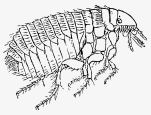


# FLEA & TICK PESTICIDE SUPPORT

Using flea and tick chemicals on dogs and cats is sometimes unavoidable. If you must use topical or oral veterinary pesticides to treat or prevent fleas and ticks on your animals, it's wise to provide a simple detoxification protocol to help your pet's organs clear the chemical residues from their bodies.

Many veterinary and environmental organizations are calling for a new, judicious and risk-based approach to control parasites in pets, moving away from the previously recommended year-round, blanket administration of these products to using the least amount of chemicals, only during the most high-risk months and only for healthy animals in high-risk environments.[1]

Using natural deterrents in between chemical applications can be an effective hybrid approach to reducing the amount of chemicals your animals have to clear from their systems.

Animals eliminate veterinary pesticide residues from their bodies by detoxification, a natural body process of removing waste products and toxins. There are 5 organs that are important for detoxification, including the colon, skin, lungs, kidneys and liver. Your animal's liver is especially important for metabolizing flea and tick chemical residues.

While all veterinary prescribed pesticides must be FDA-approved, many now come with warning labels highlighting the risks, including Bravecto®, Nexgard®, Simparica®, Simparica Trio®, Credelio® and Revolution Plus®. These products are all Isoxazoline compounds and have been linked to muscle tremors, ataxia, seizures and death from adverse reactions. These chemicals work by inhibiting GABA- and glutamate-gated chloride channels, leading to hyper-excitation and death of the flea or tick. In one study, 66% of owners reported adverse reactions to using these products on pets.[2]

Frontline®, Barricade®, Easyspot®, Sentry Fiproguard®, Parastar®, PetArmor®, Specta Sure® and Pronyl® are all made with fipronil, a phenylpyrazole insecticide that is widely used as a pesticide and a veterinary drug, although studies suggest that it could be toxic to mammals.[3]

The toxicity of fipronil for mammals has been assessed through acute, subacute, and chronic toxicity tests in mice, rats, rabbits, and dogs, which suggests it is considered to be an agro-chemical.[4] Neurotoxicity, hepatotoxicity (affecting liver function), reproductive toxicity, and disruption of endocrine function have been reported in mice and rats after oral administration of fipronil.[5-7]

Fipronil has been reported to also affect emotional and cognitive behaviors in animal models,[8,9] with new research demonstrating fipronil can negatively affect levels of neurotransmitters, including serotonin and dopamine.[10]

Fipronil binds to mammalian GABA receptors, which are the major class of neurochemical receptors in the brains of mammals,[11] and causes oxidative stress by producing reactive oxygen species.[12,13] Fipronil metabolites (fipronil sulfone is what is left in your pet's body after the liver metabolizes this chemical) have a strong inhibitory effect on brain neurotransmitter receptor sites[14, 15] and causes cell damage at lower concentrations.[16]

Additionally, flea and tick chemicals can negatively impact your pet's gut by altering the composition of bacteria, bacterial biodiversity, and bacterial ratios and modify the microbiome.

# WAYS TO CLEAR CHEMICALS

If you use chemical flea and tick products, we recommend supporting your animal's innate detoxification mechanisms to not only reduce potential adverse reactions now but reduce possible long term immunologic consequences of recurrent pesticides application down the road.

One way to do this is with glutathione. Glutathione is known as the body's master antioxidant. It's critical for protecting cells from oxidative stress and the damage caused from toxins and chemicals,[17] including flea and tick pesticides.

The effect of glutathione on the liver is magnificent because it supports both phases of liver detoxification: the processing and the elimination of pesticide residues.

Your animal's body can synthesize glutathione on its own, from the amino acids glycine, glutamate and cysteine. For adequate glutathione production and balance, riboflavin (vitamin B2), vitamin C, vitamin E and selenium are also required from your pet's diet. Research shows glutathione production is reduced as animals age, if they are sick, debilitated or on poor diets. This is another reason feeding fresher, minimally processed, more nutrient-dense real pet food helps support the body's detoxification mechanisms. Nutrition becomes a key factor in providing glutathione and supporting liver function in an ongoing way, throughout your animal's life.

Ultra-processed pet food (kibble) leaves a lot to be desired when it comes to providing unrefined nutrients our pets need to make all the detoxification substances their bodies require to clear the massive amount of environmental toxins in their world. We cover this topic extensively in The Forever Dog book, and what superfoods to add to the bowl to promote ongoing detoxification. For right now, here are some easy flea and tick chemical detox hacks.

# 5 HACKS TO DETOX FLEA & TICK CHEMICALS

## Glutathione

Glutathione also comes as a supplement, which may be particularly beneficial for pets with genetic variants that inhibit their own production or who have a greater need for glutathione to support detoxification due to age or health status (like pets with sluggish liver function).

**Liposomal glutathione dose:**
*Once daily on food for a week after chemical application (or during Detox Week):*

- 500mg XL dog
- 250mg 50 lb dog
- 100mg 25 lb dog
- 25mg small dogs and cats

## Curcumin

Studies suggest that curcumin, the active ingredient found in turmeric root, is effective in promoting and encouraging optimal detox chemical pathway activity and prevents against neurodegenerative damage after pesticide exposure.[18] Curcumin also protects against liver toxicity caused by pesticides in animal models.[19]

**Curcumin dose:**
*Once daily on food for a week after chemical application (or during Detox Week):*

- 500mg XL dog
- 250mg 50 lb dog
- 100mg 25 lb dog
- 25mg small dogs and cats

## Broccoli Sprouts

Broccoli Sprouts contain a potent detoxification molecule called sulforaphane, shown to help process toxic elements before they cause harm.[20]

In an upcoming Forever Dog PDF, we'll show you how to sprout broccoli seeds at home for a cheap, easy and incredibly powerful detox food you can add right into your pet's bowl. For now, you can buy them at the grocery store or buy a supplement.

**Broccoli Sprout Supplement Dose (yielding 140mcg sulphoraphane):**
*Once daily on food for a week after chemical application*
*(or during Detox Week):*

- 400mg XL dog
- 200mg 50 lb dog
- 100mg 25 lb dog
- 50mg small dogs and cats

## Gamma Aminobutyric Acid (GABA)

GABA is a naturally occurring amino acid that works as a neurotransmitter in your pet's brain. GABA is a calming neuro-messenger because it blocks, or quiets certain brain signals and decreases activity in the nervous system (which helps explain why pesticides inhibit GABA potentiate seizures). If your animal is prone to seizures or has epilepsy, we recommend adding in this gem if your dog or cat has any environmental chemical exposure.

**GABA Supplement Dose:**
*Once daily on food for a week after chemical application*
*(or during Detox Week):*

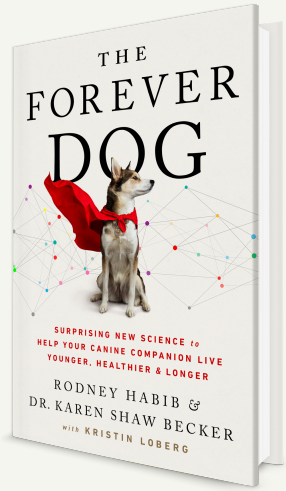
- 500mg XL dog
- 250mg 50 lb dog
- 100mg 25 lb dog
- 25mg small dogs and cats

## Milk Thistle

Milk thistle is the king of liver support. This herb protects the liver from chemical insults but also stimulates liver cells to repair themselves if damage occurs, as well as assists in the detoxification of environmental chemicals once in the body. Research shows milk thistle's medicinal benefits stem from its potent free radical scavenging, anti-oxidative, chelating and anti-inflammatory properties. [21]

**Milk Thistle Supplement Dose:**
*Once daily on food for a week after chemical application (or during Detox Week):*

- 500mg XL dog
- 250mg 50 lb dog
- 100mg 25 lb dog
- 50mg small dogs and cats

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