

**Ethofumesate's** activity is reduced in dry soils and soils high in organic matter such as peat or muck soils. It does not leach in soils having an organic matter content above 1%.

**Oxadiazon** is strongly adsorbed by organic matter and soil colloids and does not leach.

**Quinclorac** can be adsorbed to some extent by soil.

### *Persistence*

**Bentazon** is readily metabolized by bacteria and fungi. These metabolic residues are highly persistent, but are not herbicidally active, and incorporated into soil organic matter. Breakdown also occurs by photodegradation. **Bentazon's** longevity in most soils is less than one month with a half-life less than two weeks.

Microbial degradation occurs rapidly in soils for **Glyphosate**. Rapid degradation of the non-bound or biologically available material helps prevent uptake by plants. The average half-life is less than 60 days. The half-life in ponds range from 12 days to 10 weeks.

**Ethofumesate** is rather persistent in soils; it may last 6 months or more. However, the half-life usually ranges from 14 or more weeks in dry, cold conditions, to less than 5 weeks under moist, warm conditions. A twelve-month planting restriction exists for most crops following application. Ryegrass is an exception. Degradation is due to the activity of microorganisms. No loss occurs via photodecomposition and/or volatilization.

**Oxadiazon** has intermediate persistence in soils with a longevity of 4 to 6 months. Negligible loss occurs due to volatilization.

**Quinclorac** appears to be degraded microbially. Additional studies are in progress. Minimum losses occur from volatilization.

### **Distinguishing Characteristics**

#### **Bentazon**

- Active on selective broadleaf weeds and sedges;
- Inhibits photosynthesis;
- Contact material exhibiting very little translocation, and requires thorough coverage

to be effective. Visible injury usually occurs within 48 hours.

- Not corrosive
- A surfactant is needed for best results.
- It has a half-life in water of <24 hours due to photodegradation.
- Rain within 8 hours of application may reduce effectiveness.

#### **Glyphosate**

- Derivative of glycine or alanine
- Postemergence herbicidal activity
- Essentially has no preemergence activity;
- Translocated symplastically
- Formulated as salts (glycine derivatives) or esters (alanine derivatives);
- Rodeo formulation is used for aquatic weed control.

#### **Ethofumesate**

- Mainly preemergence herbicidal activity
- Mainly absorbed through the shoots with little translocation from treated shoots
- Mechanism of action is not fully known.
- Little leaching occurs, especially in soils having more than 1 percent organic matter.
- Persistence depends on environmental conditions which effect degradation by soil microorganisms.

#### **Oxadiazon**

- Low water solubility
- Preemergence activity
- Resistant to leaching and is adsorbed by organic matter
- Noncorrosive
- Irrigation is needed to incorporate the herbicide into the soil.

#### **Quinclorac**

- Pre- and early postemergence activity on crabgrass, foxtail, signalgrass, and some broadleaf weeds
- Appears to suppress torpedograss
- Bermudagrass, zoysiagrass, ryegrass, bluegrass, and tall fescue are tolerant.

### **Toxicological Properties**

<u>Acute Oral Toxicity</u>	<u>LD<sub>50</sub>(mg/kg)</u>
Bentazon	1100
Glyphosate	4320
Ethofumesate	<6400