

the **T H I S T L E**

Park County Weed and Pest Control District

March 2017

Herbicide Alternatives – Natural or Organic Weed Killers

I was approached the other day and asked if I had found a source for 20% concentrated vinegar to purchase for weed control—specifically dandelions. Many people use this as a natural weed killer as it is marketed as such with the promise to eliminate and burn down even the toughest weeds. Just to clarify our role in this, as a weed and pest district our focus is to help landowners and managers develop programs for the control of noxious weeds; however, that doesn't mean we won't do our best to assist those same landowners in their battles with the control of nuisance weeds! After all, some of these “natural” products might work on our noxious annual species (tansy mustard) as well. So let's get back to the topic at hand...*natural or organic* weed killers!

Let's start with the 20% vinegar that I was asked about. And I'm assuming that we are talking about 20% acetic acid. A quick Google search results many options on where to purchase this product as well as a 30% variety. With tag lines such as “*Kills Weeds Naturally*” or “*Natural Non-Selective Weed Killer*” many people are attracted to these products for a safer solution to traditional herbicides for tackling their weed woes! We all want to use the safest, most effective product to accomplish the task at hand, in the safest manner and that includes us here at Park County Weed and Pest! However, just because something is labelled “natural” doesn't mean it isn't a chemical! And I'm sure these particular products and many like it are actually produced in a factory.



The SDS or safety data sheets for these 20% concentrated vinegar product carries the signal word “WARNING” on the label meaning that these products pose a specific degree of risk and require the use of PPE's (personal protective equipment) for safe handling per EPA guidelines. Specific hazardous occur if this particular product is contacted with eyes or skin with caution for ingestion. Let's take a look at some other safety data and see what it reveals

We'll take a look at signal words and LD₅₀'s of this product and a few others.



This 20% vinegar product has an LD₅₀ of 3310 mg./kg. The LD₅₀ is the amount of pesticide that would kill half the population of test animals (usually rats or mice). The lower the LD₅₀ the more toxic that product is.

Tordon - a restricted use selective herbicide has an LD₅₀ of >8000 mg./kg.

The reason this product carries the restricted use category is due to the potential harm to fish and other aquatic life and cannot be used near

water. Tordon is; however, a very useful “tool” in the control of noxious weeds in specific areas. It also carries the same signal word “WARNING” as the product above.

We should also take a look at the SDS info for the product Roundup© as it usually get a lot of comments. Roundup (active ingredient glyphosate) has the signal word “Caution” (lowest risk) for eye irritation, and an acute oral LD₅₀ of >5000 mg./kg. Another popular widely used herbicide is 2,4-D. This has a potentially higher risk with the signal word “Warning” and an LD₅₀ of 1160-1200 mg./mg. making this product more toxic than Roundup©.

Photo: Garris Chapel



Even table salt has an LD₅₀ of 3000 mg./kg.! We would expect something like nicotine or strychnine to have a low LD₅₀'s - 50 mg./kg. and 30 mg./kg. respectively. But it is interesting to see that some of the so called natural products have lower LD₅₀'s than manufactured herbicides. Bottom line? Whether it is natural or not, care must be used in all aspects of ANY products used for killing unwanted vegetation. We all want to keep our families and our environment safe. It is important to note that these types of "natural" weed killers may only be effective on annual

weed species that are early in their growth cycle. For tough perennial or invasive noxious weed species, using the proper recommended herbicide at the right time of year, following ALL label requirements, may be less harmful to people and the environment alike! *On a side note...I was happy to find out that sugar, the main ingredient in one of my favorite snacks-jelly beans-has an LD₅₀ of 30,000 mg./kg.!*

(<http://www.bugwood.org/PAT/03ToxicologyGeneral.html>)

There are many other natural products besides the 20% vinegar you can use for annual weeds. Anybody tried the herbicidal soap -an ammonium salt of fatty acids? Information states that it may cause chronic skin, eye or respiratory disease. A 32 oz. bottle is \$25 + shipping. Use rates are a 1:5 ratio. That means this container would make just over 1 gallon of solution. Apply up to 7.5 gallons to 1K sq./ft. Higher rates may be necessary and retreat monthly. Hmm...that may get expensive too. But cost shouldn't be a factor. A recent Facebook post raved about a *Magical Natural Weed Killer* made with vinegar, salt, and Dawn dish soap. A toxic brew if ever there was one. Well at least according to the data above and on the previous page. This concoction (like the vinegar alone) would desiccate or dry out whatever plant parts it contacted. And it is a *non* selective contact weed killer like any of the natural products are! Whatever the solution touches, will die, but if you don't completely cover the entire plant, it could recover if you missed a few leaves. And if you repeatedly apply salt to an area that will increase the salinity of the soil in that particular area.



A Roundup© type product on the other hand is systemic meaning it moves throughout the plant so if you don't cover the entire plant, the product still moves to the roots and therefore is effective in killing perennial weeds, even those with creeping roots. With the actual herbicide you do need to be cautious about getting it on desirable plants. You can make a shield out of a piece of cardboard to keep the product from harming those plants. Of course with either product timing is critical. Annual weeds require application of any weed killer, natural or otherwise, when plants are young. Perennials may depend on root structure and natural weed killers will only remove top growth! You can stress the plant by repeated applications but it will take years to kill that dandelion! The great folks at the University of Wyoming Weed Sciences Department have a great blog *Control Freaks* and they have taken an in depth look into this topic. I encourage you to take the time to get more facts by checking out the following website. (There is a lot of other great info here too!)

<http://weedcontrolfreaks.com/2014/06/salt-vinegar-and-glyphosate/>

But hey, using any product to spray on plants isn't the only option for weed control! There are many other tools that are available. Using all the tools or an integrated approach is the key to successful control of weeds- nuisance or noxious.

There are 5 principles of Integrated Pest Management or IPM:

1. **Prevention**-this would include things like managing for desirable species. Properly watering, fertilizing, (proper pasture and grazing management if applicable). Using weed seed free end products, etc.
2. **Cultural**-Rotational plantings and grazing, burning, species selection, cover crops, etc.
3. **Mechanical**-think manual labor! Hand pulling, mowing, chopping, mulching, etc.
4. **Biological**-use of animals, insects, or pathogens. Grazing, beetles, bacteria, etc.
5. **Chemical**-use of pesticides (*natural or otherwise*) including insecticides, fungicides, herbicides, etc.

(Check out the following link for more info on Integrated Pest Management <http://parkcountyweeds.org/education/integrated-pest-mgmt/>).

Another natural option for weed control is the use of goats. This method of control can be useful for controlling nuisance annual weeds (or tansy mustard-a listed noxious weed). They can also prevent biennial weeds like musk thistle or common burdock and simple perennial weeds from producing seed. These plants will continue to try to produce a crop of seeds in their second year per their reproductive cycle if conditions are suitable so you have to keep the goats grazing.

Complex perennials such as Canada or Russian thistle, and Whitetop; however, have extensive creeping root systems with significant nutrient reserves stored there! Using goats is effective at the suppression of above ground structures including seed production. Once pressure from grazing is removed, these plants will most likely return. Best results are obtained when used in combination with revegetation of desirable grass and other good land management practices!

Park County Weed and Pest Control District doesn't recommend the use of goats or sheep strictly for weed control west of Hwy. 120 due to the potential for wild populations of bighorn sheep and/or mountain goats to be infected with pneumonia from domestic sheep — often with fatal consequences for adults and newborns. (Washington State University-Pullman)

Photo: Northwest Grazers



"Take it from a previous goat owner, goats aren't born knowing you want them to eat your weeds! They have to be trained or confined to an area for them to be useful. Otherwise they eat everything else...such as those new seedlings you got from the conservation district"! M.McKinney

DON'T LET WEEDS GET A HEAD START!

COST SHARE AVAILABLE FOR

MOST NOXIOUS WEEDS!

Don't Wait!

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