

Persistence

Herbicides in this class are degraded very rapidly into acid form by soil microbes, which persists 1 to 4 weeks. **Diclofop** has a half-life of 10 days in sandy soils and about 30 days in clay soils. **Fenoxaprop** has a half-life of 5 to 14 days. Negligible losses occur from photodegradation or volatilization. **Fluazifop's** half-life is between 1 and 3 weeks.

Distinguishing characteristics

- All are weak acids and are formulated as esters.
- All are specific for postemergence grass control.
- **Diclofop** has some preemergence activity but is more effective postemergence.
- Most broadleaf crops and sedges are tolerant to these herbicides.
- Control is slow to occur, requiring 2 to 3 weeks for maximum results.
- Control is greatest at the two to five leaf stage.

- Antagonistic effects result when tank-mixed with postemergence broadleaf herbicides such as 2,4-D.
- Most members require a surfactant for optimum postemergence activity.
- Should not be stored below 20° F.
- Not known to be corrosive.

Toxicological Properties

Diclofop is toxic to fish and should not be used adjacent (within 100 ft) to bodies of water (lakes, streams, ponds, drainage basins, tidal marshes, estuaries, etc.).

Acute Oral Toxicity

Herbicide	LD ₅₀ (mg/kg)
diclofop	580
fluazifop	3328
haloxyfop	2397
quizalofop	5700
fenoxaprop	3310

BENZOIC ACIDS

Important Members (Table 7)

Table 7. Important Members of the Benzoic Acid family

Common Name	Trade Names(s)	Manufacturer	Water Solubility (ppm)	Vapor Pressure (mm Hg @ 25-30° C)
Dicamba	Banvel and others	Sandoz and others	4500	3.75×10^{-3} @ 100° C

Available formulations (*dicamba*)

Spray applications

1. 4 lb/gal (dimethyl amino salt) - no additional surfactant is needed - water soluble liquid. This formulation is compatible with most organic pesticides and nitrogen fertilizers.
2. 2 lb/gal (sodium salt) water soluble liquid.
3. 1 lb/gal water soluble liquid for cut surface treatment of woody species.

Dry application

1. 5% and 10% granule

Uses

Benzoic acids provide broadleaf (dicot) weed control with less activity on grass (monocot) weeds. **Dicamba** is used for postemergence broadleaf weed control in corn, small grains, turf, and noncropland.

Dicamba provides control of many phenoxy tolerant broadleaf weeds and is often mixed with 2,4-D, MCPP, MCPA or 2,4-DP to provide a broader range of weed control.

Behavior in Plants.

Absorption

Benzoic acids are rapidly absorbed in both shoots and roots.

Translocation

Dicamba is translocated via symplast and apoplast and tends to accumulate in regions of high metabolic activity such as meristems. From root uptake, **dicamba** follows the transpiration (xylem) stream.