

Sunflower tolerance to Assert tank mixes applied at two timings. Jenks, Willoughby, and Hoefing. ‘Croplan 378 DMR’ sunflower was seeded June 12 at 20,000 seeds/A into 30-inch rows in a conventionally tilled field. Herbicides treatments were applied at the 4-6 leaf stage on July 2 or at the 10-leaf stage on July 14. Individual plots were 10 x 30 ft and replicated three times. Spartan + Prowl were applied preemergence to control weeds.

The objectives of this study were to 1) evaluate sunflower tolerance to Assert applied with NIS compared to Assert tank mixed with a grass herbicide (Select Max) and oil adjuvant (MSO); 2) determine the influence of an early application (4-6 leaf) vs. a late application (10-leaf); and 3) determine the effect of spray boom height above the canopy (18, 12, and 6 inches). There was less visual crop injury where Assert was applied with NIS at the 4-6 leaf stage. Sunflower yield with Assert + NIS averaged 224 lb/A more than Assert + Select Max + MSO. Sunflower yield with Assert applied at the 4-6 leaf stage averaged 238 lb/A more than when applied at the 10-leaf stage, despite the fact that two treatments with the most deformed heads were applied at the 4-6 leaf stage. Boom height did not affect sunflower yield.

Table. Sunflower tolerance to Assert tank mixes applied at two timings (0919).

| Treatment ^a | Rate | Timing | Boom height inches ^b | Sunflower | | | | |
|---------------------------|-----------------------|----------|------------------------------------|------------------------------|--------|---------------------------|---------------|-------------------|
| | | | | Jul 16 -----% injury----- | Jul 24 | Deformed heads ---%--- | Yield lb/A | Test wt. lb/bu |
| Select Max + NIS | 9 fl oz + 0.25% | 4-6 leaf | 18 | 0 | 0 | 0 | 2434 | 28.0 |
| Assert + NIS | 0.8 pt + 0.25% | 4-6 leaf | 18 | 2 | 0 | 1 | 2515 | 28.3 |
| Assert + NIS | 0.8 pt + 0.25% | 10-leaf | 18 | 0 | 4 | 0 | 2520 | 28.1 |
| Assert + NIS | 0.8 pt + 0.25% | 4-6 leaf | 12 | 2 | 0 | 0 | 2447 | 27.6 |
| Assert + NIS | 0.8 pt + 0.25% | 10-leaf | 12 | 0 | 5 | 0 | 2295 | 28.4 |
| Assert + NIS | 0.8 pt + 0.25% | 4-6 leaf | 6 | 2 | 0 | 1 | 2584 | 27.6 |
| Assert + NIS | 0.8 pt + 0.25% | 10-leaf | 6 | 0 | 8 | 1 | 2356 | 27.6 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 4-6 leaf | 18 | 5 | 2 | 14 | 2155 | 27.4 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 10-leaf | 18 | 0 | 13 | 4 | 2242 | 27.6 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 4-6 leaf | 12 | 6 | 3 | 10 | 2458 | 26.8 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 10-leaf | 12 | 0 | 15 | 2 | 2050 | 28.1 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 4-6 leaf | 6 | 5 | 2 | 2 | 2598 | 27.7 |
| Assert + Select Max + MSO | 0.8 pt + 9 fl oz + 1% | 10-leaf | 6 | 0 | 17 | 7 | 1869 | 28.2 |
| Select Max + NIS | 9 fl oz + 0.25% | 4-6 leaf | 18 | 0 | 0 | 0 | 2476 | 29.0 |
| LSD (0.05) | | | | 0.7 | 1.1 | 3.7 | 377 | 1.3 |
| CV | | | | 27 | 14 | 74 | 10 | 2.8 |

^a No sunflower injury was observed in any treatment on August 24th.

^b The number of inches the boom was held above the canopy at application