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Control of MITES in the home

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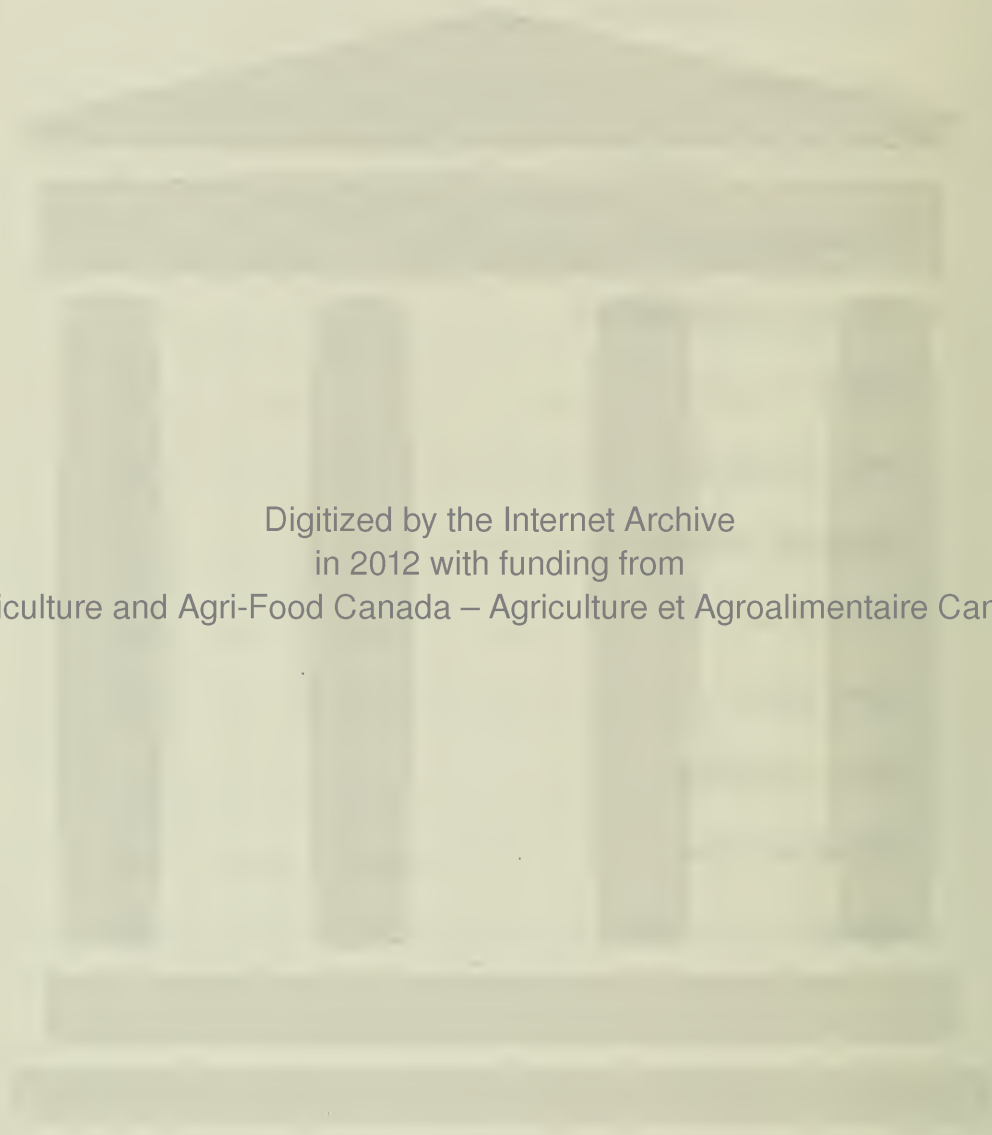
CONTENTS



Control of MITES in the home

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Mites in the home are annoying pests. They infest various foods, and stuffed furniture, mattresses, and pillows, especially if the stuffing is vegetable fiber. Some may carry certain diseases, and some may cause dermatitis and allergic reactions in man. The most abundant pests, the clover mite and bird mites, get in from outdoors through cracks and crevices around windows, doors, and foundations.

Most mites are so small that they can barely be seen by the naked eye. The nymphs and adults have four pairs of legs, but the very young, or larvae, have only three pairs. Many species lay eggs, but some give birth to living young. Under favorable conditions they multiply very rapidly, completing the life cycle in only two or three weeks.

HOW TO USE MITICIDES

Chemicals for controlling mites are available in various forms. Liquids are sold as space (or contact) sprays, residual sprays, and aerosols. Some powders are applied as dusts; others are mixed with water and applied as sprays. Most household insecticides are satisfactory miticides.

When you use contact (or space) sprays, the mites hit by the spray die quickly but the residues on treated surfaces give little control. Apply these materials directly on the mites as a fine, mistlike spray. Most small, household sprayers are satisfactory for this purpose.

Residual sprays and most powders act more slowly but they control mites for many days after application. Apply these sprays as coarse droplets to wet the surfaces thoroughly. Use a paint brush for small areas. Treat surfaces where the mites crawl, and cracks and crevices where they hide or enter the building.

For best results with a dust, use a hand dust gun to force the powder through cracks and crevices into possible hiding places. If you have no gun, apply the dust from a can with a perforated lid or from a cheesecloth

bag. Apply dusts lightly; heavy applications are unsightly, wasteful, and often ineffective.

Aerosols are useful mainly for knocking down flying insects, but mites die when they are sprayed directly.

For treating outdoor areas, use a garden pressure sprayer or a garden duster.

Cautions

As nearly all miticides are poisonous to man, follow closely all the cautions listed on the label, especially the following: Keep them out of reach of children. Handle them carefully and guard against contamination of food. If some miticide gets on your skin, wash it off at once with soap and warm water.

REPELLENTS

To protect yourself against biting mites, treat your clothing and exposed skin with an insect repellent. One containing diethyltoluamide, dimethyl phthalate, dibutyl phthalate, or benzyl benzoate is satisfactory.

FOOD-INFESTING MITES[1]

Certain mites infest food materials such as flour, cheese, sugar, cereals, dried fruits and meats, grain, jams, jellies, seeds, and drugs. They are also pests in stuffed furniture, mattresses, and pillows. They are very small, colorless, and covered with long, spinelike hairs. They breed rapidly, and large masses of them may have a characteristic odor. A brownish powder in the crevices of cheese indicates that mites are present. The powder is made up of live and dead mites, cast skins, excreta, and bits of cheese.

Occasionally these mites get on the skin, causing "grocer's itch"; certain other species, found in association with grain mites, also irritate the skin. To relieve the itching, bathe the affected parts in cool or tepid water and apply calamine lotion or menthol. If the mites are eaten with food, they may cause intestinal irritation and diarrhea.

Control

Find the source of the infestation and eliminate it. Burn infested food, or spread it in a pan and heat it to 130 or 140° F. in an oven for at

[1] Species of *Acarus* and *Tyrophagus*.

least half an hour. Control the temperature carefully when treating flour, dried fruits, and cheese. If mites are stuck to food, such as dried fruits, wash them off with a detergent, and rinse. To salvage lightly infested cereals, sift or screen them to separate the dead mites from the food.

Clean the infested area thoroughly, vacuuming any cracks. Remove the contents of cupboards, and spray shelves, drawer bottoms, cracks, and crevices with a standard *residual* household insecticide, such as 3 percent malathion (premium grade), 0.5 percent lindane, 5 percent DDT, or 2 percent chlordane. After they have dried, cover shelves and drawer bottoms with paper so that food does not come into contact with the spray residue. Mites may continue to appear for some time but the residue kills them for many days.

If you need to spray counter tops or other surfaces with which food may come in direct contact, use a household insecticide containing rotenone or a mixture of pyrethrins and piperonyl butoxide (Pyrenone) or other synergist in a deodorized kerosene base. Apply it with a brush or sprayer. You may have to use a fairly high concentration to control cheese mites.

By observing the following precautions, you can help to keep food materials free of mites:

- Keep storage areas as dry as possible.
- When storing susceptible food materials, keep them in mite-proof containers, such as glass jars with rubber seals.
- Clean shelves and storage bins regularly.
- Always clean containers before adding new lots of food.
- Do not mix a new supply of food with old material.
- Store cheese at 35 to 40° F. and keep the room as dry as possible. Mites become active and thrive at temperatures higher than 40° F.

CLOVER MITE[2]

The clover mite is often a household pest. It is brownish or reddish in color and one of the largest plant-infesting mites. It often swarms over outer walls of buildings, particularly those with a sunny exposure, and gets inside through cracks and crevices around windows, doors, and foundations.

It usually enters houses during spring and fall, but in southern areas it may appear indoors during the winter. Mites that get inside during the fall may overwinter as adults, since they are protected from the cold; in the southernmost areas of Ontario some adults may overwinter outdoors.

[2] *Bryobia praetiosa* Koch.

The mite injures a wide variety of cultivated field and garden plants, fruit trees, ornamentals, and weeds. It does not bite humans or do any damage indoors, but it may be very annoying and leaves a red stain when crushed.

Control

Indoors—Use one of the following residual miticides, preferably in an oil base:

malathion (premium grade)	3%	chlordane	2%
lindane	0.5%	Diazinon	0.5%
DDT	5%	dieldrin	0.5%

Apply it to window and door frames and sills, and along baseboards and the floor close to them. Pay particular attention to cracks and crevices. Apply it as a coarse, droplet spray, or with a paint brush, thoroughly wetting the surfaces.

If you use a powder, dust it on window sills and ledges, and on the floor along baseboards and across doorways. Use a hand puffer or dust gun to blow it into cracks and crevices where mites may enter the building.

If you use a contact miticide containing pyrethrins or rotenone, spray the mites themselves wherever you see them. Repeat the treatment as often as necessary to keep the areas free of mites. Use aerosols as directed on the labels.

Spray furniture lightly or wipe it off with a cloth saturated with refined kerosene. Brush a residual miticide on bedsteads. Wash or dry-clean bedding and clothing. Spray blankets and outer garments lightly with a contact miticide.

Use a vacuum cleaner often, where possible, and burn all material collected.

Outdoors—Keep areas around foundations free of weeds and trash, and do not let grass grow right up to the walls. Spray grass and other plants within 20 feet of the building, and spray the lower three feet of the foundation. Use one of the following miticides:

malathion	1% emulsion, or 40 lb. of 25% wettable powder in 100 gal. of water
Diazinon	1% emulsion, or 40 lb. of 25% wettable powder in 100 gal. of water
chlorobenzilate	0.05% emulsion, or 2 lb. of 25% wettable powder in 100 gal. of water
Kelthane	0.05% emulsion

kerosene	10% emulsion
summer oil	2% emulsion

Apply about 15 gallons of spray per 1,000 square feet of ground surface. Keep children and pets out of sprayed areas until the spray dries.

Dusts containing sulphur, pyrethrum, or rotenone are also effective.

Oil-base miticides recommended for indoor use may be sprayed on foundations but not on vegetation.

To help keep mites from getting in buildings, fill crevices around window and door frames, and cracks in foundations, with a caulking compound or other material. Pay particular attention to walls with a sunny exposure.

BIRD AND POULTRY MITES[3]

Mites sometimes get into the home from birds' nests on the outside of the building. During the summer, the nests may become heavily infested with mites, which periodically move onto the nestlings and adult birds to obtain a blood meal. When abundant, the mites may get into homes, usually soon after the young birds leave the nests.

Indoors, they swarm over furniture and may attack humans. They are very annoying and sometimes cause a skin rash similar to dermatitis (see "Bite Remedies," page 11). Mites may also get into the home from nearby poultry houses or infested bird cages. They may survive in a poultry house for four to five months after all birds are removed.

Control

Indoors—In general, the treatment for the clover mite (page 8) controls bird and poultry mites in the home.

In poultry houses, thoroughly clean out nests and litter, and spray cracks, crevices, and other likely hiding places, especially around roosts and nests. Use one of the following spray mixtures:

malathion	3%	lindane	1%
Diazinon	0.5%	chlordane	2%
ronnel	1%	DDT	5%

Other recommended materials are: equal parts of anthracene oil wood preservative and kerosene; a 4 percent solution of nicotine sulphate in water; a 10 percent solution of coal tar disinfectant in water; 3 percent miscible tree spray oil; kerosene; carbolineum; crude petroleum; crankcase oil mixed with an equal volume of kerosene or creosote; and whitewash containing

[3] *Dermanyssus gallinae* (De Geer), *Ornithonyssus sylviarum* (Canestrini & Fanzago), and others.

5 percent crude carbolic acid. Do not use carbolineum, creosote, or BHC where laying hens are housed, as these materials may taint the eggs. You do not have to treat the birds themselves except for the northern fowl mite; to control this species, dust the birds with 4 percent malathion or 2 to 5 percent lindane.

To treat infested bird cages, scald them thoroughly, or add 20 drops of iodine to a cup of hot water and paint the cage with it.

Outdoors—Remove any birds' nests from buildings and treat the area with one of the control materials recommended for indoor use.

FURNITURE MITE[4]

This white mite infests pantries, some types of furniture, and sometimes grain. It does not damage textiles, but may cause itch, and when abundant may be a very annoying pest. It feeds on dried vegetable and animal matter and thrives best in damp places. It is most abundant where the humidity is high. It usually infests furniture with vegetable fiber stuffing. A severe infestation may spread throughout the house.

Control

Remove the vegetable fiber stuffing from infested furniture and replace it with other materials. Or have the furniture vacuum-fumigated with hydrocyanic acid gas by a licensed pest control operator. Treat infested areas with one of the materials recommended for controlling food-infesting mites (page 6). Keep the humidity in the building reasonably low.

STRAW ITCH MITE[5]

The straw itch mite usually feeds on the larvae of certain stored-product insects. It therefore often occurs in stored grain in mills and warehouses, and in grain in transit. It may be found in dock areas on copra, baled cotton, and sacks of wheat or barley, and may infest damp straw or hay.

At one stage the mite is almost invisible, and it is this stage that attacks man. It often gets on the skin and inside the clothing of mill workers and dock hands, and it may severely bite people sleeping on straw or hay mattresses. In fact, the mite may attack any animal in the absence of the insects it normally feeds on.

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[4] *Glycyphagus domesticus* (De Geer).

[5] *Pyemotes ventricosus* (Newport).

It almost always crawls under the clothing before biting, seldom attacking exposed skin. Bites make the skin very itchy and cause a blotchy red rash. The temperature rises, and headache, nausea, and in some cases vomiting and mild diarrhea also occur. Scratched bites often become infected. Symptoms may also appear when the dead mites get on the skin and when mites and mite dust are inhaled, especially if the person is subject to allergies.

Bite Remedies

To relieve the itching, bathe in cool or tepid soapy water, and apply one of the following: menthol; calamine lotion; talcum powder; cooling ointments; ammonia; or a mixture of 2 parts salicylic acid, 2 parts alcohol, and 1 part olive oil.

Control

Burn the stuffing of infested mattresses and thoroughly spray both sides of the ticking with any approved household contact insecticide. Dusts containing sulphur, 10 percent DDT, 5 percent chlordane, or 1 percent lindane are also effective. Use dimethyl phthalate or other insect repellent to keep the mites from getting on your skin. Apply an ointment containing sulphur to destroy mites already on the body.

Destroy or fumigate small amounts of infested cereals, or heat them at about 140° F. for an hour. Spray infested areas in kitchens as recommended for the control of food-infesting mites (page 6).

CHIGGERS, REDBUGS, OR HARVEST MITES

In America, mites of the family Trombiculidae are called "chiggers"; in the British Isles they are called "harvest mites." The nymphs and adults are not well known as they do not attack man or livestock.

The larvae, or very young, however, attack wild and domestic animals and man. They are found in some parts of southern Ontario and Quebec, especially around summer cottages. They occur in late summer and autumn, usually in rough, grassy or weedy areas.

The mite punctures the skin, sucks blood, and may remain attached until fully fed. Bites irritate the skin, making it very itchy. Chiggers, unlike straw itch mites, usually bite the exposed skin but they, too, may crawl under clothing and through the mesh of socks and coarse cloth. Scratching the bites may cause serious skin infection.

Bite Remedies

Remove attached mites from the skin carefully and apply alcohol, tincture of iodine, household ammonia, camphor, chloroform, or carbolized vaseline to relieve irritation and prevent infection.

Control

Clean up infested areas by mowing weeds and grass, and by thinning out or cutting down trees to make the areas as sunny as possible.

Before you go into infested areas, treat your clothing with a repellent containing one of the following: diethyltoluamide, benzil, diphenyl carbonate, phenyl benzoate, dimethyl phthalate, dibutyl phthalate, or benzyl benzoate. Most insect repellents contain one or more of these materials. Clothing so treated protects you even after several washings. You may also apply these materials as powders to yourself and your clothing.

To get rid of chiggers in scrub areas, apply a spray or dust of benzyl benzoate or diphenyl carbonate at 5 pounds per acre. Emulsions of malathion, chlordane, BHC, toxaphene, and flavan are effective at 2 to 4 pounds of the active ingredient in 20 to 25 gallons of water per acre. If you apply these materials as dusts at slightly higher dosages, there is less danger of injuring plants. Use sulphur at 50 pounds per acre. Keep children and pets out of sprayed areas until the grass dries. Do not use chlordane, BHC, or toxaphene near ponds or streams containing fish.

TROPICAL RAT MITE[6]

This warm-climate mite is found only occasionally in Canada and has apparently not become established. Because it is very small, it is often not noticed, and fleas or other insects are blamed for its bites. In countries where it is common, it often attacks man after its main host, the brown rat, has been destroyed. Its bites cause itching, pain, and small red spots or watery blisters called "rat-mite dermatitis." It may attack any part of the body, and bacteria may infect scratched bites. The mite can transmit endemic typhus and rickettsialpox to man (see "Bite Remedies," above).

Control

Get rid of rats from all buildings, garbage dumps, and other hideouts in areas where this mite is found. Spray infested areas of dwellings as

[6] *Ornithonyssus bacoti* (Hirst).

directed for controlling the clover mite indoors (page 8). Pyrethrum and Lethane used separately or together in refined kerosene give good control. Wipe furniture with a cloth soaked in refined kerosene. Have persistent infestations fumigated by a pest control operator. Treat laboratory mice with a 10 percent ovex dust, and dip the cages in a strong disinfectant solution.

When searching for this mite, look in warm places, particularly those near radiators, heat pipes, and hot-air registers.

MOUSE MITE[7]

This mite, which apparently infests both rats and mice, is a carrier of the disease rickettsialpox. Like the tropical rat mite, when not on the host it crawls about in homes and other buildings, especially in warm places.

Control

Control recommendations are the same as for the tropical rat mite.

HUMAN ITCH MITE[8]

This mite is exclusively a body parasite, never a household pest, but the symptoms of attack may easily be confused with those caused by insects or other mites.

The female mite burrows beneath the outer layer of skin, making a tunnel where she feeds and lays her eggs. The male usually crawls about on the skin surface. The life cycle of the mite varies from 2 to 6 weeks. Outbreaks of scabies often occur in unclean and crowded places. The first symptom is itching, mainly at night. As the infestation progresses, the webs between the fingers may become affected, and also the wrists, the armpits, and the skin over the fleshy parts of the thighs. The mite does not affect the body above the neck, although another very rare species does attack the scalp and head. Victims may become pale and haggard from loss of sleep, and some develop an allergy to the irritating secretions of the mites.

Control

Because the treatment of the body must be thorough and all clothing and bedding used by the patient must be sterilized. it is advisable to have a physician supervise the control measures.

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[7] *Allodermanyssus sanguineus* (Hirst).

[8] *Sarcoptes scabiei* (Linnaeus).

Benzyl benzoate is a good remedy and may be used in various formulations. You may apply a 25 percent mixture in calamine lotion twice a day for five days. The United States Army uses an emulsible concentrate made up of the following ingredients, by weight:

benzyl benzoate	68%
DDT	6%
benzocaine	12%
Tween 80	14%

Dilute one part of this concentrate with five parts of water and apply it with a sponge or as a spray. Wash the body thoroughly with soap and hot water before application. Lindane is effective at a concentration of 0.05 percent in a water emulsion, olive oil, or vanishing cream.

In applying mite remedies, be sure to treat every bit of the skin from the neck down. A single spot missed may result in reinfestation later on.

It is also very important to thoroughly boil all clothing and bedding that may have come in contact with the patient before and during treatment. Heat woollens at 130 or 140° F. for at least half an hour, or dip them in a cleaning solution, such as mineral spirits.

EAR MANGE MITES[9]

Ear mange mites affect dogs, cats, rabbits, and foxes. They irritate the ear, and cause deafness and lack of coordination of movement. Like the human itch mite, they stay on the animal and are not really household pests. However, they are fairly common and often go undetected because they are not easily seen.

If animals show signs of ear irritation, examine their ears. The presence of dry scabs usually indicates that these mites are present.

Control

Carefully swab the inside of the animal's ears with a pad of cotton held with forceps and moistened with one of the following preparations. Be careful not to injure the eardrums.

phenol (carbolic acid)	1% in glycerin
lindane	0.25% in olive oil
DDT	5% emulsion
sulphur	in olive oil to make a creamy mixture

Then carefully remove the pus and loose material in the ear with a clean swab, and apply more solution. Treat the animal again in seven days to

[9] *Otodectes cynotis* (Hering), *Chorioptes bovis* (Hering), and others.

kill any mites that may have hatched from eggs present when you first treated the animal. To keep animals from being reinfested, thoroughly clean their pens and premises. Use a hot dip of coal tar and creosote.

INQUIRIES

For more information, consult your agricultural representative or provincial entomologist, or write to the nearest insect laboratory of the Canada Department of Agriculture or to the Scientific Information Section, Canada Department of Agriculture, Central Experimental Farm, Ottawa.

Some brand names are used in this publication because the chemical names are difficult for general use and there are no official common names for the active ingredients.

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