



Integrated Pest Management

Ways to Control Weeds- Acetic acid based herbicides

Acetic Acid

Acetic acid is the substance that makes vinegar taste sour. Kitchen vinegar is typically around 5% acetic acid in water, however 100% pure acetic acid is a flammable and highly corrosive substance. Culinary vinegars are often made by fermenting various foods, but most acetic acid produced for industrial purposes, including much of the acetic acid used for weed control, is derived via a chemical reaction. Acetic acid based weed killing herbicides typically use concentrations of 5 to 20% acid. These herbicide preparations may also have other substances added to them. These differences in concentration and added ingredients greatly affect their capacity to control weeds and their safety.

HOW DOES ACETIC ACID CONTROL WEEDS?

Acetic acid is a non-selective contact herbicide or “top killer”. It only affects the areas of a plant that it comes in contact with, such as stems and leaves. It does not travel through the plant, so roots are not directly affected. Acetic acid works by causing plant desiccation, which means that it causes plants to “dry out”. It does this by breaking down plant cell walls and plant fluids then “leak” out. Shortly after an application of acetic acid susceptible weeds become discolored and turn brown. After a few hours the weeds will be black and water logged. Young, actively growing herbaceous weeds are the most susceptible to acetic acid treatments. Plants with more root reserves, such as perennial weeds, are more resistant to these kinds of herbicides and may not be seriously affected.

HOW WELL DOES IT WORK??

The effect of acetic acid on weeds is variable. Much depends on the strength of the acetic acid solution, and the kind of weed being treated. Research has shown that lower strength vinegars are likely to kill only very young weeds. Higher percentage vinegars have more of an effect on older weeds, but this effectiveness still varies greatly. Some weeds are more susceptible to the burning action of acetic acid than others, and many weeds will resprout from the base after a vinegar treatment. Repeat applications are often needed to control weeds with acetic acid, and some will never be controlled using this material. Weather



conditions also play a part, with dry and warm conditions being more conducive to vinegar's effects.

WHAT PRECAUTIONS ARE NECESSARY?

It is important to know that the vinegar or acetic acid that you purchase for weed control may not be equivalent to the "regular" vinegar that people put on their salads, pickle with or use as a household cleaner. Food grade vinegar typically contains 5% acetic acid diluted in water. Higher percentage strength solutions are sold specifically for herbicide use, but also for other purposes. These concentrations may be as high as 20%. These higher strengths can be very dangerous. Some of the dangers involved with the use of higher concentrations of acetic acid are irritation or burning of the skin, eyes, respiratory tract, allergic sensitization, and severe damage to the digestive tract if swallowed. Damage can be irreversible in some cases, as in corneal damage to the eyes. Repeated or prolonged exposure to high concentrations of acetic acid has also been found to have various adverse health effects. Many of the acetic acid based products may not have labels that divulge these safety concerns or the recommended protective measures that should be taken during their use.

For a fact sheet on vinegar/acetic acid herbicide use follow this link: [OSU Article](#)

DISCLAIMER

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