

Clethodim formulations in sunflower. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Prosper, ND, to evaluate grass control with clethodim formulations applied POST. Wheat, to simulate a volunteer crop was spread and tilled, followed by planting Pioneer '03BM0024' sunflower on May 29, 2003. POST treatments were applied on June 30 at 11:45 am with 79 F air, 85 F soil surface, 50% relative humidity, 10% clouds, 5 to 8 mph S wind, dry soil surface, moist subsoil, good crop vigor, and no dew present to V6 to V8 sunflower. Weed species present were: 3 to 8 inch (50 to 75/ft²) yellow foxtail; and 4 to 6 inch (15 to 25/yd²) volunteer wheat. Treatments were applied to the center 6.7 feet of the 10 by 25 foot plots with a backpack-type plot sprayer delivering 8.5 gpa at 40 psi through 8001 flat fan nozzles. The experiment had a randomized complete block design with four replicates per treatment.

Tribenuron-resistant sunflower is in development and may be registered in 2005. Tribenuron controls many broadleaf weeds but antagonizes most postemergence grass herbicides. Large, well-tillered wheat and yellow foxtail were used to measure herbicide compatibility and potential antagonism of clethodim formulations and quizalofop applied with tribenuron. Experimental formulations of clethodim (V-101xx) contain a lower active ingredient and higher adjuvant load than the commercial formulation (Select or Arrow). Tribenuron antagonized all clethodim formulations and quizalofop, except V-10137. Tribenuron with V-10137 without PO gave similar grass control as V-10137 applied with PO. V-10137 applied with tribenuron without PO gave 98% wheat control and 96% yellow foxtail control, compared to 94% and 92%, respectively when PO was added. It appears that the V-10137 clethodim formulation contains an adjuvant load necessary to control grasses and overcome tribenuron antagonism without adding an oil adjuvant. No tribenuron-resistant sunflower injury was observed with any treatment. (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. Clethodim formulations in sunflower (Zollinger and Ries).

| Treatment ¹ | Rate (lb/A) | July 14 | | July 28 | |
|------------------------|----------------|--------------|--------------|--------------|--------------|
| | | TRZAZ (%) | SETLU (%) | TRZAZ (%) | SETLU (%) |
| Clethodim+PO | 0.094 | 89 | 79 | 99 | 99 |
| Clet+tribenuron+PO | 0.094+0.012 | 70 | 70 | 80 | 75 |
| Clet(V-10117)+PO | 0.088 | 96 | 91 | 99 | 99 |
| Clet(V-10117)+trib+PO | 0.088+0.012 | 76 | 71 | 86 | 81 |
| Clet(V-10137)+PO | 0.095 | 94 | 88 | 99 | 99 |
| Clet(V-10137)+trib | 0.095+0.012 | 85 | 80 | 98 | 96 |
| Clet(V-10137)+trib+PO | 0.095+0.012 | 76 | 74 | 94 | 92 |
| Clet(V-10139)+PO | 0.1 | 95 | 85 | 99 | 99 |
| Clet(V-10139)+trib+PO | 0.1+0.012 | 60 | 58 | 75 | 70 |
| Clet(Arrow)+PO | 0.094 | 92 | 93 | 96 | 96 |
| Clet(Arrow)+trib | 0.094+0.012 | 50 | 50 | 60 | 50 |
| Clet(Arrow)+trib+PO | 0.094+0.012 | 75 | 68 | 90 | 79 |
| Quizalofop-P+PO | 0.055 | 90 | 80 | 97 | 94 |
| Qufp+trib+PO | 0.055+0.012 | 74 | 64 | 96 | 87 |
| Untreated | | 0 | 0 | 0 | 0 |
| LSD (0.05) | | 6 | 6 | 3 | 4 |

¹Clethodim = Select unless otherwise noted with trade or experimental number in parenthesis; PO = petroleum oil = Herbimax at 1% v/v; 'V' compounds are proprietary experimental herbicides from Valent; clethodim (Arrow) = Makhteshim Agan.