SELECT PESTICIDES REGISTERED FOR SEED TREATMENT OF FIELD CORN AND ASSOCIATED HUMAN HEALTH BEN(

| Type | FRAC[2]/IRAC[3] | Active Ingredient | Previously Analyzed?[4] | Previously Detected?[4] | cRfD[5] (mg/kg-day) |
|---|---|---|---|---|---|
| Nematicide | IRAC 6 | Abamectin | no | n/a | 0.0004 |
| Insecticide | IRAC 1B | Chlorpyrifos | ✓ | no (only lagoons & wet cake were tested) | 0.00033 |
| | IRAC 4A | Clothianidin | ✓ | ✓ | 0.098 |
| | | Imidacloprid | ✓ | ✓ | 0.057 |
| | | Thiamethoxam | ✓ | ✓ | 0.012 |
| | IRAC 28 | Chlorantraniliprole | ✓ | ✓ | 1.58 |
| | | Cyantraniliprole | no | n/a | 0.01 |
| Fungicide | FRAC 1 | Carbendazim (Thiophanate-methyl) | ✓ | ✓ | 0.025 |
| | | Thiabendazole | ✓ | ✓ | 0.033 |
| | FRAC 3 | Desthioprothioconazole (Prothioconazole degradate) | ✓ | ✓ | n/a |
| | | Difenoconazole | ✓ | ✓ | 0.01 |
| | | Ipconazole | ✓ | ✓ | 0.015 |
| | | Metconazole | ✓ | ✓ | 0.04 |
| | | Propiconazole | ✓ | ✓ | 0.1 |
| | | Prothioconazole | ✓ | ✓ | 0.01 |
| | | Tebuconazole | ✓ | ✓ | 0.029 |
| | FRAC 4 | Metalaxyl (equal R and S enantiomers) or Mefenoxam (R enantiomer) | ✓ | ✓ | 0.0741 |
| | FRAC 7 | Carboxin | no | n/a | n/a |
| | | Penflufen | no | n/a | 0.38 |
| | | Sedaxane | ✓ | ✓ | 0.11 |
| | FRAC 11 | Azoxystrobin | ✓ | ✓ | 0.18 |
| | | Fluoxastrobin | ✓ | ✓ | 0.015 |
| | | Picoxystrobin | ✓ | ✓ | 0.046 |
| | | Pyraclostrobin | ✓ | ✓ | 0.034 |
| | | Trifloxystrobin | ✓ | ✓ | 0.038 |
| | FRAC 12 | Fludioxonil | no | n/a | 0.03 |
| | FRAC 14 | Tolclofos-methyl | no | n/a | n/a |
| | FRAC 22 | Ethaboxam | ✓ | ✓ | 0.055 |
| | | Mancozeb | no | n/a | 0.016 |

CHMARKS FOR DRINKING WATER.[1]

| CSF[6] (mg/kg-day) | cHHBP[7] (µg/L) | Registrants[1] (only for pesticides not previously analyzed) |
|---|---|---|
| n/a | 3 | Syngenta |
| n/a | 1.8 | |
| n/a | 630 | |
| n/a | 360 | |
| n/a | 77 | |
| n/a | 10,100 | |
| n/a | 60 | Syngenta |
| 0.00239 | 160 | |
| n/a | 210 | |
| n/a | n/a | |
| n/a | 60 | |
| n/a | 96 | |
| n/a | 300 | |
| n/a | 600 | |
| n/a | 60 | |
| n/a | 190 | |
| n/a | 474 | |
| n/a | n/a | UPL NA |
| n/a | 2,400 | Bayer |
| 0.00464 | 690 | |
| n/a | 1,200 | |
| n/a | 96 | |
| n/a | 290 | |
| n/a | 220 | |
| n/a | 240 | |
| n/a | 200 | Albaugh, Loveland, Nufarm, Syngenta, UPL NA |
| n/a | n/a | Valent |
| n/a | 350 | |
| 0.0601 | 53 | UPL NA |

| | | | | | |
|---|---|---|---|---|---|
| | FRAC M 03 | Thiram | no | n/a | 0.015 |
| | FRAC M 04 | Captan | no | n/a | 0.13 |

[1] Disclaimer - this table is not a comprehensive list of all pesticides registered for seed treatment of field corn sinc
[2] FRAC = Fungicide Resistance Action Committee Mode of Action classification - https://www.frac.info/
[3] IRAC = Insecticide Resistance Action Committee Mode of Action classification - https://irac-online.org/modes-of
[4] Matrices analyzed include groundwater, surface water, wet cake, corn seed, soil, nectar, honey, pollen, and/or o
[5] cRFD = Chronic Reference Dose - Only provided if listed in https://www.epa.gov/pesticides/updated-list-human-
[6] CSF = Cancer Slope Factor - Only provided if listed in https://www.epa.gov/pesticides/updated-list-human-healt
[7] cHHBP = lower of the Chronic or Carcinogenic (1E-04 excess cancer risk) Human Health Benchmarks for Pesticide
Gray indicates a compound is registered for seed treatment of corn, but no samples have been analyzed.

| | | |
|---|---|---|
| n/a | 96 | Bayer, Nu Farm, UPL NA |
| n/a | 830 | Albaugh, Drexel |

:e 2015 or all associated registrants.

-action/
ther plants.
-health-benchmarks-pesticides-drinking-
h-benchmarks-pesticides-drinking-water-
es - Only provided if listed in:

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Comment:
cRfD and cHHBP for chloropyrifos methyl (not chloropyrifos ethyl)

**SELECT PESTICIDES REGISTERED FOR SEED TREATMENT OF FIELD CORN AND ASSOCIATED ECOLOGICAL AQUATIC LIFE**

| Type | FRAC[2]/IRAC[3] | Active Ingredient | Previously Analyzed?[4] | Previously Detected?[4] | Fish Acute[5] (µg/L) | Fish Chronic[5] (µg/L) |
|---|---|---|---|---|---|---|
| Nematicide | IRAC 6 | Abamectin | no | n/a | 1.6 | 0.52 |
| Insecticide | IRAC 1B | Chlorpyrifos | ✓ | no (only lagoons & wet cake were tested) | 0.9 | 0.57 |
| | IRAC 4A | Clothianidin | ✓ | ✓ | 50,750 | 9,700 |
| | | Imidacloprid | ✓ | ✓ | 114,500 | 9,000 |
| | | Thiamethoxam | ✓ | ✓ | 57,000 | 20,000 |
| | IRAC 28 | Chlorantraniliprole | ✓ | ✓ | 6,900 | 110 |
| | | Cyantraniliprole | no | n/a | 5,000 | 10,700 |
| Fungicide | FRAC 1 | Carbendazim (Thiophanate-methyl) | ✓ | ✓ | 5,500 | n/a |
| | | Thiabendazole | ✓ | ✓ | 280 | 110 |
| | FRAC 3 | Desthioprothioconazole (Prothioconazole degradate) | ✓ | ✓ | n/a | n/a |
| | | Difenoconazole | ✓ | ✓ | 405 | 0.86 |
| | | Ipconazole | ✓ | ✓ | 765 | 180 |
| | | Metconazole | ✓ | ✓ | n/a | n/a |
| | | Propiconazole | ✓ | ✓ | 425 | 95 |
| | | Prothioconazole | ✓ | ✓ | n/a | n/a |
| | | Tebuconazole | ✓ | ✓ | 1,135 | 11 |
| | FRAC 4 | Metalaxyl (equal R and S enantiomers) or Mefenoxam (R enantiomer) | ✓ | ✓ | 65,000 | 9,100 |
| | FRAC 7 | Carboxin | no | n/a | 600 | n/a |
| | | Penflufen | no | n/a | n/a | n/a |
| | | Sedaxane | ✓ | ✓ | n/a | n/a |
| | FRAC 11 | Azoxystrobin | ✓ | ✓ | 235 | 147 |
| | | Fluoxastrobin | ✓ | ✓ | n/a | n/a |
| | | Picoxystrobin | ✓ | ✓ | 32.5 | 36 |
| | | Pyraclostrobin | ✓ | ✓ | 3.1 | 2.35 |
| | | Trifloxystrobin | ✓ | ✓ | 7.15 | 4.3 |
| | FRAC 12 | Fludioxonil | no | n/a | 235 | 18 |
| | FRAC 14 | Tolclofos-methyl | no | n/a | 345 | 12 |
| | FRAC 22 | Ethaboxam | ✓ | ✓ | 1,090 | 880 |
| | | Mancozeb | no | n/a | 455 | 1.35 |

BENCHMARKS.

| Invertebrate Acute[5] (µg/L) | Invertebrate Chronic[5] (µg/L) | Non-Vascular Plants Acute[5] (µg/L) | Vascular Plants Acute[5] (µg/L) | Maximum Concentration[5] (µg/L) | Continuous Concentration[5] (µg/L) |
|---|---|---|---|---|---|
| 0.17 | n/a | 100,000 | 3,900 | | |
| 0.05 | 0.04 | 140 | n/a | 0.083 | 0.041 |
| 11 | 0.05 | n/a | n/a | | |
| 0.385 | 0.01 | n/a | n/a | | |
| 17.5 | 0.74 | 99,000 | 90,200 | | |
| 5.8 | 4.47 | 1,780 | 2,000 | | |
| 10.2 | 6.56 | 10,000 | 12,100 | | |
| 2,700 | n/a | 930 | 4,700 | | |
| 155 | 42 | 1,420 | 2,320 | | |
| n/a | n/a | n/a | n/a | | |
| 385 | 5.6 | 98 | 1,900 | | |
| 850 | n/a | n/a | n/a | | |
| n/a | n/a | n/a | n/a | | |
| 650 | 260 | 21 | 3,500 | | |
| n/a | n/a | n/a | n/a | | |
| 1,440 | 120 | 1,450 | 151 | | |
| 14,000 | 1,200 | n/a | n/a | | |
| 42,200 | n/a | 370 | 670 | | |
| n/a | n/a | n/a | n/a | | |
| n/a | n/a | n/a | n/a | | |
| 130 | 44 | 49 | 3,400 | | |
| n/a | n/a | n/a | n/a | | |
| 12 | 1 | 4 | 210 | | |
| 7.85 | 4 | 1.5 | 1,197 | | |
| 12.65 | 2.76 | 37.1 | 1,930 | | |
| 450 | 14 | 280 | 630 | | |
| 1,200 | 26 | 780 | n/a | | |
| 185 | 50 | 3,600 | 13,000 | | |
| 520 | 18 | 47 | n/a | | |

| Registrants[1] (only for pesticides not previously analyzed) |
| --- |
| Syngenta |
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| Syngenta |
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| UPL NA |
| Bayer |
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| |
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| |
| |
| Albaugh, Loveland, Nufarm, Syngenta, UPL NA |
| Valent |
| |
| UPL NA |

| | | | | | | |
|---|---|---|---|---|---|---|
| | FRAC M 03 | Thiram | no | n/a | 3.5 | 1.1 |
| | FRAC M 04 | Captan | no | n/a | 13.1 | 16.5 |

[1] Disclaimer - this table is not a comprehensive list of all pesticides registered for seed treatment of field corn since 20

[2] FRAC = Fungicide Resistance Action Committee Mode of Action classification - https://www.frac.info/

[3] IRAC = Insecticide Resistance Action Committee Mode of Action classification - https://irac-online.org/modes-of-acti

[4] Matrices analyzed include groundwater, surface water, wet cake, corn seed, soil, nectar, honey, pollen, and/or other

[5] Aquatic Screening Levels = https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchr

Gray indicates a compound is registered for seed treatment of corn, but no samples have been analyzed.

| | | | | | |
|---|---|---|---|---|---|
| 105 | 20 | 3 | 1,600 | | |
| 4,200 | 560 | 320 | 12,700 | | |

15 or all associated registrants.

on/
plants.
marks-and-ecological-risk

| |
|---|
| Bayer, Nu Farm, UPL NA |
| Albaugh, Drexel |

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