

HYPRO[®] NOZZLES

GUARDIAN AIR[™]

FINER AIR-INDUCTION NOZZLES WITH SHALLOW REAR INCLINE

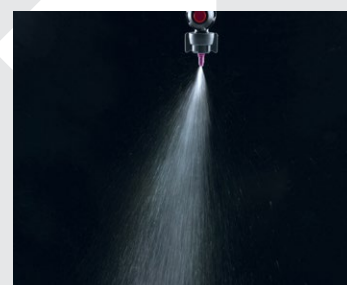


FEATURES & BENEFITS

Guardian AIR[™] air-induction nozzles combine the smallest droplet size with a shallow rear incline to offer excellent target coverage in a wide range of crop spraying applications.

At 3 bar, spray performance is often equivalent to a medium flat fan spray. At lower pressures spray drift is reduced by up to 75% so the balance between spray coverage and drift reduction can be easily adjusted by the operator.

- More drops per litre than other air-induction nozzles for improved coverage
 - Excellent results at 100 l/ha water volumes for faster work rates
 - Unique air filled droplets reduce bounce and stick to target
- 110° flat fan spray inclined at 10-13°.
 - When inclined to the rear the incline compensates for the forward motion of the sprayer to give uniform front and back coverage of target
- Up to 75% drift reduction at lower pressures to enable more spraying days
 - LERAP 3 ★, JKI, Z.N.T. and T.C.T. drift classifications
 - Holds spray angle at lower spraying pressures for improved flexibility
- Proven in the field and recommended by Syngenta UK for applying fungicides, insecticides and some herbicides to combinable crops*
 - Performance equivalent to a medium flat fan spray for all except the smallest spray targets
- Available in seven sizes



A shallow rearward spray incline provides more uniform spray coverage.



The ridged arrow marked on the nozzle should point forwards to achieve a rearward spray incline.



* Always refer to the product label or latest application advice from the agrochemical manufacturer before selecting a spray quality.

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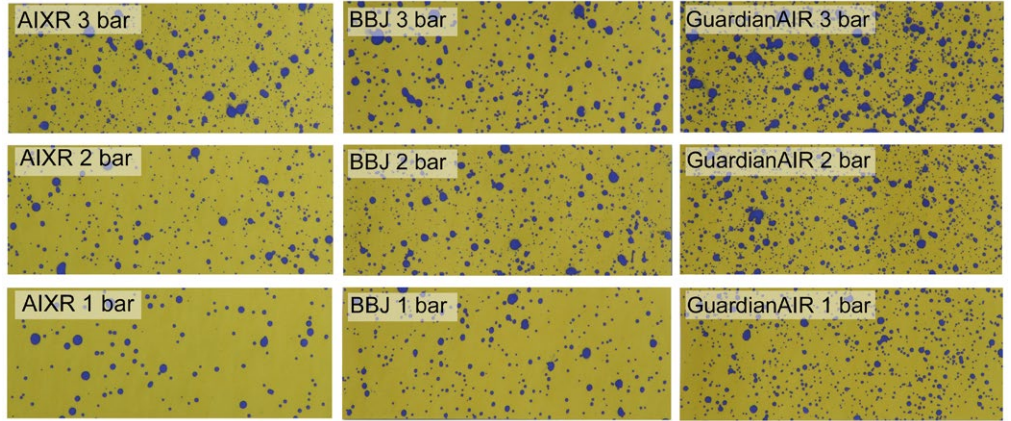
GUARDIAN AIR™ FINER AIR-INDUCTION NOZZLES

FINER DROPLETS FOR BETTER COVERAGE

Guardian AIR™ nozzles produce smaller droplets than other air-induction nozzles, this means more droplets and better spray coverage. The balance between drift reduction and spray coverage can be adjusted by the sprayer operator, for example by lowering spraying pressure to coarsen the spray and reduce drift.

Spray pattern of three popular air-induction nozzles sprayed onto water sensitive paper at different pressures. From left to right showing coarser to finer droplets spectrums.

The HGCA 2010 NOZZLE SELECTION CHART includes data comparing droplet size for different commercial designs of air induction nozzles, for detailed comparisons see www.hgca.com.



REAR INCLINE FOR MORE UNIFORM COVERAGE



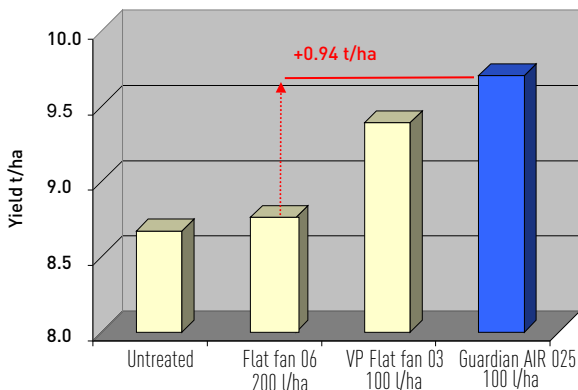
Standard Nozzle:
Spray is accelerated forward by the sprayer resulting in more spray landing on the leading side of the plant.



Guardian AIR™ Nozzle:
Spray is inclined by 10-13 degrees backwards to compensate for the forward acceleration resulting in more uniform coverage on the front and back of vertical targets.

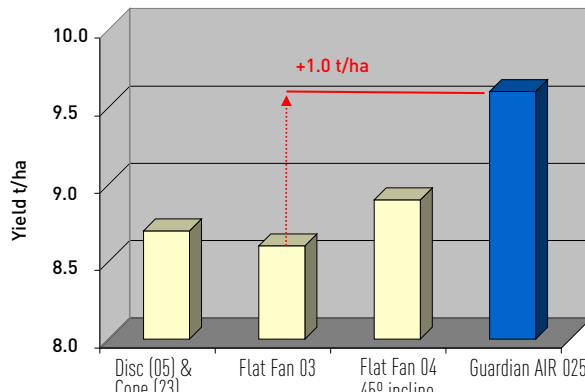
Tests were carried out with the Guardian AIR™ nozzle to optimise the coverage on the front and rear of the target. The incline selected is optimised for a rate of 100 l/ha, meaning the the incline is increased slightly for larger nozzle sizes.

FIELD TRIAL - FLAG LEAF FUNGICIDE



Single flag leaf spray of Amistar+Menara+Bravo at GS39 (flag leaf). Trial conducted by Syngenta Crop Protection UK in 2004.

FIELD TRIAL - EAR SPRAY FUNGICIDE



Single ear spray (Amistar+Folicur) at 150 l/ha. Untreated yield 6.4 t/ha. LSD 0.425 t/ha. Trial conducted by Morley Research Centre (TAG) in 2003 and reported in Aspects of Applied Biology 71 (2004) by E.S Powell et al.






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GUARDIAN AIR™ FINER AIR-INDUCTION NOZZLES

NOZZLE SELECTION GUIDELINES

Guardian AIR™ nozzles are recommended for a much broader range of applications than traditional air-induction nozzles because they produce more droplets and better spray coverage at normal spraying pressures. Guardian AIR™ nozzles were introduced as the Amistar nozzle* in 2003, since then they have been rigorously tested and proven on a wide range of applications in both independent field trials and farmer comparisons.

For Guardian AIR™ nozzles spray quality is consistent across all nozzle sizes sizes when used at the same pressure.

| | CROP STAGE AND CHEMICAL TYPE: | TARGET: | APPLICATION CHALLENGE: | FLAT FAN | | AIR INDUCTION | | |
|--------|--|--|---|---|---|---|---|---|
| | | | | MEDIUM | | FINER | COARSER | |
| | | | |  |  |  |  |  |
| AUTUMN | SOIL-ACTING PRE OR EARLY POST-EM HERBICIDES | SOIL | EVEN COVERAGE OF SOIL CLOUDS | | | | | |
| | INSECTICIDES | SMALL OSR OR CEREAL PLANTS | SMALL TARGET AREA TO WET | | | | | |
| | POST-EM SELECTIVE HERBICIDES | SMALL GRASSES (LESS THAN 3 LEAVES) | SMALL TARGET AREA, WEED SHADING | | | | | |
| SPRING | POST-EM SELECTIVE HERBICIDES | GRASSES (MORE THAN 3 LEAVES) | VERTICAL TARGET ORIENTATION | | | | | |
| | POST-EM SELECTIVE HERBICIDES | BROAD-LEAVED WEEDS (UP TO 2 CM ACROSS) | SMALL TARGET AREA, CONSIDER WEED SHADING | | | | | |
| | POST-EM SELECTIVE HERBICIDES | BROAD-LEAVED WEEDS (2 - 5 CM ACROSS) | CONSIDER WEED SHADING | | | | | |
| | POST-EM SELECTIVE HERBICIDES | BROAD-LEAVED WEEDS (MORE THAN 5 CM ACROSS) | PENETRATE INTO CROP CANOPY | | | | | |
| | EYESPOT FUNGICIDES AND PLANT GROWTH REGULATORS | CROP STEM AND LOWER LEAVES | PENETRATION TO BASE OF CROP | | | | | |
| | CEREAL FUNGICIDES T0, T1, T2 | CROP LEAVES AND LEAF AXILS | PENETRATE CROP CANOPY | | | | | |
| | OSR FOLIAR FUNGICIDES | CROP LEAVES | COVERAGE FROM TOP TO BASE | | | | | |
| SUMMER | POTATO BLIGHT FUNGICIDES | CROP LEAVES AND STEMS | KEEP WATER RATES UP FOR GOOD COVERAGE | | | | | |
| | EAR FUNGICIDES (T3) AND APHIDICIDES | CROP EAR | CONTACT ACTION IMPORTANT | | | | | |
| | DESICCATION WITH CONTACT ACTING HERBICIDE | CROP LEAVES AND STEMS | KEEP WATER RATES UP FOR GOOD SPRAY COVERAGE | | | | | |
| | GLYPHOSATE | LARGER WEEDS AND CROP DESICCATION | NOT OVER-WETTING LEAF | | | | | |


| | | | |
|---------------------|---|----------------------|---|
| Best for efficacy |  | Urgent spraying only |  |
| Acceptable efficacy |  | Not suitable |  |


Spray quality varies with pressure. The application guidelines shown above are at 3 bar pressure, 10-16 kph. At these pressures finer air induction nozzles such as Guardian AIR™ typically reduce spray drift by 50%, whilst coarser air induction nozzles such as DriftBETA and ULD typically reduce drift by over 75%.


Always refer to the product label or the latest application advice from the agrochemical manufacturer before selecting a spray quality.


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GUARDIAN AIR™ FINER AIR-INDUCTION NOZZLES


| GA110-015AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING |
|---|--------------|------------|-----------------------|-----|----|----|----|----|----|--------------|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | |
|  | 1 | 0.346 | 69 | 52 | 42 | 35 | 30 | 26 | 23 | ★★★★ |
| | 1.5 | 0.424 | 85 | 64 | 51 | 42 | 36 | 32 | 28 | |
| | 2 | 0.490 | 98 | 73 | 59 | 49 | 42 | 37 | 33 | ★★★ |
| | 3 | 0.600 | 120 | 90 | 72 | 60 | 51 | 45 | 40 | |
| | 4 | 0.693 | 139 | 104 | 83 | 69 | 59 | 52 | 46 | |
| | 5 | 0.775 | 155 | 116 | 93 | 77 | 66 | 58 | 52 | |
| 6 | 0.849 | 170 | 127 | 102 | 85 | 73 | 64 | 57 | | |


| GA110-02AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|----|----|----|--------------|---|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 0.462 | 92 | 69 | 55 | 46 | 40 | 35 | 31 | ★★★★ | Ref#: G-1812 50% at 1.0 - 2.0 bar (provisional TBC) |
| | 1.5 | 0.566 | 113 | 85 | 68 | 57 | 48 | 42 | 38 | | |
| | 2 | 0.653 | 131 | 98 | 78 | 65 | 56 | 49 | 44 | ★★★ | |
| | 3 | 0.800 | 160 | 120 | 96 | 80 | 69 | 60 | 53 | | |
| | 4 | 0.924 | 185 | 139 | 111 | 92 | 79 | 69 | 62 | | |
| | 5 | 1.033 | 207 | 155 | 124 | 103 | 89 | 77 | 69 | | |
| 6 | 1.131 | 226 | 170 | 136 | 113 | 97 | 85 | 75 | | | |

| GA110-025AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|-----|----|----|--------------|--------------------------------------|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 0.577 | 115 | 87 | 69 | 58 | 49 | 43 | 38 | ★★★★ | Ref#: G-1817 50% at 2.0 - 2.5 bar |
| | 1.5 | 0.707 | 141 | 106 | 85 | 71 | 61 | 53 | 47 | | |
| | 2 | 0.816 | 163 | 122 | 98 | 82 | 70 | 61 | 54 | ★★★ | |
| | 3 | 1.000 | 200 | 150 | 120 | 100 | 86 | 75 | 67 | | |
| | 4 | 1.155 | 231 | 173 | 139 | 115 | 99 | 87 | 77 | | |
| | 5 | 1.291 | 258 | 194 | 155 | 129 | 111 | 97 | 86 | | |
| 6 | 1.414 | 283 | 212 | 170 | 141 | 121 | 106 | 94 | | | |

| GA110-03AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|-----|-----|-----|--------------|--|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 0.693 | 139 | 104 | 83 | 69 | 59 | 52 | 46 | ★★★★ | Ref#: G-1813 75% at 1.0 - 1.5 bar 50% at 1.6 - 2.5 bar |
| | 1.5 | 0.849 | 170 | 127 | 102 | 85 | 73 | 64 | 57 | | |
| | 2 | 0.980 | 196 | 147 | 118 | 98 | 84 | 73 | 65 | ★★★ | |
| | 3 | 1.200 | 240 | 180 | 144 | 120 | 103 | 90 | 80 | | |
| | 4 | 1.386 | 277 | 208 | 166 | 139 | 119 | 104 | 92 | | |
| | 5 | 1.549 | 310 | 232 | 186 | 155 | 133 | 116 | 103 | | |
| 6 | 1.697 | 339 | 255 | 204 | 170 | 145 | 127 | 113 | | | |

| GA110-035AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|-----|-----|-----|--------------|--|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 0.808 | 162 | 121 | 97 | 81 | 69 | 61 | 54 | ★★★★ | Ref#: G-1811 75% at 1.0 - 1.5 bar 50% at 1.6 - 2.5 bar |
| | 1.5 | 0.990 | 198 | 148 | 119 | 99 | 85 | 74 | 66 | | |
| | 2 | 1.143 | 229 | 171 | 137 | 114 | 98 | 86 | 76 | ★★★ | |
| | 3 | 1.400 | 280 | 210 | 168 | 140 | 120 | 105 | 93 | | |
| | 4 | 1.617 | 323 | 242 | 194 | 162 | 139 | 121 | 108 | | |
| | 5 | 1.807 | 361 | 271 | 217 | 181 | 155 | 136 | 120 | | |
| 6 | 1.980 | 396 | 297 | 238 | 198 | 170 | 148 | 132 | | | |

| GA110-04AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|-----|-----|-----|--------------|--|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 0.924 | 185 | 139 | 111 | 92 | 79 | 69 | 62 | ★★★★ | Ref#: G-1814 75% at 1.0 - 1.5 bar 50% at 1.6 - 2.5 bar |
| | 1.5 | 1.131 | 226 | 170 | 136 | 113 | 97 | 85 | 75 | | |
| | 2 | 1.306 | 261 | 196 | 157 | 131 | 112 | 98 | 87 | ★★★ | |
| | 3 | 1.600 | 320 | 240 | 192 | 160 | 137 | 120 | 107 | | |
| | 4 | 1.848 | 370 | 277 | 222 | 185 | 158 | 139 | 123 | | |
| | 5 | 2.066 | 413 | 310 | 248 | 207 | 177 | 155 | 138 | | |
| 6 | 2.263 | 453 | 339 | 272 | 226 | 194 | 170 | 151 | | | |

| GA110-05AZ | Pressure Bar | Flow L/min | Litres/hectare @ Km/h | | | | | | | LERAP RATING | JKI APPROVAL/ DRIFT RATING |
|---|--------------|------------|-----------------------|-----|-----|-----|-----|-----|-----|--------------|--|
| | | | 6 | 8 | 10 | 12 | 14 | 16 | 18 | | |
|  | 1 | 1.155 | 231 | 173 | 139 | 115 | 99 | 87 | 77 | ★★★★ | Ref#: G-1815 75% at 1.0 - 1.5 bar 50% at 1.6 - 2.5 bar |
| | 1.5 | 1.414 | 283 | 212 | 170 | 141 | 121 | 106 | 94 | | |
| | 2 | 1.633 | 327 | 245 | 196 | 163 | 140 | 122 | 109 | ★★★ | |
| | 3 | 2.000 | 400 | 300 | 240 | 200 | 171 | 150 | 133 | | |
| | 4 | 2.309 | 462 | 346 | 277 | 231 | 198 | 173 | 154 | | |
| | 5 | 2.582 | 516 | 387 | 310 | 258 | 221 | 194 | 172 | | |
| 6 | 2.828 | 566 | 424 | 339 | 283 | 242 | 212 | 189 | | | |

Application rates shown are based on tests at 3 bar and 50 cm nozzle spacing.

Order Guardian AIR™ nozzles using the part numbers shown or add '_bag50' to the part no. to order in bags of 50 with a rate card.

★★★★

3-star LERAP - At least 75% less drift

★★★

2-star LERAP - 50 to 75% less drift*

* LERAP drift ratings are compared with reference F110/1.2/3.0 blue nozzles. Approvals are at the pressures shown for nozzles 0.5 m above the target at 6-12 kph.



JKI drift ratings are compared with reference F110/1.2/3.0 nozzles and FRD110/1.0/3.0 blue nozzles. Approvals are at pressures shown for nozzles 0.5 m above the target.



HYPRO EU LIMITED

STATION ROAD, LONGSTANTON, CAMBRIDGE, CB24 3DS UNITED KINGDOM

TEL: +44 (0)1954 260097 FAX: +44 (0)1954 260245 EMAIL: INFO@HYPRO-EU.COM WWW.HYPRO-EU.COM

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