**Wild oat control with Puma in hard red spring wheat and barley at Crookston, MN - 1999.** Durgan, Beverly R., Jim Cameron and Douglas W. Miller. The objective of the this experiment was to evaluate wild oat control with Puma (fenoxaprop & safener) in combination with several broadleaf herbicides. The experiment was conducted at Crookston, MN on a Donaldson and Wheaton loam soil. Following weedy fallow, the experimental area received 100 lb/A of N and was fall plowed. In the spring the experimental area was disked and harrowed. '2375' hard red spring wheat and 'Robust' Barley were seeded on May 1 at 1.5 and 1.75 Bu/A respectively. All herbicide treatments were applied with a backpack type sprayer delivering 10 gpa at 30 psi using 80015 flat fan nozzles. The experimental design was a randomized complete block with three replications and plot size was 10 by 16 ft. Application data and environmental conditions are listed below. Crop injury and wild oats control were visually rated on June 11, July 9, and July 20. Yields were measured. All data are presented in Tables 1 and 2 for barley and wheat, respectively.

| | |
|---|---|
| Treatment Date | June 7 |
| Target weed or crop stage | 4-5 leaf Wioa |
| Soil Moisture | dry |
| Sky | clear |
| Wind (mph) | 8 W |
| Rainfall before Application | |
| Week 1 (inch) | 0.40 |
| Rainfall after Application | |
| Week 1 (inch) | 1.09 |
| Week 2 (inch) | 0.08 |

**Table 1. Wild oat control with Puma in barley at Crookston, MN - 1999 (Durgan, Cameron, and Miller).**

| Treatment | Rate | Barley Injury 6/11 | Barley Injury 7/9 | Barley Injury 7/20 | Wioa Control 7/9 | Wioa Control 7/20 | Barley Yield |
|---|---|---|---|---|---|---|---|
| | (lb ai/A) | % | | | | | Bu/A |
| Fenoxaprop & safener[1] | 0.082 | 0 | 13 | 0 | 96 | 96 | 52 |
| Fenoxaprop & safener | 0.05 | 0 | 30 | 3 | 96 | 97 | 50 |
| Fenoxaprop & safener | 0.041 | 0 | 27 | 3 | 91 | 97 | 48 |
| Fenoxaprop & safener + thifensulfuron & tribenuron[2] + NIS[3] | 0.082 + 0.013 & 0.006 + 0.25% | 0 | 7 | 0 | 95 | 97 | 66 |
| Fenoxaprop & safener + bromoxynil & MCPA ester[4] | 0.082 + 0.25 & 0.25 | 3 | 3 | 0 | 98 | 97 | 74 |
| Fenoxaprop & safener + bromoxynil | 0.082 + 0.25 | 3 | 10 | 0 | 96 | 97 | 68 |
| Fenoxaprop & safener + MCPA ester | 0.082 + 0.375 | 3 | 3 | 0 | 95 | 97 | 74 |
| Fenoxaprop & 2,4-D & MCPA[5] + bromoxynil | 0.09 & 0.12 & 0.37 + 0.25 | 3 | 10 | 10 | 85 | 85 | 65 |
| Imazamethabenz[6] + bromoxynil & MCPA ester + COC[7] | 0.31 + 0.25 & 0.25 + 0.5% | 0 | 0 | 0 | 80 | 90 | 67 |
| Tralkoxydim + TF8035 COC[8] + bromoxynil & MCPA ester | 0.18 + 0.5% + 0.25 & 0.25 | 0 | 7 | 10 | 95 | 96 | 79 |
| Fenoxaprop & safener + fluroxypyr + thifensulfuron & tribenuron | 0.082 + 0.125 + 0.006 & 0.003 | 0 | 10 | 0 | 95 | 97 | 71 |
| Fenoxaprop & safener + fluroxypyr + clopyralid & MCPA amine[9] | 0.082 + 0.125 + 0.09 & 0.5 | 0 | 10 | 0 | 94 | 97 | 72 |
| Fenoxaprop & safener + imazamethabenz | 0.041 + 0.31 | 0 | 30 | 28 | 93 | 90 | 57 |
| Fenoxaprop & safener + fluroxypyr | 0.082 + 0.125 | 0 | 3 | 3 | 96 | 96 | 71 |
| Fenoxaprop & safener + fluroxypyr + MCPA ester | 0.082 + 0.125 + 0.375 | 0 | 7 | 0 | 95 | 96 | 82 |
| Fenoxaprop & safener + carfentrazone | 0.082 + 0.008 | 10 | 10 | 10 | 96 | 97 | 71 |
| Fenoxaprop & safener + 2,4-D ester | 0.082 + 0.5 | 0 | 10 | 0 | 91 | 96 | 82 |
| Weedy check | | 0 | 0 | 0 | -- | -- | 46 |
| LSD (P=.05) | | 4 | 8 | 5 | 4 | 1 | 13 |

[1] Puma.
[2] Premix = Harmony Extra 75DF.
[3] NIS = Class Preference nonionic surfactant.
[4] Premix = Bronate 4E.
[5] Premix = Tiller 2.77E.
[6] Assert LC 2.5E.
[7] COC = Class Crop Oil Concentrate.
[8] Supercharge.
[9] Premix = Curtail M 2.77E.

**Table 2. Wild oat control with Puma in hard red spring wheat at Crookston, MN - 1999 (Durgan, Cameron, and Miller).**

| Treatment | Rate | Wheat Injury 6/11 | Wheat Injury 7/9 | Wheat Injury 7/20 | Wioa Control 7/9 | Wioa Control 7/20 | Wheat Yield |
|---|---|---|---|---|---|---|---|
| | (lb ai/A) | % | | | | | Bu/A |
| Fenoxaprop & safener[1] | 0.082 | 0 | 7 | 0 | 96 | 96 | 35 |
| Fenoxaprop & safener | 0.05 | 0 | 10 | 0 | 96 | 97 | 38 |
| Fenoxaprop & safener | 0.041 | 0 | 10 | 0 | 92 | 96 | 40 |
| Fenoxaprop & safener + thifensulfuron & tribenuron[2] + NIS[3] | 0.082 + 0.013 & 0.006 + 0.25% | 0 | 0 | 0 | 95 | 97 | 48 |
| Fenoxaprop & safener + bromoxynil & MCPA ester[4] | 0.082 + 0.25 & 0.25 | 0 | 0 | 0 | 98 | 97 | 44 |
| Fenoxaprop & safener + bromoxynil | 0.082 + 0.25 | 0 | 0 | 0 | 96 | 97 | 45 |
| Fenoxaprop & safener + MCPA ester | 0.082 + 0.375 | 0 | 0 | 0 | 95 | 97 | 44 |
| Fenoxaprop & 2,4-D & MCPA[5] + bromoxynil | 0.09 & 0.12 & 0.37 + 0.25 | 3 | 7 | 0 | 77 | 82 | 40 |
| Imazamethabenz[6] + bromoxynil & MCPA ester + COC[7] | 0.31 + 0.25 & 0.25 + 0.5% | 0 | 0 | 0 | 70 | 88 | 40 |
| Tralkoxydim + TF8035 COC[8] + bromoxynil & MCPA ester | 0.18 + 0.5% + 0.25 & 0.25 | 0 | 7 | 0 | 94 | 96 | 44 |
| Fenoxaprop & safener + fluroxypyr + thifensulfuron & tribenuron | 0.082 + 0.125 + 0.006 & 0.003 | 0 | 0 | 0 | 94 | 97 | 47 |
| Fenoxaprop & safener + fluroxypyr + clopyralid & MCPA amine[9] | 0.082 + 0.125 + 0.09 & 0.5 | 0 | 7 | 0 | 94 | 97 | 43 |
| Fenoxaprop & safener + imazamethabenz | 0.041 + 0.31 | 0 | 10 | 0 | 93 | 90 | 43 |
| Fenoxaprop & safener + fluroxypyr | 0.082 + 0.125 | 0 | 0 | 0 | 95 | 96 | 48 |
| Fenoxaprop & safener + fluroxypyr + MCPA ester | 0.082 + 0.125 + 0.375 | 0 | 0 | 0 | 95 | 96 | 49 |
| Fenoxaprop & safener + carfentrazone | 0.082 + 0.008 | 3 | 7 | 0 | 96 | 97 | 48 |
| Fenoxaprop & safener + 2,4-D ester | 0.082 + 0.5 | 0 | 3 | 0 | 90 | 96 | 47 |
| Weedy check | | 0 | 0 | 0 | -- | -- | 19 |
| LSD (P=.05) | | ns | 6 | ns | 7 | 2 | 13 |

[1] HOE 1170.
[2] Premix = Harmony Extra 75DF.
[3] NIS = Class Preference nonionic surfactant.
[4] Premix = Bronate 4E.
[5] Premix = Tiller 2.77E.
[6] Assert LC 2.5E.
[7] COC = Class Crop Oil Concentrate.
[8] Premix = Curtail M 2.77E.