



Loveland

***AGRI PRODUCTS
Get Growing***

**WHEAT
FORBES – Foliar Nutrition**

LOV17-42

Trial Design



- Plot size – 10m x 1.75m x 4 replicates
- Treatments Applied: As per protocol

| | |
|---------------------|---|
| Seeding Date | 8th May 2017 |
| Site | Tichborne / Forbes |
| Variety | Lancer wheat 50 kg/ha |
| Protocol | Pre Sow: Panzer 450 @ 1.5lt/ha + Sakura @ 118gm/ha + SP700 @ 250ml/100lt Post Emergent: Broadside @ 1.4lt/ha |
| GSP | Sowing fertiliser: MAP @ 65 kgs/ha treated Flutriafol 500 @ 200 ml/ha Top Dress fertiliser: Urea @ 120 kg/ha |

Soil Test Data Forbes

(Historical Soil Test data 0-30cm)



| SOIL (31-03-2014) | 0-10cm | 10-30cm |
|---------------------------------|--------|---------|
| pH (CaCl ₂) | 4.5 | 5.9 |
| CEC (meq/100g) | 5.49 | 6.57 |
| Calcium (Amm-acet) (meq/100g) | 3.74 | 5.16 |
| Magnesium (Amm-acet) (meq/100g) | 0.53 | 0.68 |
| Sodium (Amm-acet) (meq/100g) | <0.1 | <0.1 |

| | | |
|--|------|------|
| Nitrate nitrogen NO ₃ -N ppm | 14.1 | 8.0 |
| Ammonium nitrogen NH ₄ -N ppm | 1.9 | 1.8 |
| Phosphorus (Colwell) ppm | 45 | 14 |
| Potassium (Amm-acet) (meq/100g) | 1.12 | 0.64 |
| Sulfur (MCP)(ppm) | 5 | 3 |
| Copper (DTPA) ppm | 0.7 | 0.5 |
| Zinc (DTPA) ppm | 1.2 | 0.2 |

| DEEP N 0-60cm | 24-01-2017 |
|-------------------------------|------------|
| Nitrate nitrogen (KCl) mg/kg | 6 |
| Ammonium nitrogen (KCl) mg/kg | <1 |
| Sulfate-S (KCl40) mg/kg | 2 |

NOTE:

Paddock had 2.5 T/ha variable rate Lime applied

Trial Protocol

| Treatment # | Treatment | Applied Rate L/ha | Timing Growth stage |
|-------------|-----------------------------------|-------------------|---------------------|
| T1 | GSP (MAP) | 75 kg | - |
| T2 | GSP + Awaken | 1.5 | Z15-23 |
| T3 | GSP + Awaken | 3 | Z15-23 |
| T4 | GSP + Awaken + 2C | 500ml + 2.5 | Z23-30 |
| T5 | GSP + Lokomotive | 5 | Z23-30 |
| T6 | GSP + NutriSync M | 365ml | Z37 |
| T7 | GSP + NutriSync M + Trade Corp Cu | 150ml + 200gm | Z37 |
| T8 | GSP + BLZn | 5 | Z23-30 |
| T9 | GSP + BLZn | 5 | Z37 |

Product details

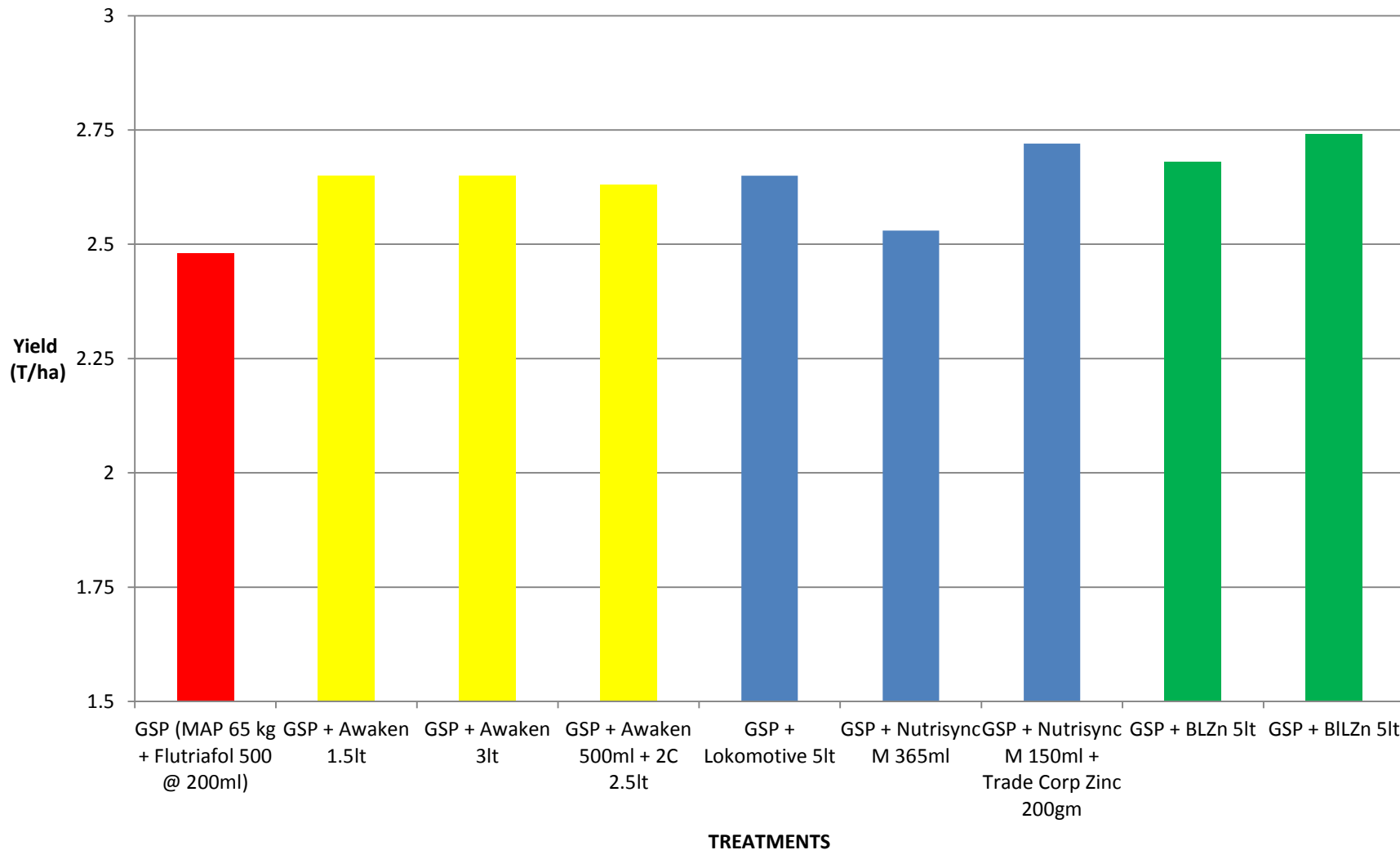
- **Awaken** = Zinc Ammonium Acetate
- **2C** = Wilchem ZC Chelate = 64 g/L Zinc and 10 g/L Copper
- **NutriSync M** = Inositol for Monocot plants
- **Lokomotive** = 3-0-27
- **Trade Corp Copper EDTA** = Cu 14.5 % w/v
- **BLZn** = Black Label Zinc = N-8; P-11.5; Zinc-1 (%w/v)

Wheat Yield and Quality

| Treatment | Applied Rate | Grain Yield t/ha | Protein % | Test wgt kg/hl | Screen % |
|-----------------------------------|---------------|------------------|-----------|----------------|----------|
| GSP (MAP) | 75 kg | 2.48 a | 14.9 | 82 | 3.17 |
| GSP + Awaken | 1.5 | 2.65 a | 14.9 | 82.6 | 2.18 |
| GSP + Awaken | 3 | 2.65 a | 15 | 82.4 | 1.7 |
| GSP + Awaken + 2C | 500ml + 2.5 | 2.63 a | 15 | 82 | 2.10 |
| GSP + Lokomotive | 5 | 2.65 a | 15.2 | 81.4 | 2.95 |
| GSP + NutriSync M | 365ml | 2.53 a | 15.2 | 81.8 | 4.40 |
| GSP + NutriSync M + Trade Corp Cu | 150ml + 200gm | 2.72 a | 15.4 | 80.8 | 2.72 |
| GSP + BLZn | 5 | 2.68 a | 14.3 | 82 | 4.63 |
| GSP + BLZn | 5 | 2.74 a | 14.0 | 81.4 | 2.95 |
| LSD (P=0.05) | | 0.32 | | | |
| CV | | 8.27 | | | |



Wheat yield



Wheat Yield AWAKEN comparison



| Treatment | Applied Rate | Grain Yield t/ha | Protein % | Test wgt kg/hl | Screen % |
|----------------------------|--------------|------------------|-----------|----------------|----------|
| GSP (MAP) | 75 kg | 2.48 a | 14.9 | 82 | 3.17 |
| GSP + Awaken (Z15-23) | 1.5 | 2.65 a | 14.9 | 82.6 | 2.18 |
| GSP + Awaken (Z15-23) | 3 | 2.65 a | 15 | 82.4 | 1.7 |
| GSP + Awaken + 2C (Z23-30) | 500ml + 2.5 | 2.63 a | 15 | 82 | 2.10 |

- Awaken at 1.5 L/ha increased yield by 170 kg over GSP
- Awaken at 3 L/ha was no different to the 1.5 L rate, however the crop did hold good colour during the year
- Awaken with 2C was applied at a different growth stage and was similar to Awaken

Wheat Yield LoKomotive comparison



| Treatment | Applied Rate | Grain Yield t/ha | Protein % | Test wgt kg/hl | Screen % |
|---------------------------|--------------|------------------|-----------|----------------|----------|
| GSP (MAP) | 75 kg | 2.48 a | 14.9 | 82 | 3.17 |
| GSP + Lokomotive (Z23-30) | 5 | 2.65 a | 15.2 | 81.4 | 2.95 |

- LoKomotive applied at Z23-30 had a yield increase of 170 kg over GSP indicating a K response

Wheat Yield NutriSync M comparison



| Treatment | Applied Rate | Grain Yield t/ha | Protein % | Test wgt kg/hl | Screen % |
|---|---------------|------------------|-----------|----------------|----------|
| GSP (MAP) | 75 kg | 2.48 a | 14.9 | 82 | 3.17 |
| GSP + NutriSync M (Z37) | 365ml | 2.53 a | 15.2 | 81.8 | 4.40 |
| GSP + NutriSync M + Trade Corp Cu (Z37) | 150ml + 200gm | 2.72 a | 15.4 | 80.8 | 2.72 |

- NutriSync M with Copper increased yield by 240 kg over GSP

Wheat Yield BLZn comparison



| Treatment | Applied Rate | Grain Yield t/ha | Protein % | Test wgt kg/hl | Screen % |
|---------------------|--------------|------------------|-----------|----------------|----------|
| GSP (MAP) | 75 kg | 2.48 a | 14.9 | 82 | 3.17 |
| GSP + BLZn (Z23-30) | 5 | 2.68 a | 14.3 | 82 | 4.63 |
| GSP + BLZn (Z37) | 5 | 2.74 a | 14.0 | 81.4 | 2.95 |

- Black Label Zinc applied as a foliar continues to show positive results
- In this case a Z23-30 application had a 200 kg yield increase over GSP, while a later application at Z37 had a 260 kg increase over GSP
- This warrants further work with BLZn as a foliar application on wheat

Wheat Head Counts

| Treatment | Applied Rate L/ha | 16-10-17 Heads/m ² |
|-----------------------------------|----------------------|----------------------------------|
| GSP (MAP) | 75 kg | 213.4 a |
| GSP + Awaken | 1.5 | 205.15 a |
| GSP + Awaken | 3 | 235.4 a |
| GSP + Awaken + 2C | 500ml + 2.5 | 213.95 a |
| GSP + Lokomotive | 5 | 217.25 a |
| GSP + NutriSync M | 365ml | 229.9 a |
| GSP + NutriSync M + Trade Corp Cu | 150ml + 200gm | 203.5 a |
| GSP + BLZn | 5 | 209.55 a |
| GSP + BLZn | 5 | 240.35 a |
| LSD (P=0.05) | | 39.625 |
| CV | | 12.41 |

Application Timing 1



| | | | |
|-------------------------------|------------------------------|---------------------------------|---------------------|
| Date: | 30-6-2017 | Nozzle Make & Type: | TEE Jet Turbo T 015 |
| Time: | | Pressure (kPa): | 200 |
| Experimenter: | A. Lockley | Output volume (L/ha): | 100 |
| Method: | Handheld boom – walking pace | Application speed (kph): | 5 |
| Equipment: | LPG pressurized boom | Swath (m): | 2.5 |
| <u>Weather Details</u> | | <u>Crop Details</u> | |
| Temperature (°C): | 12.5 | Crop Stage(Zaddoks): | Z15-23 |
| RH (%): | 70% | Leaf condition: | Good |
| Cloud cover: | | | |
| Wind direction: | south west | <u>Soil Conditions</u> | |
| Wind speed (km/h): | 13. | At the surface (0-10cm): | |
| Before spraying: | | Below the surface: | |
| During spraying: | | | |
| 1 week after spraying: | | <u>Target pest</u> | Latin Name |
| | | | |
| <u>Sprayed</u> | Treatments 2 and 3 | | |
| | | | |

Application Timing 2



| | | | |
|-------------------------------|------------------------------|---------------------------------|---------------------|
| Date: | Friday 28-7-2017 | Nozzle Make & Type: | TEE Jet Turbo T 015 |
| Time: | 11:30 am | Pressure (kPa): | 200 |
| Experimenter: | A. Lockley | Output volume (L/ha): | 100 |
| Method: | Handheld boom – walking pace | Application speed (kph): | 5 |
| Equipment: | LPG pressurized boom | Swath (m): | 2.5 |
| <u>Weather Details</u> | | <u>Crop Details</u> | |
| Temperature (°C): | 19.1 | Crop Stage(Zaddoks): | Z23-30 |
| RH (%): | 41.2 | Leaf condition: | |
| Cloud cover: | 10-20% | | |
| Wind direction: | From South | <u>Soil Conditions</u> | |
| Wind speed (km/h): | Ave: 7.5 Max: 9.4 | At the surface (0-10cm): | |
| Before spraying: | | Below the surface: | |
| During spraying: | | | |
| 1 week after spraying: | | <u>Target pest</u> | Latin Name |
| | | | |
| <u>Sprayed</u> | Treatments - 4 ,5 & 8 | | |
| | | | |

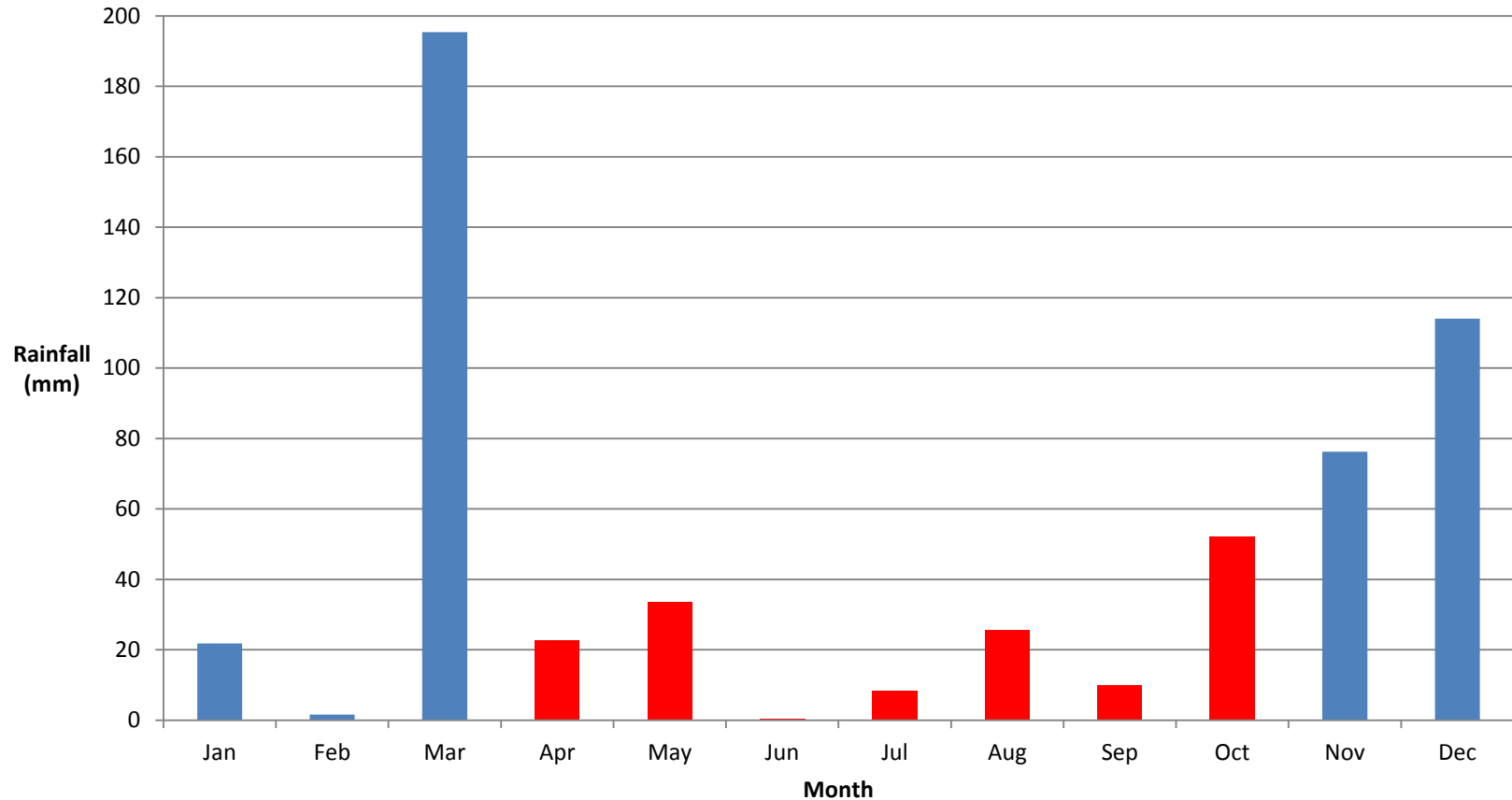
Application Timing 3



| | | | |
|------------------------|---|--------------------------|---------------------|
| Date: | Thursday 7 th September 2017 | Nozzle Make & Type: | TEE Jet Turbo T 015 |
| Time: | | Pressure (kPa): | 200 |
| Experimenter: | A. Lockley | Output volume (L/ha): | 100 |
| Method: | Handheld boom – walking pace | Application speed (kph): | 5 |
| Equipment: | LPG pressurized boom | Swath (m): | 2.5 |
| Weather Details | | | |
| Temperature (°C): | 16.8 | Crop Details | |
| RH (%): | 41.3 | Crop Stage(Zaddoks): | Z37 |
| Cloud cover: | 30-40% | Leaf condition: | Good |
| Wind direction: | From West | Soil Conditions | |
| Wind speed (km/h): | Ave: 10.2 Max 13.3 | At the surface (0-10cm): | dry |
| Before spraying: | | Below the surface: | |
| During spraying: | | | |
| 1 week after spraying: | | Target pest | Latin Name |
| | | | |
| Sprayed | Treatments - 6/7/9 | | |
| | | | |



RAINFALL DATA - Forbes 2017



- **Total for Year 2017 : 561.1 mm**
- **Total for GSR (April-October) – 152.6 mm**

Conclusions

- Trial consisted of 3 trials in 1, GSP +- Awaken. GSP +- NutriSync M & GSP +- BLZN.
- Awaken @ 1.5 L/ha was the best treatment in the first section of the trial recording 170kg yield improvement over GSP. Awaken @ 3 L/ha rate not justified in this trial.
- NutriSync M + CU was the best treatment in the 2nd section of the trial recording 240kg yield improvement over GSP and 190kg improvement when NutriSync M was applied alone.
- BLZN applied @ Z37 was the best treatment in the 3rd section of the trial recording 260kg yield improvement over GSP.
- Minimal differences between treatments for grain quality was recorded