MagGrow Results in Arable Cropping

MagGrow
A better way to spray

Bravo Tecnologia Agricola - Mato Grosso - Brazil - soybean

- **Due to already low rates** 57 **L/ha** (**approx.** 6 **GPA**) **improved coverage was the focus, so only one rate tested.**
- **MagGrow and Conventional tested at** 57 **L/Ha** - 100% **rate**
- **MagGrow was statistically superior to Conventional, twice the level of coverage.**
- **Coverage was tested at three different positions in the crop: upper, middle and lower canopy.**

MagGrow improved coverage at all three target positions.

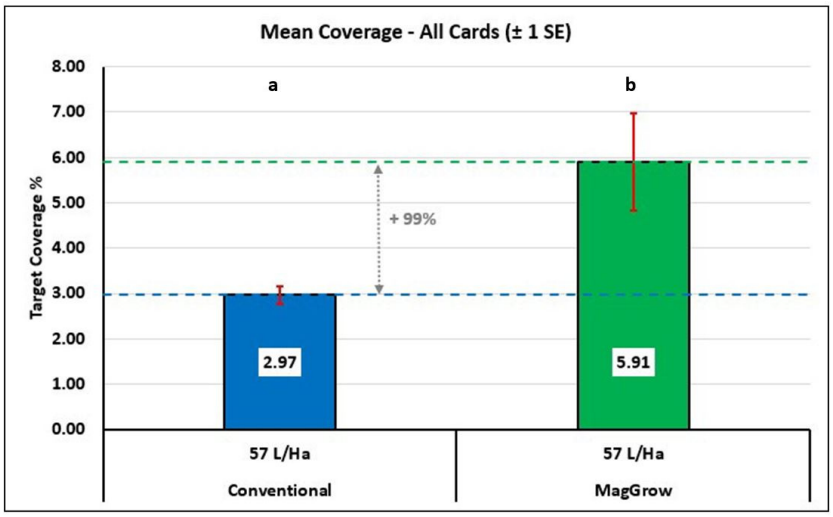


Fig 1: **Mean Coverage – All Cards on Soybean**
(**Tukey**, 95% **Significance Level**)

Treatment	% of Conventional
Conventional 100%	N/a
MagGrow 100%	199%

US Sugar, FL, USA – Target Weeds in Sugarcane

- **Trial with Trimble Vantage South East**
- **Conventional tested at** 100% **and** 75% **of typical application rate** (20 **GPA and** 15 **GPA**)
- **MagGrow tested at same rates**
- **MagGrow** 100% **was statistically superior to Conventional** 100%
- **MagGrow** 75% **was statistically superior to Conventional** 75%
- **There was no significant difference between MagGrow** 75% **rate and Conventional** 100% **rate**

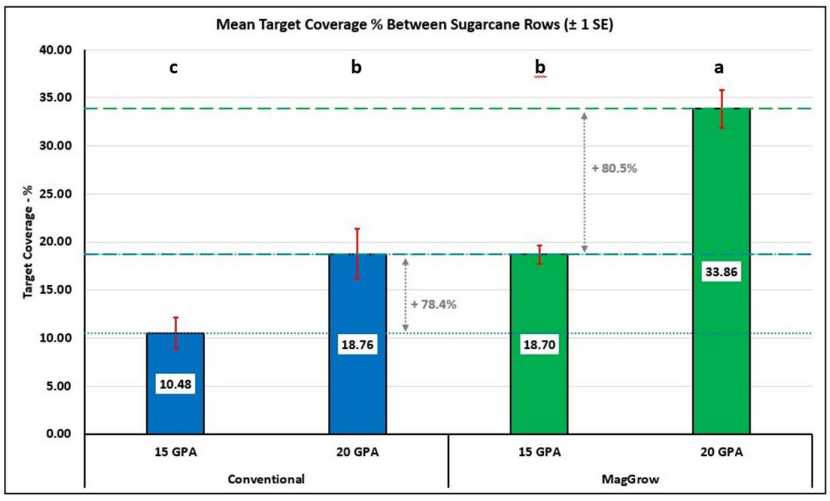


Fig 2: **Mean Coverage – All Cards Between Sugarcane Rows**
(**Tukey**, 95% **Significance Level**)

Treatment	% of Conventional
Conventional 100%	N/a
Conventional 75%	55.7%
MagGrow 100%	180.5%
MagGrow 75%	99.7%

Vantage South, AL, USA - Cotton

- **Deposition per cm2 using water sensitive paper**
- **Two application rates used (7.5GPA and 10GPA)**
- **Two different nozzles used to achieve different droplet spectra**
- **MagGrow using smaller droplets (SR06)was significantly better than Conventional using larger droplets (current practice) when used at 7.5 GPA**
- **All other MagGrow treatments were numerically superior to the Conventional equivalents, but not statistically significant**

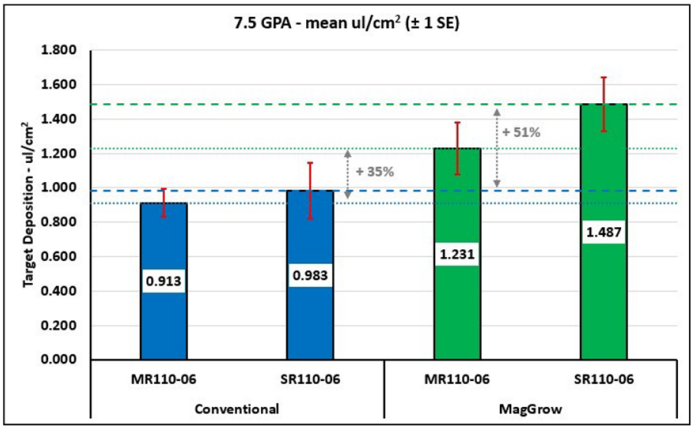


Fig 3: **Mean Deposition at** 7.5 **GPA**
All Cards on Cotton

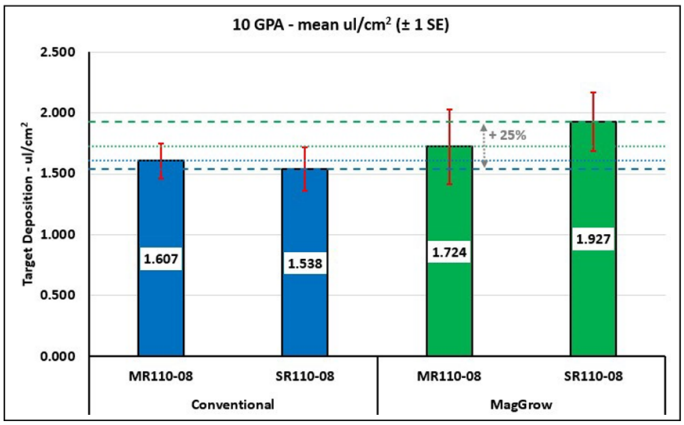


Fig 4: **Mean Deposition at** 10 **GPA**
All Cards on Cotton

Nykolaishen Farms, SK, Canada - Canola

- **Conventional tested at** 100% **and** 75% **of typical application rate** (10.8 **GPA and** 8.1 **GPA**) **using twin XR**100-04 **and twin XR**110-03 **nozzles**
- **MagGrow tested at same rates**
- **MagGrow** 100% **was superior to Conventional** 100%
- **MagGrow** 75% **was superior to Conventional** 75%
- **MagGrow** 75% **rate provided more coverage than Conventional** 100% **rate despite reduction in volume application rate**

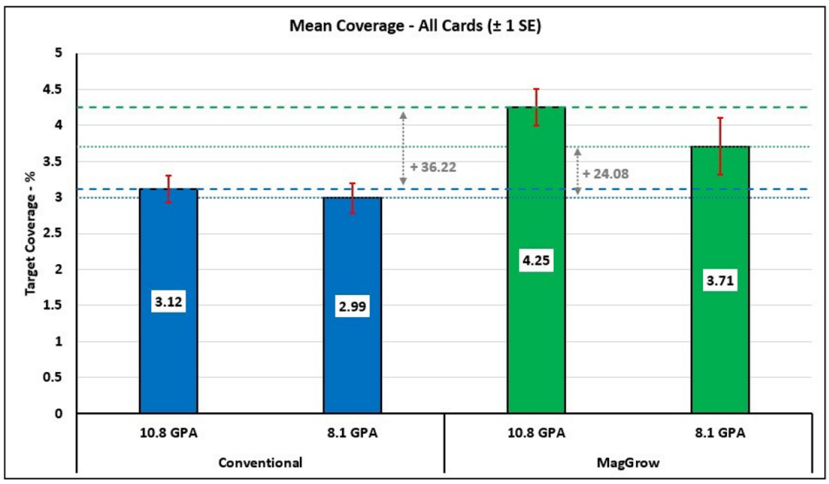


Fig 5: **Mean Coverage**
All Cards on Canola

Treatment	% of Conventional
Conventional 100%	**N/a**
Conventional 75%	95.83%
MagGrow 100%	136.22%
MagGrow 75%	118.91%

Monroe Tractors, NY, USA – Soybean

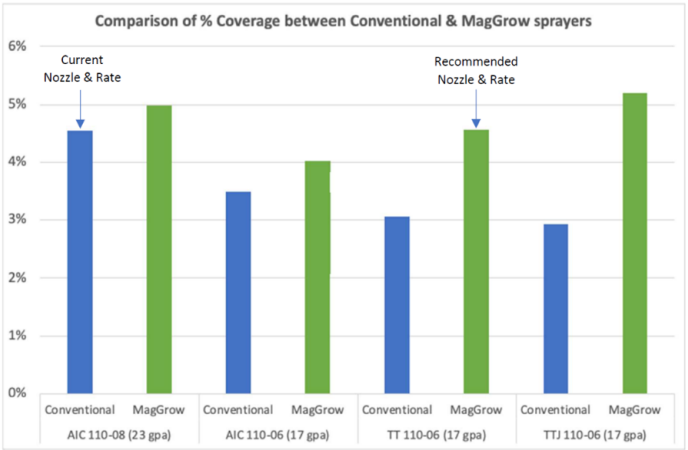
- **Targeting lower stem for control of white mold (Sclerotinia sclerotiorum) insoybean crops**
- **Range of nozzles used to assess different droplet size spectra (Fine – Very Coarse)**
- **All treatments were applied at the same rate –** 14.6 **GPA**
- **Coverage assessed at an upper and lower position on plant**
- **Soybean was mature at canopy density at** >90%
- **All MagGrow treatments performed better than the equivalent Conventional**

Upper plant coverage %				
	Spray Quality	MagGrow	Conventional	Mean % increase with MagGrow
AITTJ	coarse	1.161	0.710	63%
AIXR	very coarse	0.881	0.435	102%
TJ	fine	0.900	0.743	21%
TT	medium	1.074	0.919	17%
TTJ	coarse	1.364	0.804	70%
XR	Fine	0.832	0.512	62%
	Lower plant coverage %			
		MagGrow	Conventional	Mean % increase with MagGrow
AITTJ	coarse	0.616	0.291	112%
AIXR	very coarse	0.721	0.372	94%
TJ	fine	0.889	0.360	147%
TT	medium	0.278	0.234	19%
TTJ	coarse	0.508	0.444	14%
XR	Fine	0.379	0.084	352%

Fig 6: **Mean Coverage with Different Nozzles**
All Cards on Soybean

Golden Valley, Salem, Oregon, USA - Perennial Ryegrass (Lolium perenne)

- **Trial with Golden Valley and Sitech Norcal**
- **Objective was to improve the efficiency of their spray coverage and crop protection product usage.**
- **MagGrow system increased coverage by** 10% **for the AIC** 110-08 **nozzles and by** 77% **for the TTJ** 110-06 **nozzles. The application of the TT** 110-06 **nozzles with the MagGrow system can enable Golden Valley to reduce their application rate by** 25% **whilst maintaining the coverage levels of their AIC** 110-08 **nozzle.**

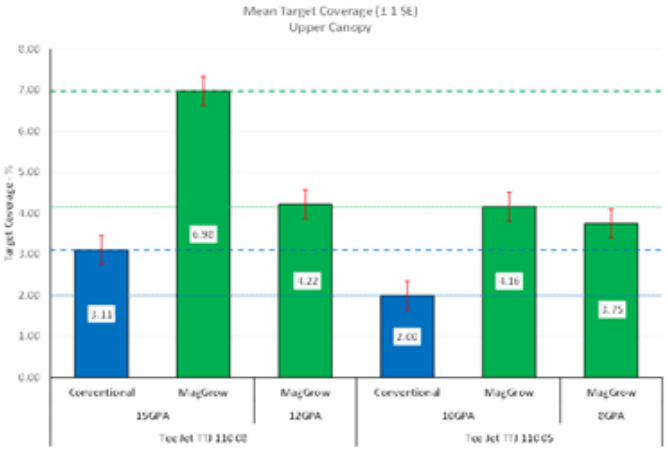


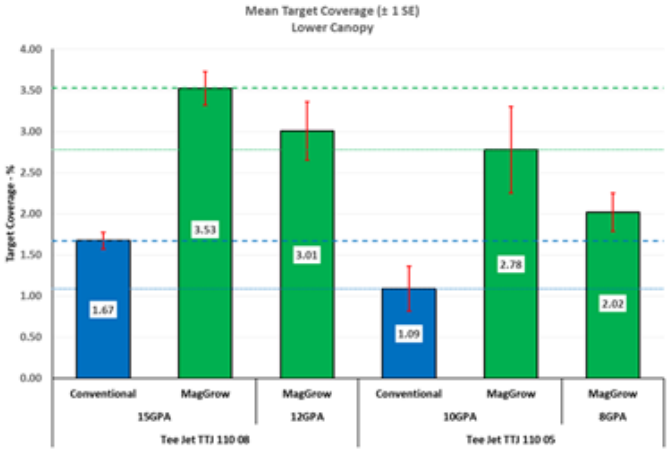
Nozzle Type	Sprayer	% Coverage (All Positions)	% Increase
AIC 110-08 (23 gpa)	Conventional	4.6%	10%
	MagGrow	5.0%	
AIC 110-06 (17 gpa)	Conventional	3.5%	15%
	MagGrow	4.0%	
TT 110-06 (17 gpa)	Conventional	3.1%	49%
	MagGrow	4.6%	
TTJ 110-06 (17 gpa)	Conventional	2.9%	77%
	MagGrow	5.2%	

Fig 7: **Data were analysed for statistical significance using a one-way ANOVA Test and Tukey HSD multiple comparison test.**

SHB - Rearden, Washington USA – seed potato

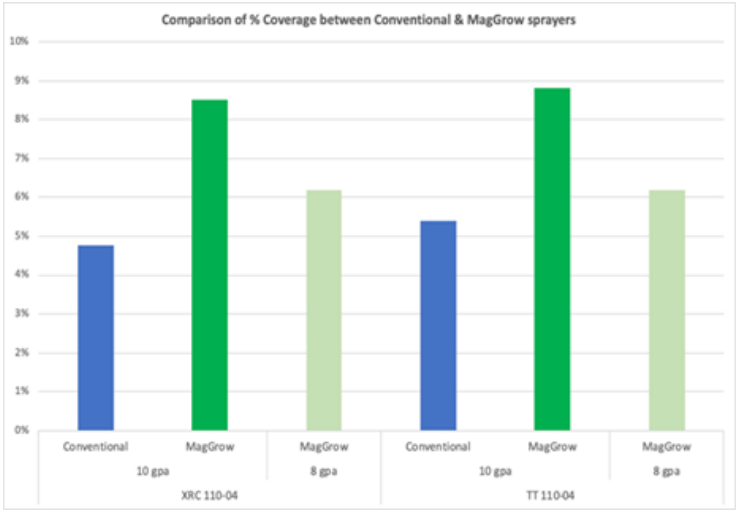
• **Trial with Vantage Pacific Northwest to assess fungicide/insecticide coverage at two target heights.** 3" & 12" **off the ground. Cards were placed to represent different heights in the crop canopy.**
• **MagGrow system increased coverage by** 124.43% **in the upper canopy for the TTJ** 110-08 **nozzles at** 15 **GPA and** 111.37% **in the lower canopy. With the TTJ** 110-05 **nozzle at** 10 **GPA MagGrow increased coverage in the upper canopy by** 108% **and** 155% **in the lower canopy.**
• **MagGrow using a** 20% **rate reduction showed increases of** 35.7% **improved coverage for the TTJ** 110-08 **in the upper canopy and** 80.23% **in the lower over conventional** 100% **rate. With the TTJ** 110-05 20% **rate reduction coverage increase in the upper canopy was** 87.5% **for over conventional** 100% **rate and** 85.32 **in the lower. The** 20% **reduced application with both nozzles outperformed the conventional** 100% **rate.**
• **The coverage with the MagGrow system using both the TTJ** 08 & **TTJ** 05 **nozzles is significantly more uniform compared to the coverage of the conventional setup.**





Wolf Farms - Pullman, Washington USA – spring wheat

• **Trial with Vantage Pacific Northwest to assess herbicide coverage at a target** 4"-6" **off the ground. Cards were placed to represent broadleaf weeds.**
• **MagGrow system increased coverage by** 78% **for the XRC** 110-04 **nozzles and by** 63% **for the TT** 110-04 **nozzles at the** 10 **GPA rate.**
• **MagGrow using a** 20% **rate reduction showed** 29% **improved coverage for the XRC and** 13% **for the TT. The** 20% **reduced application with both nozzles outperformed the conventional** 100% **rate.**
• **The coverage with the MagGrow system using both the TT** & **XRC nozzles is significantly more uniform compared to the coverage of the conventional setup.**



Nozzle Type	Rate	Sprayer	% Coverage (All Positions)	% Increase
XRC 110-04	10 gpa	Conventional	4.77%	
		MagGrow	8.52%	78.62%
	8 gpa	MagGrow	6.19%	29.77%
TT 110-04	10 gpa	Conventional	5.40%	
		MagGrow	8.82%	63.33%
	8 gpa	MagGrow	6.18%	13.6%

MagGrow Head Office

Orchard House, **Block** 2, **Clonskeagh Square**, **Clonskeagh Road**

D14**CD**72 - **Dublin** - **Ireland**

T: +353 (0) 1 567 6060 **info@maggrow.com** **www.maggrow.com**