

## How To Get Big Help From A Little Daisy

Parker River Alpaca Farm is sandwiched between a large state forest and the Parker River tidal salt marsh in the town of Byfield, Massachusetts. It is unimaginable to us how in 1635 the first European settlers to this area could have survived the bugs alone. Even today, mosquitoes, black flies, midges, the dreaded *greenheads* and other nasties of the insecta persuasion are a serious force to be reckoned with and to make matters even worse, Olivia claims to be The Mosquito Magnet! Needless to say, we have been motivated to seek out safe and effective means to make outdoor life more enjoyable while protecting ourselves and our alpacas from insect borne disease. Our discovery and use of Pyrethrum has been a major breakthrough.

Whether you know it or not, chances are you are a user of this interesting and truly amazing substance. It has unique properties that lend itself to use around the alpaca farm but even if you are already a big Pyrethrum fan, understanding it's various forms and terminology can be confusing at best.



Pyrethrum is a powerful insecticide derived from the flower of the daisy, *Chrysanthemum* that is deadly to virtually all-insect pests but harmless to humans and other animals, including alpacas when used appropriately. The insecticide breaks down quickly on exposure to light and air, so it is non-polluting. It has been used as an insecticide for over 100 years and even today remains the most unique and widely used Biopesticide in existence.

Common products that contain Pyrethrum include:

- household insect foggers and sprays
- flea dips and sprays for cats and dogs
- repellent/insecticide for clothing
- mosquito abatement products
- stable spray, sore & wound ointment
- lice shampoos and body lotions

It is important to understand that Pyrethrum is an insecticide and *not* a repellent. Pests that come in contact with it soon become paralyzed and die within minutes. Pyrethrum is effectively used as an airborne spray but it is most effective when used to treat **textiles...**

The application of Pyrethrum directly on the skin isn't recommended because it is generally not effective. If applied to skin, it is rapidly broken down and metabolized making it ineffective and there is no evidence that Pyrethrum accumulates in animal tissues. Solutions containing up to 5% Pyrethrum, which is more than five to ten times the concentration generally used is on the farm is approved by FDA for direct application to the scalp and hair as a head lice treatment.

What makes Pyrethrum so interesting as it relates to Alpacas is its effectiveness when applied to **fiber**. Once dry it is undetectable, i.e. it is odorless, non-staining even on silk and does not change the natural feel of fiber. Tests with Pyrethrum on ticks conducted in Massachusetts concluded that 100% protection using

Pyrethrum treated clothing was provided against the Deer Tick and other tick species throughout the United States. It was found **that ticks crawling as little as 10 inches on treated fabric** dropped off and in that limited time nearly all received a sufficient exposure to be killed.

Pyrethrum treated clothing is the standard personal protection system used by the U.S. military deployed in areas of the world where insect-borne disease is a threat. Military field studies have shown that the use of both Pyrethrum (insecticide) and DEET (repellent) provided 99.9% protection against mosquito bites, in an environment where unprotected persons previously received an average of 1,188 bites per hour! Mosquitoes that were undeterred by the DEET were quickly eliminated by the Pyrethrum. These studies in fact proved to become problematic as the soldiers were forced to continuously relocate in search of new mosquito infested areas.

**Terminology:** Even if you are familiar with this insecticide and are an avid label reader, understanding what you are dealing with can be confusing since the active ingredient may be listed as **Pyrethrum, Pyrethrin, Permethrin** and sometimes **Pyrethroids**...dang

The term **Pyrethrum** refers to a powder made from the dried flowers of the Chrysanthemum plant. At present, the Dalmatian Chrysanthemum (*Chrysanthemum cineraria folium*) is commercially cultivated mostly in the mountainous regions of Kenya, Tanzania, and or, less frequently, from Persian Chrysanthemums (*Chrysanthemum coccineum*), plants that originated in Eastern Europe.

The term **Pyrethrin** refers to six different insecticide compounds that occur naturally in the Pyrethrum powder. The six different pyrethrins are **Pyrethrin I and II, Cinevin I and II and Jasmolin I and II**. All six may be found in insecticide products, but generally the label only reads "**Pyrethrin**," regardless of which of the six types is actually present.

**Permethrin** refers to the man made or synthetically produced version of Pyrethrum and the term **Perethroids** refers to the synthetic equivalent of the six natural Pyrethrins. The synthetics are thought to last longer than the natural ones and may include agents that slow ultraviolet breakdown. Pyrethrum(natural) treated fiber can be expected to be effective for two weeks and two launderings. Permethrin (synthetic) treated fiber has been reported to be effective for up to six months and many more washings.

Permethrins are available in various concentrations. Permethrin concentrate is typically 13.3 % active ingredient. Ready to use sprays and liquids vary in concentration but .5%(. 005) To .9%(. 009) is a typical dose that will paralyze and kill most evildoer bugs. Insects that are exposed to low concentrations may become temporarily paralyzed and then recover, but probably with a wicked hangover.

### **Technique for Impregnating Clothing or Mosquito Netting with Permethrin Solution:**

1. Pour 4 oz. of 13.3% permethrin solution (PermaKill or Perm-X) into a plastic bag or small basin.

2. Add 2 quarts of water and mix to make a .83 % solution. Solution will turn milky white.
3. Place mosquito net or 1 to 2 garments in bag or basin. (Tie bag shut.)
4. Submerge fabric in solution to impregnate. Let rest 10 minutes.
5. Remove items from solution. Wring out excess solution.
6. Hang up clothing or netting for 2 to 3 hours to dry. You can also lie out fabric to dry on a clean surface.

**Note:** Permethrin is toxic to fish and other aquatic life. Do not flush leftover permethrin solution into streams or waterways -- use any unused solution as a spray.

**Spray Preparation:**

At Parker River Alpacas, we mix 2 oz. Permethrin 13.3% concentrate into a one-quart hand sprayer to get a .83% solution. We use this as an airborne knock down spray, spray the dung piles as a contact insecticide to kill flies and even lightly spray the alpacas during the height of mosquitoes, fly and tick season knowing that in moments it is undetectable and will be completely gone by shearing time. This has been working very well for us for several years now without any adverse effects and has made life on the farm safer and more enjoyable for the humans and alpacas alike.

***DISCLAIMER.*** *The author strongly urges everyone to consult their veterinarian before applying or administering any unfamiliar substance on or around livestock. Information in this article is based upon the author's personal experience and research, and is offered for information purposes only. Some information was obtained from both vetted and unvetted sources including the Internet.*

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