

The Chigger and Its Control In Missouri

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Fig. 1.—The common chigger, enlarged 124 times.

In Missouri, the common chigger* is the most troublesome pest of man during the summer months. One can scarcely venture outdoors during the chigger season without becoming infested. Tourists, particularly from the northern states, who come to the playgrounds in the Ozarks, may have some restless nights and uncomfortable days if precautions are not taken to escape its bite. While some persons may suffer only slightly from the chigger, no one is entirely free from its attack, and those with thin skin, who are especially susceptible to insect poisons, suffer most from the bites.

The common Missouri chigger was named and described in 1873, by Dr. C. V. Riley, then state entomologist in Missouri. He called it the "harvest mite", but it is now more widely known as the chigger. However, it is a mite and, therefore, an entirely different parasite from the chigoe, or true chigger, of the tropics, which is a flea that bores into the skin of man and animals. The chigger is the microscopic, newly-hatched young or larval stage

**Eutrombicula alfreddugesi* (Oud.), formerly *Trombicula irritans* (Riley)

of the common, bright red, spider-like mite often seen in the early spring crawling slowly about over the ground in gardens and fields. It is a close relative of the common red mites frequently seen attached to grasshoppers, flies, and other common insects.

Hosts and Breeding Places

The chigger is a very general feeder on rodents, birds, poultry, rabbits, livestock, and other mammals, as well as man. Some writers report that it may also attack snakes, toads, and the common box turtle. From late May until frost, in Missouri, these tiny, nearly invisible, chiggers abound in woods, briar patches, gardens, lawns, and meadows. For most favorable breeding they require ground which is shaded and moist and rich in humus.

Life Cycle and Habits

The adult of the common chigger spends the winter in an earthen cell, about an inch to an inch and a half below the surface of the soil. These small, red, adult mites may be seen traveling slowly about over the surface of the ground when one is spading the garden, and with the first warm days of spring eggs are deposited. The adults then soon die and the eggs hatch into the chiggers, which crawl about, and in due time, make contact with man or other hosts.

While the chigger is very small, it is swift on foot and may readily be seen scurrying about on white shoes and stockings. Chiggers reach a person's flesh by crawling onto his shoes, moving upward, and even penetrating the meshes of his clothing. After coming in contact with the flesh they may encounter such obstacles as a tight garter or a belt and rather than pass over or under it they frequently settle down and begin to feed. Most of the chiggers will attack around the ankles or under the knees, although some go higher up to attack about the crotch, under the belt, and occasionally in the armpits. If a person sits on infested ground, more of the chiggers are liable to attack the upper parts of the body. The chigger will usually run about on a person's legs for several hours before it settles down and begins to feed.

The active feeding stage or larva has three pairs of legs (Fig. 1). After becoming fully fed it drops from the host, goes into the ground, and enters a quiescent stage which some writers describe as the nymphal stage. Later in the fall, it changes from this resting nymphal stage to the adult, which has four pairs of legs, and spends the winter in the ground.

This mite attaches to man and other animals only in the larval stage. In the later nymphal and adult stages it feeds on fecal droppings of insects and other arthropods and dead organic matter. Apparently, however, the young chigger requires the blood or lymph of a living host.

Injury

It is the newly hatched or larval stage of the chigger mite which bites. Its piercing and sucking mouth organs are short and delicate, and they are able to penetrate only thin skin or where the skin folds. They attack in the same manner as ticks do, by merely inserting their mouth organs, and do not bore into the skin as some erroneously believe. They frequently attach at the base of a hair (Fig. 2). Once the mouth organs are inserted

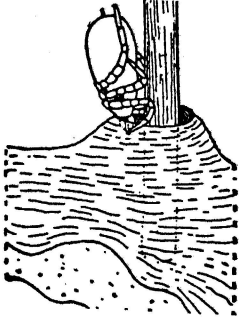


Fig. 2.—Chigger engorging or feeding at the base of a hair. (From USDA Dept. Bul. No. 896)

they inject a fluid similar to that introduced by mosquitoes, which causes a burning sensation that later develops into an intense itching. Soon after attaching, a small red bump or blotch forms, at the tip of which a small water blister develops in about a day. While the itching bump is easily seen, the tiny, red chigger at the tip of it is scarcely larger than the point of a pin and is not readily seen with the naked eye against the inflamed skin background. Frequently, individuals who are especially susceptible to irritation from insect bites may develop a rash and fever, requiring them to remain in bed for a few days and to have medical attention. People unfamiliar with chigger bites often mistake a severe attack for eczema, food rash, flea bites, and other skin eruptions. However, the small, hard, red bumps and the all but intolerable itching associated with each bump should distinguish a typical attack from other skin irritations. Aside from the discomfort of the bites, there is always the possibility that scratching will cause secondary infection, which may prove more serious than the bites themselves.

Control

When chiggers are extremely abundant it is impossible for anyone to completely avoid coming in contact with them, but a person may greatly reduce chigger annoyance by treating the breeding places, taking precautions to prevent being bitten, and promptly treating bites.

Treatment of Breeding Places.—The favorite breeding places of chiggers are among briars, weeds, and other thick vegetation where there is an abundance of moisture and shade. The mowing of weeds and briars, the close clipping of lawns, and the elimination of unnecessary shade in infested areas will help

reduce the number of chiggers. In some cases, sheep and goats may be used to closely graze infested areas. It has also been found helpful to spray or dust limited areas of infestation with sulfur, kerosene emulsion, and similar chemicals.

Infested lawns may be closely clipped, and where natural shade is abundant one pound of ordinary dusting sulfur to each 1,000 square feet, applied three times at 10-day intervals, may be effectively used. Some workers have also found that 1% emulsion of kerosene used in sufficient quantity to moisten the vegetation and soil will be helpful in killing the chiggers in gardens, lawns, and other breeding places. These treatments may be used also for infested areas such as public playgrounds and along paths in state parks and other recreational areas.

Precautionary Measures.—People who are especially susceptible to chigger bites should, so far as possible, avoid berry patches and other infested places. However, if before going into such areas a person puts on protective clothing, or treats his body and clothing with a chemical that will repel or kill any chiggers that attack him, or else changes his clothing immediately after exposure and applies suitable treatment, he may largely escape chigger bites.

Tightly-woven stockings, high shoes, or tall, laced boots, or the use of spiral puttees, tightly woven about the legs from the top of the shoes to the knees, will help to prevent the chiggers from reaching the skin. Treating the feet, ankles, and calves, or the shoes, stocking and trouser legs, with a few pinches of sulfur, pyrethrum, or derris powder will give protection against chiggers. Wetting the legs and wrists with a 10% solution of sodium thiosulphate or common "hypo" used in photography and allowing it to dry is also effective for some people. Spraying one's stockings and trousers with one of the regular commercial fly sprays and allowing it to dry before going into chigger-infested areas has also proven helpful.

In addition to the use of one or more of these suggested preventive measures, it is always well to change clothing and take a hot, soapy bath as soon as possible after exposure to chiggers. In fact, a prompt change of clothing and a bath within two or three hours after exposure is often the only precaution necessary. The infested clothing should not be worn again for a few days and should preferably be exposed to the hot sunshine.

Treating Chigger Bites.—To alleviate the irritation from chigger bites, any one of a number of household lotions may be used with more or less satisfactory results, although the effects of these specific treatments seem to depend upon the individual. Household ammonia, a 1% solution of lysol, rubbing alcohol, camphor, carbolic vaseline, chloroform, iodine, or nail polish applied to the red blotches will give some relief. All of these materials help to relieve the irritation, besides destroying the chigger if it has not previously been removed by scratching, and they will also help to prevent secondary infection.