<u>Weed control with POST applied [nicosulfuron & rimsulfuron] tank mixes in corn at Lamberton, MN in</u> <u>2003.</u> Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate [nicosulfuron & rimsulfuron] tank mixed with either s-metolachlor + mesotrione + atrazine or s-metolachlor + mesotrione for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 5.1% organic matter, pH 6.2 and soil test P and K levels of 42 and 338 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2002 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 2, 2003, Northrup King 'N32L9' glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebupirimphos (Aztec 2.1G) was applied at 6.7 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

| Date                       | May 29   | June 11  |  |  |  |  |
|----------------------------|----------|----------|--|--|--|--|
| Treatment                  | POST I   | POST II  |  |  |  |  |
| Temperature (F)            |          |          |  |  |  |  |
| air                        | 75       | 61       |  |  |  |  |
| soil (4 inch)              | 70       | 66       |  |  |  |  |
| Relative humidity (%)      | 27       | 82       |  |  |  |  |
| Wind (mph)                 | S 5      | calm     |  |  |  |  |
| Sky                        | clear    | cloudy   |  |  |  |  |
| Soil moisture              | dry      | dry      |  |  |  |  |
| Corn                       |          |          |  |  |  |  |
| leaf no.                   | 2-collar | 5-collar |  |  |  |  |
| height (inch)              | 3        | 10       |  |  |  |  |
| Yellow foxtail             |          |          |  |  |  |  |
| leaf no.                   | 1 to 3   | 3 to 5   |  |  |  |  |
| height (inch)              | 1 to 3   | 4 to 7   |  |  |  |  |
| no./ft <sup>2</sup>        | 75       | 98       |  |  |  |  |
| Common lambsquarters       |          |          |  |  |  |  |
| leaf no.                   | 2 to 4   | 5 to 8   |  |  |  |  |
| height (inch)              | 1 to 3   | 4 to 6   |  |  |  |  |
| no./ft <sup>2</sup>        | 6        | 4        |  |  |  |  |
| Tall waterhemp             |          |          |  |  |  |  |
| leaf no.                   | 3 to 5   | 4 to 6   |  |  |  |  |
| height (inch)              | 1 to 3   | 2 to 5   |  |  |  |  |
| no./ft <sup>2</sup>        | 1        | 2        |  |  |  |  |
| Rainfall after application | (inch)   |          |  |  |  |  |
| 1 week                     | 0.17     | 0.01     |  |  |  |  |
| 2 week                     | 1.24     | 3.34     |  |  |  |  |
| 3 week                     | 0.01     | 0.59     |  |  |  |  |

Early season crop development was delayed due to a June 23 hailstorm. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. None of the herbicide treatments caused visible crop injury. On June 13, 15 days after treatment, POST I herbicide treatments gave 93% or greater yellow foxtail control and 96% or greater common lambsquarters control. On June 27, 16 days after POST II treatments, POST II treatments gave 74 to 87% yellow foxtail control and 80 to 98% common lambsquarters control. In August, [nicosulfuron & rimsulfuron], [nicosulfuron & rimsulfuron] + [s-metolachlor & mesotrione & CGA-154281] and [nicosulfuron & rimsulfuron] + [s-metolachlor & atrazine & mesotrione & CGA-154281] applied POST I resulted in 65%, 74 to 80%, and 66 to 78% yellow foxtail control. Those same treatments applied POST II gave 71, 60 to 64%, and 53 to 59% control. [Nicosulfuron & rimsulfuron] + NIS + AMS applied POST I and POST II gave 43 and 68% tall waterhemp control, respectively. [Nicosulfuron & rimsulfuron] tank mixed with the low and high rate of [s-metolachlor & mesotrione & CGA-154281] + NIS provided 82 and 95% control. [Nicosulfuron & rimsulfuron] tank mixed with the low and high rate of [s-metolachlor & mesotrione & CGA-154281] + NIS + AMS resulted in 80 and 95% control. All other POST I herbicide treatments gave 92% or greater control. All other POST II herbicide treatments gave 90% or greater control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

| Tabla   | Wood control with | DOST appli | od Inicoculturon | rimculfuron]      | tank mixes in corp at | Lamborton  | MNI in 2002      | (Cotting and Pottor) |
|---------|-------------------|------------|------------------|-------------------|-----------------------|------------|------------------|----------------------|
| i apie. | weed control with |            |                  | x IIIIISullululul | lank mixes in com at  | Lampenton. | IVIIN III 2003 ( | Gelling and Foller.  |

| Table. Weed control with POST applied [filcos | sultation & finisalitation tank mixes in col | iii at La | SE                  | .011, 101<br>TI I I | IN III 20 | 03 (Geili |      |       | er).           |      | ΔΜΔΤΙ | 1     |         |
|---|--|-----------|---------------------|---------------------|-----------|-----------|------|-------|----------------|------|-------|-------|---------|
| Treatment <sup>a</sup>                        | Pata   |           | 6/13 6/27 7/30 8/27 |                     |           |           |      |       | 6/27 7/30 8/27 |      |       | Vield |         |
| POST L (3-inch corn)                          | (lb/A or %)                                  | 0/13      | 0/21                | 1/30                | 0/21      | 0/13      | 0/21 | trol) | 0/21           | 0/21 | 1/50  | 0/21  | (bu/A)b |
| [Nico&Rims]+NIS+AMS                           | [0.023&0.012]+0.25%+2.0                      | 94        | 88                  | 70                  | 65        | 97        | 84   | 75    | 55             | 76   | 60    | 43    | (50/7)  |
| [Nico&Rims]                                   | [0.023&0.012]                                | 94        | 90                  | 76                  | 66        | 98        | 95   | 96    | 97             | 98   | 96    | 96    | 137     |
| +[S-meto&atra&meso&CGA-154281]+NIS            | +[0 5&0 19&0 05]+0 25%                       | 54        | 50                  | 10                  | 00        | 50        | 55   | 50    | 57             | 50   | 50    | 50    | 107     |
| [Nico&Pime]                                   | +[0.000.1900.00]+0.20%                       | 07        | 02                  | 83                  | 78        | 08        | 07   | 96    | 07             | 07   | 07    | 08    | 145     |
| INCOUNTING                                    |  | 51        | 92                  | 05                  | 10        | 90        | 91   | 90    | 51             | 91   | 51    | 90    | 145     |
| [Nicos Pime]                                  | 10 02280 0121                                | 05        | 02                  | 76                  | 74        | 06        | 01   | 02    | 97             | 00   | 95    | 92    | 140     |
| INCOUNTING                                    | [0.02300.012]                                | 90        | 92                  | 70                  | 74        | 90        | 91   | 92    | 07             | 90   | 00    | 02    | 149     |
| [Nicos Pime]                                  | F[0.42&0.04]F0.2378                          | 06        | 02                  | 95                  | 80        | 09        | 06   | 07    | 07             | 07   | 09    | 05    | 155     |
| INCOUNTING                                    |  | 90        | 95                  | 05                  | 80        | 90        | 90   | 91    | 91             | 91   | 90    | 90    | 155     |
| [Nico&Rime]                                   | [0.0238.0.012]                               | 03        | 03                  | 80                  | 71        | 08        | 05   | 07    | 96             | Q/   | 03    | 02    | 154     |
| IS motod atras masos CGA 154281               | 10 580 1080 051                              | 30        | 30                  | 00                  | 11        | 30        | 35   | 31    | 30             | 34   | 30    | 52    | 104     |
|   | +0.25%+2.0                                   |           |                     |                     |           |           |      |       |                |      |       |       |         |
| [Nicos Pime]                                  | 10.02380.0121                                | 04        | 04                  | 02                  | 79        | 09        | 09   | 09    | 09             | 09   | 09    | 09    | 1/1     |
| INCOUNTING                                    |  | 54        | 94                  | 05                  | 10        | 90        | 90   | 90    | 90             | 90   | 90    | 90    | 141     |
|   | +[1.0&0.30&0.1]                              |           |                     |                     |           |           |      |       |                |      |       |       |         |
| [Nicos Pime]                                  | 10.02380.0121                                | 04        | 01                  | 79                  | 74        | 09        | 05   | 02    | 00             | 00   | 95    | 80    | 122     |
| INCOUNTING                                    |  | 54        | 91                  | 10                  | 74        | 90        | 90   | 95    | 90             | 00   | 00    | 80    | 155     |
| [Nice ? Dime]                                 |  | 02        | 01                  | 00                  | 74        | 00        | 07   | 00    | 00             | 05   | 05    | 05    | 150     |
| INCOUNTING                                    |  | 95        | 91                  | 00                  | 74        | 90        | 91   | 90    | 90             | 90   | 90    | 90    | 155     |
| [Nicos Pime] Moso Atra COC AMS                |  | 07        | 00                  | 71                  | 69        | 09        | 07   | 09    | 09             | 07   | 09    | 07    | 152     |
| [Nicos Pine]                                  |  | 97        | 90<br>01            | 79                  | 72        | 90        | 97   | 30    | 90             | 97   | 90    | 97    | 146     |
| Le moto a stra 8 CGA 1542811 Moso             |  | 90        | 91                  | 10                  | 12        | 90        | 90   | 90    | 51             | 91   | 90    | 91    | 140     |
|   | +0.25%+2.0                                   |           |                     |                     |           |           |      |       |                |      |       |       |         |
| POST II (10 inch corn)                        | +0.2378+2.0                                  |           |                     |                     |           |           |      |       |                |      |       |       |         |
| [Nico&Rime]+NIS+AMS                           | [0 02380 012]+0 25%+2 0                      | _         | 77                  | 60                  | 71        | _         | 80   | 81    | 86             | 83   | 73    | 68    | 110     |
| [Nicos Pime]                                  | [0.023&0.012]+0.23/8+2.0                     | -         | 7/                  | 59                  | 50        | -         | 00   | 07    | 00             | 00   | 13    | 00    | 08      |
| INCOUNTING                                    | 10 580 1080 0510 25%                         | -         | 74                  | 50                  | 39        | -         | 90   | 91    | 90             | 90   | 90    | 90    | 90      |
| [Nico&Pime]                                   | +[0.000.1900.00]+0.20%                       | _         | 78                  | 54                  | 53        | _         | 07   | 08    | 08             | 90   | 03    | 01    | 104     |
| L[S-meto&atra&meso&CGA_15/281]+NIS            | 11 080 3880 11±0 25%                         | -         | 10                  | 54                  | 55        | -         | 51   | 30    | 30             | 30   | 33    | 31    | 104     |
| [Nicos Pime]                                  | T[1.000.3000.1]+0.23 /8                      |           | 76                  | 62                  | 60        |           | 05   | 05    | 09             | 06   | 02    | 00    | 109     |
| L[S-meto&meso&CGA-15/281]+NIS                 | 10 4280 041+0 25%                            | -         | 10                  | 05                  | 00        | -         | 35   | 30    | 30             | 30   | 52    | 30    | 100     |
| [Nico&Pime]                                   | [0.0238.0.012]                               | _         | 70                  | 73                  | 63        | _         | 07   | 08    | 08             | 90   | 96    | 96    | 115     |
| L[S-meto&meso&CGA-15/281]+NIS                 | 10 8480 081+0 25%                            |           | 15                  | 15                  | 05        |           | 51   | 30    | 30             | 30   | 30    | 30    | 115     |
| [Nico&Pime]                                   | [0.0238.0.012]                               | _         | 76                  | 68                  | 50        | _         | 08   | 08    | 08             | 08   | 08    | 08    | 100     |
| +[S-meto&atra&meso&CGA-154281]                | +[0 5&0 19&0 05]                             |           | 10                  | 00                  | 55        |           | 30   | 30    | 30             | 30   | 30    | 30    | 100     |
|   | +0.25%+2.0                                   |           |                     |                     |           |           |      |       |                |      |       |       |         |
| [Nico&Rims]                                   | [0.023&0.012]                                | -         | 81                  | 64                  | 59        |           | 98   | 98    | 98             | 96   | 97    | 98    | 102     |
| +[S-meto&atra&meso&CGA-154281]                | +[1 0&0 38&0 1]                              |           | 01                  | 04                  | 00        |           | 50   | 50    | 50             | 50   | 57    | 50    | 102     |
|   | +[1.000.3000.1]                              |           |                     |                     |           |           |      |       |                |      |       |       |         |
| [Nico&Rims]                                   | [0.023&0.012]                                | -         | 81                  | 66                  | 63        |           | 96   | 97    | 98             | 94   | 93    | 91    | 112     |
| +[S-meto&meso&CGA-154281]+NIS+AMS             | $\pm [0.02000.012]$                          |           | 01                  | 00                  | 00        |           | 50   | 51    | 50             | 54   | 50    | 51    | 112     |
| [Nico&Rims]                                   | [0.023&0.012]                                | -         | 80                  | 69                  | 64        |           | 98   | 98    | 98             | 95   | 94    | 94    | 118     |
| +[S-meto&meso&CGA-154281]+NIS+AMS             | $\pm [0.84\&0.08] \pm 0.25\% \pm 2.0$        |           | 00                  | 00                  | 01        |           | 00   | 00    | 00             | 00   | 01    | 01    | 110     |
| [Nico&Rims]+Meso+Atra+COC+AMS                 | [0.023&0.012]+0.05+0.67+1%+2.0               | -         | 87                  | 70                  | 63        | -         | 98   | 98    | 98             | 98   | 97    | 96    | 124     |
| [Nico&Rims]                                   | [0.023&0.012]                                | -         | 79                  | 70                  | 65        | -         | 98   | 98    | 98             | 98   | 96    | 95    | 120     |
| +[s-meto&atra&CGA-154281]+Meso                | +[0.84&1.09]+0.05                            |           | 10                  | 10                  | 00        |           | 00   | 00    | 00             | 00   | 00    | 00    | 120     |
| +NIS+AMS                                      | +0.25%+2.0                                   |           |                     |                     |           |           |      |       |                |      |       |       |         |
| Checks  | 10.207012.0                                  |           |                     |                     |           |           |      |       |                |      |       |       |         |
| Weedy check                                   |  | 0         | 0                   | 0                   | 0         | 0         | 0    | 0     | 0              | 0    | 0     | 0     | 13      |
| Weed-free                                     |  | 100       | 100                 | 100                 | 100       | 100       | 100  | 100   | 100            | 100  | 100   | 100   | 159     |
|   | LSD (0.10)                                   | 1.6       | 3.6                 | 8.6                 | 9.6       | 1.2       | 4.1  | 4.1   | 6.3            | 6.1  | 5.5   | 8.4   | 15.0    |
| -   | (0.1.0)                                      |           |                     |                     |           |           |      |       |                | 2    |       |       |         |

<sup>a</sup> Atra or atrazine = Aatrex 90DF; [Nico&Rims] or [nicosulfuron & rimsulfuron] = Steadfast 75DF; [S-meto&atra&CGA-154281] or [s-metolachlor & atrazine & CGA-154281] = Cinch ATZ 5.5F; [S-meto&atra&CGA-154281] or [s-metolachlor & mesotrione & CGA-154281] = Camix 3.67SE; [S-meto&atra&meso&CGA-154281] or [s-metolachlor & atrazine & mesotrione & CGA-154281] = Lumax 3.95L; Meso or mesotrione = Callisto 4L; COC = crop oil concentrate; NIS = nonionic surfactant; AMS = spray grade ammonium sulfate. <sup>b</sup> Yield adjusted to 15.5% moisture.