

## THE JOURNEY OF MITEXSTREAM: A BIOPESTICIDE

### Background

Because MiteXstream kills living creatures, as well as mold and mildew, it must be approved the EPA as a pesticide or, in the case of plant-based MiteXstream, as a biopesticide. Testing of MiteXstream began in Summer 2019 and the EPA filing for certification was made in January 2020. **Expected Certification: December 2020.**

### Testing

Prior to filing for biopesticide certification by the EPA, we were required to complete two standard tests: Acute Toxicity Test and Storage Stability Test. These tests were performed by an independent third-party laboratory, STILLMEADOW, Inc., Sugar Land, Texas, and, together, lasted approximately 3 months.

Acute Toxicity Test: This test is, in actuality, a suite of six tests: Acute Oral Toxicity, Acute Dermal Toxicity, Acute Inhalation Toxicity, Acute Eye Irritation, Acute Dermal Irritation, Guinea Pig Skin Sensitization. The name of each of these sub-tests identifies its specific testing focus. In each test case, MiteXstream passed without issue. In fact, though not recommended, small amounts of EnviroXstream concentrate can be ingested without negative effects.

Accelerated Storage Stability with Corrosion Characteristics Test: Because it was determined that MiteXstream was qualified to undergo an abbreviated testing regimen, this test lasted for 14 days. The test was conducted with MiteXstream in its intended commercial packaging; was conducted in compliance with Good Laboratory Practice standards; and was conducted at 54 C +/- for 14 days.

In addition, the testing determined the deterioration or degradation of the MiteXstream, specifically an analysis was made of physical changes, such as separation or clumping, and any other changes that would interfere with the usefulness or safe handling; and the testing determined the deterioration or degradation of the packaging/container.

**Results: None.**

### From the Label

MITEXSTREAM is a **minimum risk biochemical miticide** that controls mites, Eotetranychus spp., Tetranychus spp. and Panonychus spp., including spider mite, two-spotted mites, pacific mite, willamette mite, citrus rust mite, broad mite and the European red mite; molds and mildew. This product is ideal for mite control in integrated pest management (IPM). Use MITEXSTREAM alone or in rotation with other miticides.

Apply MITEXSTREAM when mites first appear on crop or when conditions favor mite outbreaks. Crops on which MiteXstream may be applied: *Industrial Hemp* (as defined in the 2018 Farm Bill as hemp, cannabis sativa L., that contains no more than 0.3% tetrahydrocannabinol [THC]); *Hops*; *Coffee*; *Strawberry*; *Soy Beans*; *Curcubits*: balsam apple, balsam pear, bitter melon, butternut squash, calabaza, cantaloupe, casaba, chayote, chinese cucumber, chinese waxgourd, citron melon, crenshaw melon, crookneck squash, cucumber, gherkin, edible gourd, golden pershaw melon, honeydew melon, honey balls, hubbard sqhash, mango melon, Persian melon, pineapple melon, pumpkin, Santa Claus melon, scallop squash, straightneck squash, snake melon, vegetable marrow, watermelon, zucchini; *Stone Fruit*: apricot, cherry (sweet or tart), nectarine, peach, plum, plumcot, prune (fresh); *Pome Fruit*: apple, crabapple, loquat, mayhaw, pear, quince; *Ornamental Plants and Nursery Stock*: bareroot, container, bedding and flowering stock, field grown cut flowers, vegetable transplants, nursery and landscape plants.

### The Genesis: Spider Mites

Our President, Fabian G. Deneault, has, since 2017, been a licensed dispenser of medical marijuana (MMJ) in the State of Montana and, as such, is permitted to grow marijuana plants for use in his MMJ dispensary business. As a licensed medical marijuana grower, Mr. Deneault encountered infestations of spider mites on his plants. To combat the spider mites, Mr. Deneault developed the MiteXstream formulation (see "Product Effectiveness" below).

Mr. Deneault soon came to understand that the spider mite issue is an industry-wide issue. In fact, in addition to marijuana, spider mites are a significant pest in the production of hemp and hops, among other agricultural products.

### Product Effectiveness

In testing done by our company, we have determined that, when mixed with water at the prescribed dilution rate, MiteXstream is effective in eliminating spider mites and their eggs, with no risk of plant damage.

## Low-hanging Fruit

Based on independent lab testing, users of MiteXstream are able to treat their cannabis (marijuana) plants through the day of harvest and still satisfy state-level pesticide testing standards.

Independent Lab Testing. In January 2019, Stillwater Labs, an Olney, Montana-based medical marijuana testing facility, concluded its testing of a cannabis sample treated only with MiteXstream. In addition to testing for pesticides prohibited by the State of Montana, Stillwater Labs also tested for pesticides prohibited by the State of Oregon, the most stringent state-level marijuana testing standard. The results of this testing, presented as being measured in parts per billion (PPB), are set forth below.

### Montana Pesticide Testing Standard

Analyte	Montana Allowable Limit (PPB)	MiteXstream Treated Sample (PPB)	Analyte	Montana Allowable Limit (PPB)	MiteXstream Treated Sample (PPB)
Abamectin	500	0	Imidacloprid	400	0
Acequinocyl	2000	0	Myclobutanil	200	0
Bifenazate	200	0	Paclobutrazol	400	0
Bifenthrin	200	0	Pyrethrin I	1000	0
Chloromequat Chloride	1000	0	Spinosyn A	200	0
Cyfluthrin	1000	0	Spinosyn D	200	0
Daminozide	1000	0	Spiromefesin	200	0
Etoxazole	200	0	Spirotetramat	200	0
Fenoxycarb	200	0	Trifloxystrobin	200	0
Imazalil	200	0			

### Oregon Pesticide Testing Standard

Analyte	Oregon Allowable Limit (PPB)	MiteXstream Treated Sample (PPB)	Analyte	Oregon Allowable Limit (PPB)	MiteXstream Treated Sample (PPB)
Abamectin	500	0	Clofentezine	200	0
Acequinocyl	2000	0	Cypermethrin	1000	0
Bifenazate	200	0	Diazinon	200	0
Bifenthrin	200	0	Dichlorvos	100	0
Chloromequat Chloride	N/A	0	Dimethoate	200	0
Cyfluthrin	1000	0	Etofenprox	400	0
Daminozide	1000	0	Fenpyroximate	400	0
Etoxazole	200	0	Fipronil	400	0
Fenoxycarb	200	0	Flonicamid	1000	0
Imazalil	200	0	Fludioxonil	400	0
Imidacloprid	400	0	Hexythiazox	1000	0
Myclobutanil	200	0	Kresoxym-methyl	400	0
Paclobutrazol	400	0	Malathion	200	0
Pyrethrin I	1000	0	Metalaxyl	200	0
Spinosyn A	200	0	Methiocarb	200	0
Spinosyn D	200	0	Methomyl	400	0
Spiromefesin	200	0	Oxamyl	1000	0
Spirotetramat	200	0	Permethrins	200	1*
Trifloxystrobin	200	0	Phosmet	200	0
Accephate	400	0	Piperonyl Butoxide	2000	0
Acetamiprid	200	0	Prallethrin	200	0
Aldicarb	400	0	Propiconazole	400	0
Azoxystrobin	200	0	Pyridaben	200	0
Boscalid	400	0	Spiroxamine	400	0
Carbaryl	200	0	Tebuconazole	400	0
Carbofuran	200	0	Thiacloprid	200	0
Chloanthraniliprole	200	0	Thiamethoxam	200	0
Chlorpyrifos	200	0			

\* Noted in the report of Stillwater Labs as possible ambient environmental contamination.