

OUYEN, Victoria
Low Rainfall Zone, Central Mallee
GPS 34°59'39.45"S, 142°14'25.39"E

Seasonal Snapshot

- Trials were sown into marginal moisture and emerged on limited rainfall events in May. Establishment was variable due to the dry conditions. There was also some evidence of Group C herbicide damage in some trials. Monthly rainfall remained below average throughout the entire cropping season, with extremely low rainfall recorded in September (Figure 1). The first significant drought stress symptoms were observed in all crops during August. Growing season rainfall was very low. The late rainfall events observed in October had significant impact on chickpea, increasing yield potential. Despite the low rainfall, grain yields were surprisingly good, particularly for chickpeas, with yields of up to 1.2t/ha observed. Due to the low rainfall and moderate temperatures (Figure 2), growth throughout the season was slow and biomass production was limited. During the reproductive phase there were generally cool conditions with significant frosts that affected pod set, particularly in lentils. There were no major heat events.

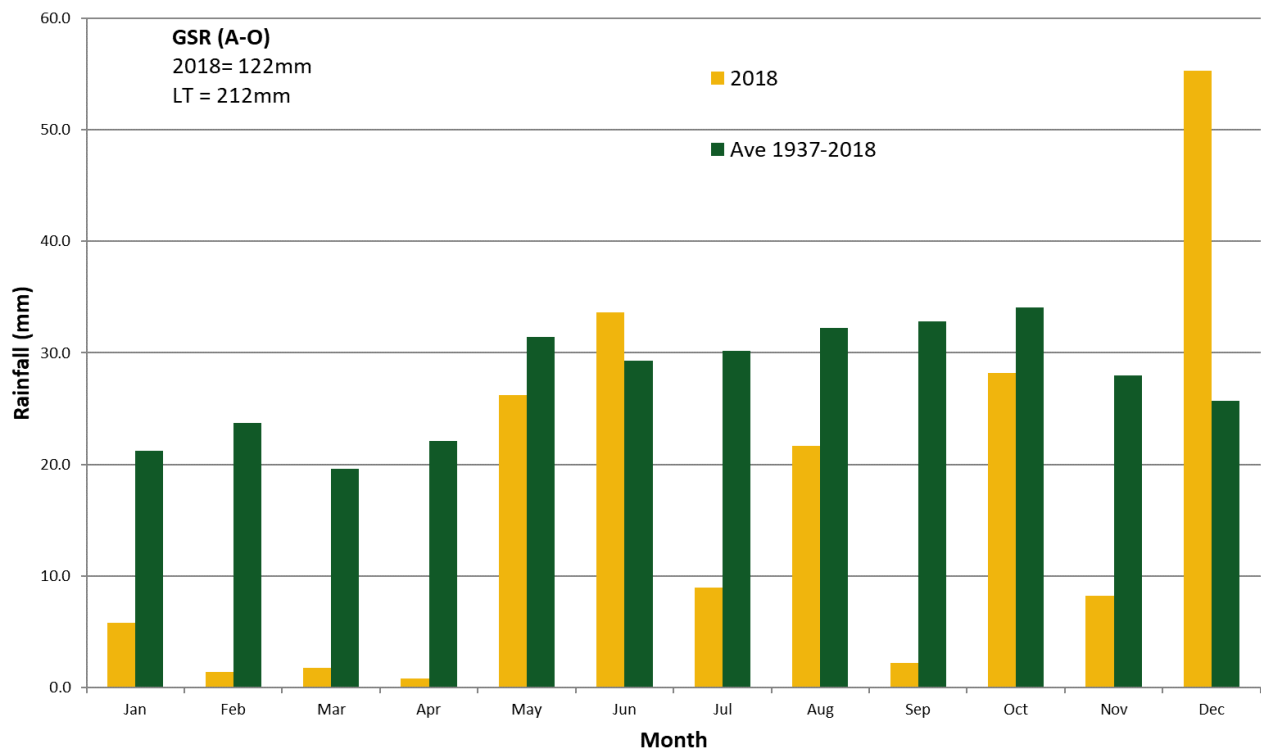


Figure 1. Average monthly rainfall for Ouyen (LRZ, Vic) in 2018 compared with long term averages.

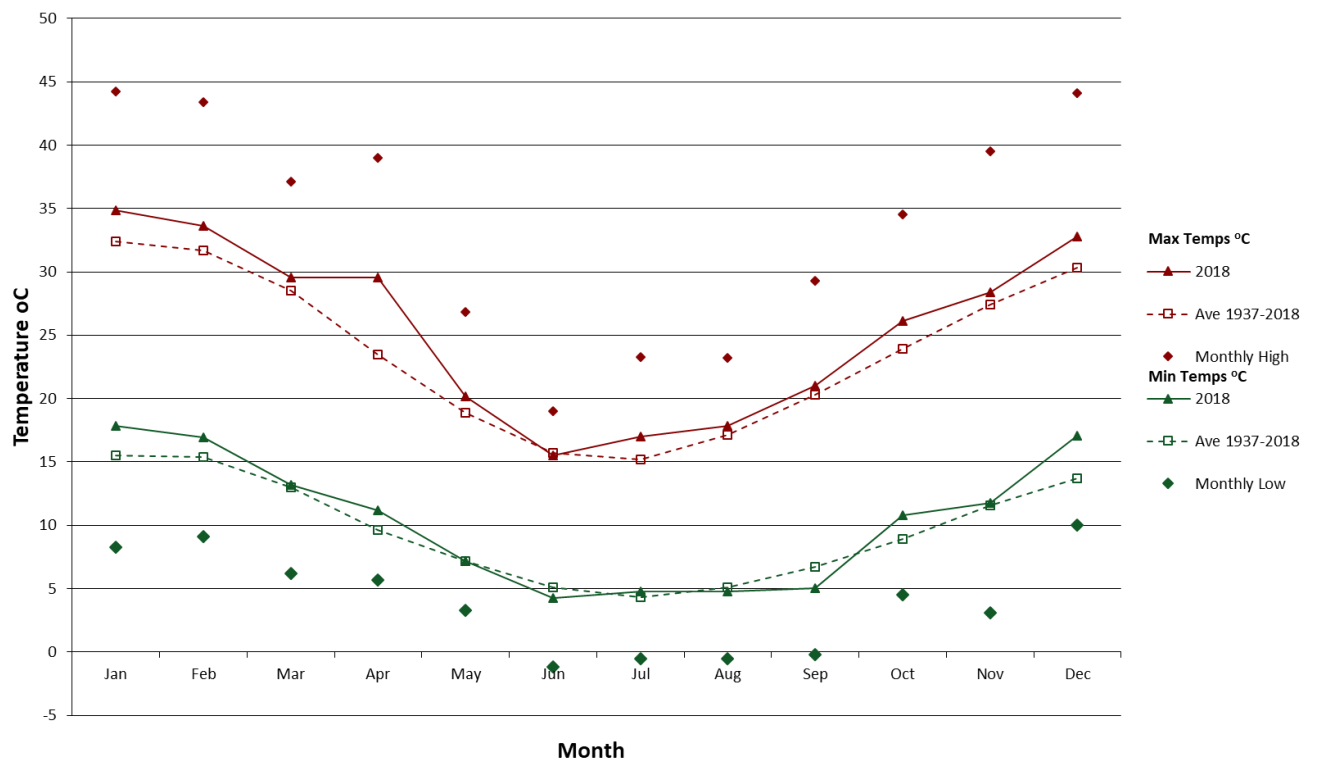


Figure 2. Average monthly maximum and minimum temperatures and absolute maximum or minimum at the Ouyen (LRZ, Vic) trial site in 2018 compared with the long term average.

Soil Characterisation

OUYEN

Trials were located on a sandhill which was classed a deep sandy soil and in the neighbouring swale zone which was classed as sandy loam.

Sandhill

| Depth (cm) | NH ₄ -N | NO ₃ -N | P | K | S | Cu | Fe | Mn | Zn | B | EC (dS/m) |
|---------------|--------------------|--------------------|----|-----|---|-----|----|-----|-----|-----|--------------|
| (mg/kg) | | | | | | | | | | | |
| 0-10 | ≤1.0 | 6.5 | 11 | 160 | 5 | 0.2 | 6 | 3.9 | 0.3 | 0.3 | 0.09 |
| 10-20 | ≤1.0 | 4.4 | 5 | 180 | 6 | 0.5 | 5 | 1.2 | 0.1 | 0.5 | 0.10 |
| 20-40 | ≤1.0 | 2.0 | 5 | 210 | 5 | 0.5 | 4 | 0.8 | 0.1 | 0.9 | 0.10 |
| 40-60 | ≤1.0 | 1.5 | 5 | 250 | 6 | 0.5 | 3 | 0.4 | 0.1 | 1.7 | 0.11 |
| 60-100 | ≤1.0 | ≤1 | 5 | 320 | 6 | 0.4 | 4 | 0.4 | 0.1 | 2.4 | 0.12 |

| Depth (cm) | Exc Al | Exc Ca | Exc Mg (meq/100g) | Exc K | Exc Na | OC (%) | pH (CaCl ₂) | (H ₂ O) | BD g/cm ³ | Water grav (%) | Total (mm) |
|---------------|--------|--------|----------------------|-------|--------|-----------|----------------------------|--------------------|-------------------------|-------------------|------------|
| 0-10 | 0.0 | 3 | 1 | 0.3 | 0.0 | 0.31 | 7.6 | 8.1 | | 4 | |
| 10-20 | 0.0 | 15 | 2 | 0.4 | 0.0 | 0.17 | 8.2 | 8.8 | | 3 | |
| 20-40 | 0.0 | 18 | 4 | 0.6 | 0.1 | 0.11 | 8.3 | 8.9 | | 9 | |
| 40-60 | 0.0 | 18 | 5 | 0.6 | 0.1 | 0.13 | 8.3 | 9.0 | | 10 | |
| 60-100 | 0.0 | 17 | 5 | 0.8 | 0.3 | 0.10 | 8.3 | 9.1 | | 9 | |

Swale

| Depth (cm) | NH ₄ -N | NO ₃ -N | P | K | S | Cu | Fe | Mn | Zn | B | EC (dS/m) |
|---------------|--------------------|--------------------|----|-----|----|-----|----|-----|-----|------|--------------|
| (mg/kg) | | | | | | | | | | | |
| 0-10 | 2.2 | 10.3 | 14 | 345 | 8 | 0.8 | 8 | 6.3 | 1.4 | 0.9 | 0.15 |
| 10-30 | 1.1 | 8.2 | 6 | 485 | 8 | 1.8 | 10 | 4.4 | 0.3 | 1.1 | 0.15 |
| 30-60 | 1.2 | 2.9 | 5 | 355 | 9 | 1.5 | 7 | 2.4 | 0.1 | 1.9 | 0.17 |
| 60-90 | 5.7 | 1.9 | 6 | 380 | 14 | 0.9 | 5 | 1.4 | 0.3 | 8.2 | 0.34 |
| 90-120 | 3.2 | 1.7 | 5 | 360 | 10 | 0.7 | 5 | 0.9 | 0.2 | 11.1 | 0.45 |

| Depth (cm) | Exc Al | Exc Ca | Exc Mg (meq/100g) | Exc K | Exc Na | OC (%) | pH (CaCl ₂) | (H ₂ O) | BD g/cm ³ | Water grav (%) | Total (mm) |
|---------------|--------|--------|----------------------|-------|--------|-----------|----------------------------|--------------------|-------------------------|-------------------|------------|
| 0-10 | 0.0 | 11 | 2 | 0.9 | 0.1 | 0.73 | 7.8 | 8.3 | | 5 | |
| 10-30 | 0.0 | 19 | 5 | 1.5 | 0.1 | 0.58 | 7.9 | 8.4 | | 12 | |
| 30-60 | 0.0 | 20 | 9 | 1.1 | 0.7 | 0.30 | 8.1 | 8.9 | | 13 | |
| 60-90 | 0.0 | 17 | 10 | 1.1 | 3.0 | 0.18 | 8.5 | 9.4 | | 14 | |
| 90-120 | 0.0 | 16 | 9 | 1.1 | 4.7 | 0.14 | 8.6 | 9.6 | | 17 | |