

photodecomposition. Longevity of **picloram** in soils is 6 to 18 months. **Triclopyr** is not as long-lived in soils as **picloram** and degrades rapidly. **Triclopyr's** half life in soil averages 46 days, depending on soil and climatic conditions. It is rapidly lost from photodecomposition in water with a half-life of 10 hrs. **Clopyralid** has an average half-life from 12 to 70 days.

Distinguishing characteristics

Triclopyr and picloram

- Weak acids which can form anions;
- Powerful growth regulators, 10 to 100 times more effective than 2,4-D on susceptible species;
- Rapidly absorbed by foliage and roots and translocated readily in the symplast;
- Stable in plants;
- Readily leached in most soils;
- **Picloram** is more persistent in soils than **triclopyr**;

- Applied preemergence and postemergence;
- Nonselective herbicides on broadleaf weeds and crops, most grasses are resistant.

Dithiopyr

- Preemergence grass and small-seeded broadleaf weed control;
- Postemergence control is weaker than preemergence.
- Not leached in most soils.

Toxicological Properties

<u>Acute Oral Toxicity</u>	<u>LD₅₀ (mg/kg)</u>
Picloram	8200
Clopyralid	>5000
Triclopyr	713
Dithiopyr	>5000

SUBSTITUTED UREAS

Important Members (Table 22)

Table 22. Important members of the substituted ureas family.*

Common Name	Trade Name(s)	Manufacturer	Water Solubility (ppm)	Vapor Pressure (mm Hg @ 20-35° C)
Diuron	Karmex Diuron	DuPont	42	3.1×10^{-6}
Linuron	Lorox Linuron	DuPont	75	1.5×10^{-5} torr
Monuron	Telvar	DuPont	230	5×10^{-7}
Flumeturon	Cotoran	Ciba-Geigy	90	5×10^{-7}
Siduron	Tupersan	DuPont	18	8×10^{-4}
Tebuthiuron	Spike	DowElanco	2300	2×10^{-6}

*This family is also referred to as the Phenylureas. Substituted ureas are formulated from urea, a common nitrogen fertilizer.

Uses

The substituted ureas are widely used on a diversity of crops and noncropland areas. As preemergence herbicides, they control a wide range of weed species. **Monuron** is a soil sterilant, while **linuron**, **flumeturon** and **diuron** are used in a variety of crops for preemergence broadleaf weed control. Most urea herbicides are nonselective at high rates.

Siduron is used for preemergence annual grass control in cool-season turfgrass, especially on newly seeded turf. Bermudagrass and some bentgrass cultivars may be injured by **siduron**. Preemergence broadleaf activity is weak. **Tebuthiuron** is relatively nonselective and is used in rangeland, pastures, and noncropland for spot treatment non-selective weed control.