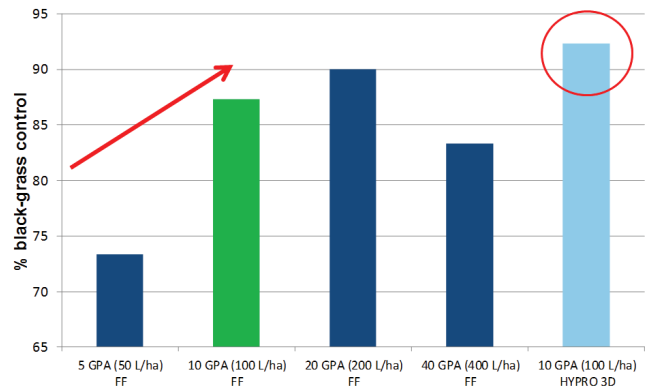
in pre-emerge weed control at multiple boom heights



The 3D nozzle was proven superior in black grass control for pre-emerge herbicides compared to a flat fan at multiple boom heights. (0.6l/ha Liberator (diflufenican+ flufenacet) + 4l/ha Defy (Prosulfacarb) applied November 2015)

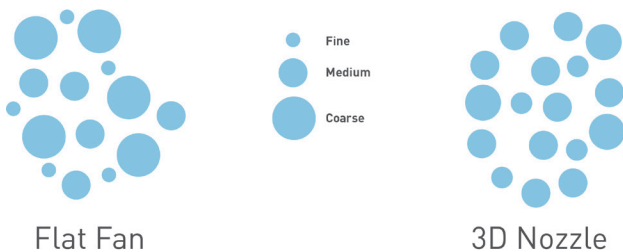
3D Nozzle Delivers Improved Efficiency

Reduce water volume without compromising weed control

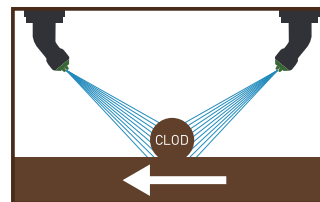


At 10 GPA (100 L/Ha) the Hypro 3D nozzle outperforms Flat Fan nozzles (FF) regardless of water volume in pre-emergence blackgrass trials (source Syngenta UK field trials, Liberator @ 0.4l/ha + Defy @ 4l/ha, applied 6th Nov 2015)

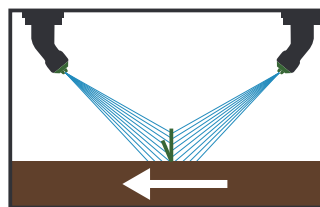
Spray Quality



Both Nozzles have a medium Average Droplet Size (VMD). However there is more variation in the flat fan's droplets which can cause off-target trespass. The 3D nozzle is engineered to put out very consistent droplet sizes engineered to hit the target.



The 3D nozzle outperformed a flat fan nozzle by 10% for preemergence blackgrass control in Syngenta field trials.



An alternating inclined spray increased spray deposition by 8% on a 1-leaf artificial target versus a flat fan spraying straight down (internal Hypro wind tunnel trials).



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