

## A Discussion and Comparison of Conventional and Natural Flea and/or Tick Products

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Many pet owners have taken an interest in natural parasite preventatives to protect their pets from fleas and ticks. Motives for using natural products may include less potential for side effects or lesser expense than conventional or prescription products. There are many factors to keep in mind when considering which flea or tick product of any type to use for your pet. We'll start by introducing the three classes of products (or if you'd like to cut to the chase, see our last section where recommendations are provided).



**FDA-registered products** are officially considered “**drugs**,” approved by the same organization that manages drugs for humans – the Food and Drug Administration. As drugs, the safety and efficacy of these products have been closely studied. The dosing is very specific to maximize safety and minimize the chance of adverse effects. The majority of these products are available only with a prescription from a veterinarian. Some of these FDA-registered products include: Advantage Multi, Capstar, Comfortis, Revolution, Sentinel, and others.

**EPA-registered products** are officially considered “**pesticides**,” with guidelines for use determined by the same organization that examines pesticides and insect repellants used by humans – the Environmental Protection Agency. As pesticides, these products are available without a prescription and are demonstrated to be safe and effective when used as described on the label. They are not necessarily safe when used for a different purpose, for example, on a cat instead of a dog. Some of these EPA-registered brands include: Advantage, K9 Advantix, Bio-Spot, Frontline, Hartz, Parastar, Sergeant’s, Sentry, Vectra, and many others.

**Unregistered products** – the category that includes **natural products** – contain ingredients that are considered by the EPA to be of “minimal risk” and are therefore unregulated. There are two important points to keep in mind: (1) The EPA’s concern is primarily for HUMAN safety in use of these products; other species may respond differently. (2) These products have been evaluated only for safety, not efficacy. This does not necessarily mean they are ineffective, however, they may or may not meet our expectations when used. So let’s examine this category further: What are the active ingredients of these products, and do they work? Do they carry any risks? Read on...

Here is a list of **natural essential oils** and related compounds present in many alternative flea & tick products. Some of these compounds are also present in EPA-registered products. :

**Pyrethrins** - Pyrethrins are a group of botanical insecticides derived from chrysanthemum flowers. They work by altering nerve function in insects, eventually resulting in death.

**Pyrethroids** are synthetic, with a chemical structures adapted from the pyrethrins, modified to increase their stability in sunlight. Despite the safety of these compounds in dogs, they are **highly toxic to cats**.

**Pennyroyal** – Derived from *Mentha pulegium* and *Hedeoma pulegiodes*, pennyroyal oil has a long history of use as a flea repellent. However, this herb is noted to have toxic potential for dogs and cats even at recommended dosages, causing **potentially fatal damage to the liver** even when applied topically (on the skin).



**Citronella** - Citronella oil is an extract of several plants in the genus Citronella, recognized to have insect-repellent properties. In fact, it has been registered by the EPA for this purpose. According to the EPA, “Oil of citronella is a biochemical pesticide which has a non-toxic mode of action. It is registered as an insect repellent (feeding inhibitor).” It has the potential to be a skin and eye irritant, and may be mildly toxic if ingested or inhaled, but only at very high concentrations far beyond normal usage. In order to be maximally effective, it would need to be applied on a daily basis.

**Cedar** - Cedarwood oil is a natural component of wood from the red cedar tree, used as a non-toxic insect repellent and feeding depressant. Cedar oils have been shown to be a respiratory irritant for small animals such as mice and rats (as in the use of cedar bedding), but are not thought to pose a significant risk to humans, dogs, or cats. In order to be maximally effective, it would need to be applied on a daily basis.

**Lemon** - The active component is d-limonene, which has been proposed to kill fleas. Lemon-containing products should not be applied to irritated skin or around eyes. In order to be maximally effective, it would need to be applied on a daily basis.

**Garlic** - Some sources suggest that garlic in a dog’s diet leaves them distasteful to insects. Please note that garlic can have toxic effects in dogs at high doses (one clove per 50 lbs is recommended). Cats are more susceptible to the toxic effects of garlic, and therefore use of garlic as a flea preventative in cats is not recommended.

Here are two additional non-chemical means of addressing flea and tick control:

**Diatomaceous earth** - This is a flour-like powder containing shards of silica, which has the ability to cut through an insect’s exoskeleton, effectively drying them out and resulting in death to the insect. It works by physical, non-chemical means. It may be used as a component of flea control when applied to carpeting, bedding (prior to vacuuming or laundering), or outdoors. Food-grade diatomaceous earth may also be applied directly to pets, but dries the skin and has the potential to be an eye and respiratory irritant.

**Sodium polyborate powder** - As found in Borax, this powder can be used in the indoor environment to interrupt the flea life cycle in conjunction with vacuuming & laundering. This compound is generally very safe for use in a household around pets (not directly applied to pets), but may cause illness if large amounts are ingested.

**So what's the bottom line? Here are our recommendations:**

(1) In general, **the products most widely recommended by veterinarians are those that we know to be the safest and most effective - the FDA registered products and a select few EPA registered products.** Many of these products offer the added benefit of being effective against internal parasites, as well. We recognize, of course, that every pet is an individual and there is no single solution that suits every animal or owner.

(2) If you are seeking to **prevent fleas** and/or ticks from seeking out your pet as a host, we welcome you to try whatever product you feel is the safest and most effective for your pet. **Be an educated consumer, do research with trusted resources, read the label, use the product as intended,** and of course, **talk to your veterinarian** about any questions you have along the way.

(3) **Remain vigilant** – Is the product working? **It is possible for any product to fail;** we recommend checking your pet for fleas and ticks with a fine-toothed flea comb frequently. Is the product safe and free of side effects for your pet? **Any animal can have an adverse reaction to any drug, chemical, or natural compound.** Monitor your pet carefully, particularly after any new product is applied for the first time, and if anything seems amiss, call your veterinarian.

(4) **If your pet and home are infested with fleas, it is in the best interest of you and your pet to use a conventional FDA or EPA registered product** whose efficacy is well understood. In this type of situation, we cannot afford to spend time trying products that may or may not be effective. Fleas and ticks are not just an annoyance, **your pet risks becoming ill from a heavy parasite burden** if the product chosen does not work. Once the situation is resolved, you may consider using a natural-type product to prevent future problems. Your veterinarian can work with you in finding a product that you are happy and comfortable with using, and works best for you and your pets.

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