



AllDown Green Chemistry Herbicide® vs. synthetic herbicides

	AllDown	Atrazine	Glyphosate	2,4-D
<i>General information</i>	Causes the rapid dissolution of cell membrane integrity resulting in the dessication of foliar tissues, and ultimately plant death. Is non-selective, and may damage any plant part contacted by the material. (USDA)	Weed growth is controlled by inhibition of photosynthetic electron transport and disruption of light reactions (<i>Ecobichon, 1991</i>). Atrazine is one of the two most frequently used pesticides in agriculture in the United States and is the most commonly detected in ground and surface water due to its wide use, its ability to persist in soil and move in water (US EPA, 2001c).	These are non-nitrogen based herbicides that inhibit synthesis of essential amino acids and promote destruction of photosynthetic pigments in foliage (<i>Connell et al., 1984; Sassman et al., 1984</i>) Glyphosate is among the most abundantly used pesticides by volume (US EPA, 1993d).	These mobile herbicides chemically stimulate plant growth hormones (auxin), causing uncontrolled cell proliferation (<i>Connell et al., 1984</i>). Because these compounds contain chlorine, they pose a risk for dioxin formation (<i>Connell et al., 1984</i>).
<i>Environmental Fate</i>	Environmentally benign. "Acetic acid readily degrades in water, and shows little potential for bioaccumulation." (USDA)	Atrazine is moderately persistent in soil (3 to 12 months) and moderately to highly mobile.	Glyphosate is moderately persistent in soil with an average half-life of 47 days. It strongly adsorbs to soil and is highly soluble in water (Extoxnet, 1996f)	A highly mobile compound that may readily disperse (<i>Gu et al., 1992</i>).

AllDown Green Chemistry Herbicide® is approved for use in certified organic food and fibers and there are no synthetics that meet these criteria.

AllDown currently can be applied to schoolyards, etc without notification or posting of written materials. Most synthetics cannot.

Herbicide resistance.

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There are currently 278 weed biotypes, which are herbicide resistant worldwide. In the US, MI has 19 followed by CA with 18 and IL with 15.

There are currently 4 different types (known as 'biotypes') of herbicide resistant weeds in Colorado. The first herbicide resistant weed reported from Colorado is Redroot Pigweed (*Amaranthus retroflexus*) with resistance to atrazine, reported in 1982. Local weed scientists estimate that there are 2,260 sites and more than 66,300 acres infested with herbicide resistant weeds in Colorado and they infest barley, corn, roadsides, and wheat. The most widespread resistant weed of Colorado is Kochia (*Kochia scoparia*), which infests an estimated 10001-100000 acres and is found primarily in roadsides, and wheat. Wild Oat (*Avena fatua*), with resistance to diclofop-methyl is the most recently discovered (1997) new type of resistant weed in Colorado.

AllDown is not known to be resistant from any weeds.

