

Control of Mexican poppy (*Argemone Mexicana forma ochroleuca*) by manipulation of seeding rate

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Mexican poppy is a common weed of wheat in the Callide Valley in central Queensland and since its seed is an undesirable impurity in grain sold for seed or stock food a high level of control is required.

It was observed that Mexican poppy plants grew mainly in areas where the wheat stand was poor and in gaps between successive runs of the seeding machinery. Few Mexican poppy plants survived where the wheat stand was dense and uniform.

Wheat was sown at a range of seed rates with a row spacing of 18 cm to investigate whether rates higher than those normally recommended in the district (30 to 50 kg ha⁻¹) would provide adequate suppression of Mexican poppy. The wheat varieties were Mendos in 1969 and Timgalen in 1971.

The effects of wheat seed rate on Mexican poppy plant numbers and grain yield are shown in Table I, below.

TABLE I. Effects of wheat seed rate at harvest.

| Seed rate (kg ha ⁻¹) | Mature Mexican poppy plants | | | | Grain yield (kg ha ⁻¹) | |
|-------------------------------------|-----------------------------|------|-------------------------|------|---------------------------------------|------|
| | number in 100 sq m | | $\sqrt{x + 0.5}$ trans. | | 1969 | 1971 |
| | 1969 | 1971 | 1969 | 1971 | | |
| 17 | 118 | | 7.53 | | 1121 | |
| 22 | | 43 | | 4.69 | | 2242 |
| 34 | 29 | 19 | 3.75 | 3.18 | 1168 | 2160 |
| 50 | 60 | 2 | 5.39 | 1.12 | 1404 | 1728 |
| 67 | 5 | 0 | 1.68 | - | 1090 | 1299 |
| 90 | | 0 | | - | | 914 |
| L.S.D. 5% | | | 1.81 | 1.36 | N.S. | 291 |
| L.S.D. 1% | | | 2.56 | 1.95 | N.S. | 402 |

Mexican poppy was almost eliminated at seed rates of 67 and 50 kg ha⁻¹ in 1969 and 1971 respectively. Grain yield was not significantly affected by seed rate in 1969 but in 1971 there was a significant decline in yield with increasing seed rate. The trial was attacked by mice with damage being more severe at the higher seed rates and this clearly contributed strongly to the differences. However in another trial where few Mexican poppy plants developed and there was no mouse damage the yield at a seed rate of 90 kg ha⁻¹ was significantly less than at seed rates of 33 and 45 kg ha⁻¹.

It is concluded that the use of seed rates of 67 kg ha⁻¹ or above effectively suppresses Mexican poppy but there is a risk of reduced grain yield.