



## Vinaigrette your weeds



### Gardening Tip

A safe, biodegradable herbicide can be created by blending vinegar and lemon juice. The resulting mix provides non-selective control of herbaceous broadleaf and grass weeds. Results can be seen in as little as two hours. You can make your own by filling a spray bottle with a mixture of 1 cup vinegar and 1/4 cup lemon juice. Spray directly on the weed - and ONLY on the desired (or undesirable) weed - when the sun is out. These simple, homemade blends may require you to spray a weed two or three different times, but the tangy mix will get the job done.



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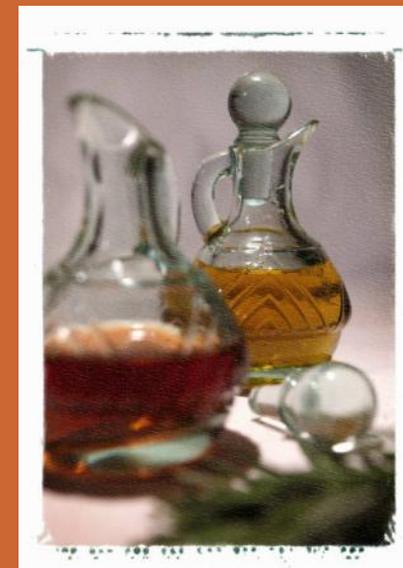
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**Acetic acid**

**(Vinegar)**

**For Weed Control**



## Vinegar for weed control

Vinegar is a solution containing acetic acid, an organic produced through the natural fermentation of plant materials containing sugars. Vinegar has been identified as a potential organic herbicide, yet more information is needed to determine influence of acetic acid concentration, application volume, and use of additives (adjuvants) on weed control. Acetic acid acts as a contact herbicide, injuring and killing plants by first destroying the cell membrane, which then causes the rapid desiccation of the plant tissues. Household vinegar typically contains 5% acetic acid. Great care must be taken when using acetic acid concentrations of 11% or greater, which can burn the skin and cause serious to severe eye injury.

Trials and research was conducted by Agricultural Research Service (ARS) in United States and the results are as following. Total weed control ranged from 0% control when no vinegar was used to 74% control when 20% acetic acid was applied at 100 gpa with canola oil. Vinegar was more effective in controlling broadleaf than in controlling of grasses. Optimum total grass and crabgrass weed control occurred with 20% acetic acid applied at 100 gpa, resulting in weed control that ranged either from 44 to 63%. Broadleaf control was 84% or greater for plots receiving either 10% acetic acid applied at 100 gpa or 20% acetic acid applied at 20 or 100 gpa. Also 5% acetic acid applied at 20



gpa provided good cut leaf evening primrose control (77 to 90%). When averaged across application volumes (20 and 100 gpa) and adjuvant (none, orange oil, and canola oil), weed control increased for all species as acetic acid concentrations increased from 5 to 20%.

When averaged across acetic acid concentrations and adjuvant, weed control increased as application volumes increased from 20 to 100 gpa. Volumes showed little or no advantage to adding either orange oil or canola oil to vinegar spray solutions.

Research conducted by the USDA indicated that vinegar with acetic concentrations of 10 to 20% provided good control of some annual and perennial weed species. The research concluded that applications volumes of  $\geq 1600$  L ha<sup>-1</sup> were required to provide weed control comparable to the commercial standards; however, wheat yields were maximized and similar to the commercial standards at application volumes of 400-800 L ha<sup>-1</sup>.

Therefore acetic acid concentrations from 10 to 20% controlled 80 to 100% of the smaller weeds, as reported in the USDA release. Interestingly, 24% acetic acid apparently can temporarily decrease soil pH. However, research suggests spot spraying might be most effective manner to utilize acetic acid as a herbicide. Broadcast application of 20 to 30% acetic acid solutions would cost approximately \$66.00 to \$99.00 per acre, respectively.



If preparing a homemade solution of vinegar herbicide, include citrus oil or lemon juice along with a small amount of liquid soap as a surfactant.

*Reference:*

*ARS, United States, Organic Weed Control with Vinegar, 10-2-2005, [www.ars.usda.gov/research/](http://www.ars.usda.gov/research/)*

*USDA, Vinegar for pre-seed and post-emergence control of broadleaf weeds in spring, Organic Agriculture Centre of Canada, [www.organicagcentre.ca/](http://www.organicagcentre.ca/)*

*ISU, Acetic acid (vinegar) for weed control revisited, Micheal D.K. Owen, 2002, [www.weeds.iastate.edu/weednews/vinegar.htm](http://www.weeds.iastate.edu/weednews/vinegar.htm)*

*\*\*Note: Due to restrictions, withholding periods and license agreements, authority from APVMA about vinegar standards and recommendations should be approved. Legally vinegar shouldn't be used for any purpose other than what is written on the label [www.apvma.gov.au](http://www.apvma.gov.au)*

