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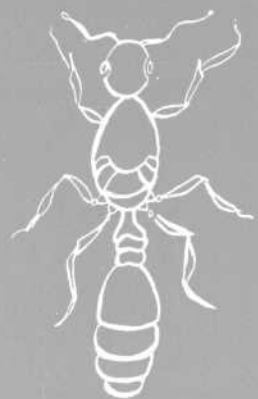
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Household PESTS

Circular 195



Agricultural Extension Service

University of Arizona
Tucson, Arizona

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University of Arizona
College of Agriculture, Agricultural Extension Service
Chas. U. Pickrell, Director

Cooperative extension work in agriculture and home economics, the University of Arizona College of Agriculture and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. 10M—Reprint Aug. 1952—Circular 195

Household PESTS

By J. N. Roney
Extension Entomologist

The chief household insects in Arizona with which the homemaker may have to contend are flies, cockroaches, bedbugs, silverfish, ants, clothes moths, crickets, fleas, and insects of cereal foods. Also, scorpions and spiders, which are not true insects, may have to be

controlled. Other common household pests are rats and mice.

All these pests are somewhat difficult to control, and the correct methods are important. This circular is written as an aid in pest control in the household.

FLIES

Several different kinds of flies annoy or pester the homemaker. Some of these flies bite. Others spot the walls, or just are a nuisance.

The homemaker usually calls all of these flies "houseflies." Actually, there are the housefly, the stable fly, the horn fly, the blue or green bottle fly, as well as several other kinds.

The housefly is a pest in many ways and usually the "number one"



6X NORMAL SIZE

fly in the home. The common housefly, *Musca domestica*, is annoying, spreads many diseases, spots walls, and is a general household nuisance.

Houseflies are no respecters of filth or cleanliness. They may be in an outdoor toilet one minute and in a clean kitchen the next. They are known to spread typhoid, tuberculosis, dysentery and other diseases. Many health authorities suspect them as being connected with the transmission of infantile paralysis (poliomyelitis.)

Breeding Places

The housefly never stings or bites. It breeds in manure piles, wet garbage, open garbage cans, and other places where decaying materials are present.

There are four stages in the life span of a housefly: (1) egg, (2) maggot or larva, (3) pupa or resting, and (4) adult.

The adult female fly usually lays small white elliptical-shaped eggs in masses of about 100. Each female is capable of laying 400 or 500 eggs during her life. The eggs will hatch in from 10 to 24 hours.

Maggots Hatch From Eggs

Small whitish maggots hatch from these eggs. They usually complete their growth in 3 to 8 days, depending upon the temperature and moisture. When the maggots are about ready to pupate, they are about $\frac{1}{2}$ inch in length.

After the maggot pupates, it may remain in this stage for about 6 to 8 days in warm weather. It may remain as a pupa all winter.

From this pupa, the adult housefly emerges. The adult fly then may be a pest for several weeks.

Control

To control houseflies or other flies in or around the home, many things are necessary. Be sure to screen all homes well to prevent the entrance of flies. Also, destroy all of the breeding places.

Kill Them Indoors!

Once flies gain entrance into the home, you may kill them with DDT-pyrethrum-oil sprays, DDT emulsion sprays or DDT-pyrethrum bombs, lindane emulsion sprays, pyrethrum - thiocyanate sprays, fly paper, and last but not least the fly swatter.

The emulsion sprays are ordinarily used for residues and sometimes are painted or sprayed on the screen doors or objects where flies frequently light. DDT and lindane are residual types of insecticides that kill the flies when they crawl over the object sprayed with the poison.

Destroy Breeding Places

Out of doors, flies may be controlled by using several insecticides coupled with destruction of breeding places. (See "Breeding Places," at left above.)

The scattering of $\frac{1}{2}$ pound calcium cyanamid and $\frac{1}{2}$ pound superphosphate over each bushel of manure has been recommended in some areas. This will prevent the flies from hatching. After scattering the commercial fertilizer over the manure, wet it sufficiently to soak into the pile.

Insecticides for Barnyards

You may use several insecticides in the barn lot, in the barn, other

outhouses, and around the patio or yard.

In the dairy barn, use either lindane (wetttable powder or emulsion) or pyrethrum sprays.

On dairy cows use either methoxychlor or pyrethrum.

Lindane is used at a rate of 8 pounds of wetttable powder or 1½ gallons of emulsion per 100 gallons of water. Use pyrethrum according to directions. Use methoxychlor (wetttable powder) at a rate of 6 to 8 pounds per 100 gallons of water.

Lindane also is very good to use around the patio.

In the barn lot and around other outhouses, use 12-percent gamma benzene hexichloride wetttable powder, 17 pounds per 100 gallons of water. Do not spray this mixture on any animals.

Any of the above mixtures may be painted on with a paint brush. Remember, when using a wetttable powder, the mixture must be agitated at all times.

Control flies by cleaning up their breeding places first. Then use insecticides correctly.

COCKROACHES

The cockroach is one of the most annoying of household insects. It causes more worry to the housewife than almost any other pest.

There are several species of cockroaches in the state of Arizona. They vary in both size and color. Some of the roaches are very small, while others may be quite large. (See illustration at right.)

They will vary from almost white to a very dark brown or black in color. In some instances, they may have bands of different colors on the abdomen.

Roaches hide in the daytime and come out and feed mostly at night. The life cycle of the roach varies considerably. Some of the species may take 12 months to complete their life cycle, while others may take only half that long.



NORMAL SIZE

The adult roach lays its eggs in a leathery capsule, which the mother carries for some days partly extruded from her body. She often glues the capsules finally to some object. But sometimes she merely drops them here and there. The capsules contain from 16 to 50 eggs,

depending upon the species involved.

Control

To control cockroaches, use "persistence" as a watchword. Roaches are very smart about the food that they eat and will shy away from many poisoned foods that are placed out to attract them.

Several insecticides may be used to control the roaches. For many years the poison known as sodium floride (in the dust form) was used. However, DDT and chlordane are now used as a dust or a spray.

You may use a 5-percent chlordane or 10-percent DDT powder dust by blowing into crevices or placing under shelf paper or paper in the drawers. The roaches are investigative insects. Many will be

poisoned as they crawl beneath the shelf and drawer papers and come in contact with the insecticide.

A 2-percent chlordane spray may be used with the powder, or alone. **Be certain to spray well under the kitchen sink and other places where the roaches may have deposited the egg capsules.** If the spray is applied to open spaces and gets on dishes or eating utensils, it is wise to wash them before using.

These insecticides are poisonous, so use them with care. Remember that all oil-bearing insecticides are inflammable.

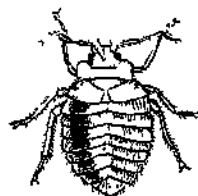
Pyrethrum sprays and dusts are still used in many homes. This insecticide is nonpoisonous to humans and does not leave any residue. It kills only those roaches it hits when it is applied.

BEDBUGS

The bedbug is a pest in most parts of the world where man has chosen to dwell. Bedbugs do not occur in the lower elevations of Arizona as they cannot stand extreme heat.

The bedbug belongs to the same order of insects as the stink bug, squash bug, and similar sucking type of insects. They have the power of producing a "buggy" odor.

Bedbugs may be spread by clothing, trunks or handbags from one place to another. They deposit their eggs in cracks and crevices of the building or furniture in groups of 40 to 50.



6X NORMAL SIZE

These hatch in from 7 to 10 days and many mature in 5 to 6 weeks. There may be three to four generations in a well-heated house.

Control

Bedbugs can be controlled by several different methods. Thorough cleaning of infested beds and

washing off with boiling hot water will kill them if the furniture will allow such treatment.

Many fly sprays sprayed on beds will control bedbugs after several applications. If an entire room is infested, secure a fumigant and

fumigate the house thoroughly. DDT sprays and dusts are very effective in the control of bedbugs.

Be sure to follow directions. See your County Agricultural or Home Demonstration Agent about detailed requirements

SILVERFISH

The silverfish is very common in Arizona homes, especially those with air conditioning.

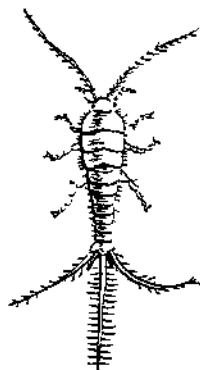
The silverfish is not a moth, nor is it closely related to the moth. It is known also as a "fish-moth," "silver witch," "sugar fish," and "bristle tail."

The silverfish prefers warm moist places, like the bathroom. It is a lover of starched clothing, laces, curtains, wall paper, books and many other household articles. The adult female silverfish lays her eggs in secluded places where the temperature and humidity are just right.

The eggs hatch in 6 to 10 days in summer, but may rest 2 months before hatching in cooler weather. The young or nymph are identical to adult except smaller. The adult may live long periods without food.

Control

For control, both 10-percent DDT dust, and 2-percent chlordane spray are effective.



4X NORMAL SIZE

A bait composed of the following gives good results: Oatmeal, $1\frac{3}{4}$ cupfuls; white arsenic, $\frac{1}{4}$ teaspoonful; granulated sugar, $\frac{1}{2}$ teaspoonful; and salt, $\frac{1}{4}$ teaspoonful. Sodium fluoride may be substituted for white arsenic. This amount of bait will treat several houses.

Mix the oatmeal, white arsenic, sugar and salt (dry). Then moisten the mass and mix thoroughly to blend. Thoroughly dry the bait to prevent mold, then grind into small bits and scatter about. Place about a teaspoonful of the bait in each of several small boxes and place near haunts of silverfish.

Great care should be used in keeping poison baits away from children and domestic animals.

CLOTHES MOTHS

Clothes moths are all introduced species that came over with our forefathers from European countries. These insects have been known by the human race for thousands of years, for they are referred to several times in the Bible. In Isaiah 50:9 is the following:

**“Lo, they all shall wax old
as a garment, the moth shall
eat them up.”**

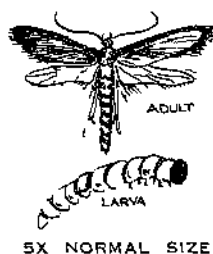
In the United States, two species are very common in clothes. They are the webbing clothes moth and the casemaking clothes moth.

The moths themselves do not injure the clothes or other fabrics. The source of the injury to fabrics is the small worm-like larvae which hatch from eggs that have been deposited by the moth.

With the air-conditioning and central heating systems of many Arizona homes, these insects may be present throughout every month of the year.

Control

There are no easy or quick methods of keeping out clothes moths. Watchfulness is the most important thing.



Sunlight and air are two of the best controls. Before storing clothing materials for the summer, hang them out in the air and sunlight.

All materials should be clean and stored in containers with a supply of paradichlorobenzene crystals. The materials to be stored should be put in containers or closets that are as tight as possible.

Insecticides for controlling moths are (1) paradichlorobenzene, or (2) a mixture of ethylene-dichloride 3 parts, and carbon tetrachloride 1 part.

For a trunk of 5 cubic feet, use 4 tablespoonfuls of the mixture in a shallow dish in the top of the trunk as the gas is heavier than air. Use about two double handfuls of paradichlorobenzene crystals for the average trunk. Best results are secured by distributing the crystals throughout the trunk.

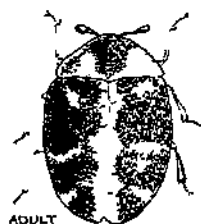
Never use gasoline or solvent materials unless the greatest care is taken.

CARPET BEETLES

Several species of carpet beetles are active in Arizona. All are small insects and rather hard to locate by the housewife. The young (larvae or grubs) of these beetles are the ones that cause the injury.

The beetles commonly breed in the cracks of floors and parts of lower walls. They feed mainly on woolen lint and hairs which collect in cracks and such places.

The most common beetle is the Buffalo Carpet beetle or bug. The beetles feed in over-stuffed furniture, carpets, draperies and the like. Air-conditioning and central



12X NORMAL SIZE

heating systems make conditions ideal for their reproduction

Control

Control measures are the same as for clothes moths. Paradichlorobenzene used frequently under rugs and in furniture will help control these insects.

LICE

Although there are other lice attacking man, head lice are the most important.

Control

Good controls are secured by dusting 10-percent DDT dust in hats, caps or other head coverings. One teaspoonful of 10-percent DDT dust may be rubbed into the head of the infested person.

ANTS

Ants are very numerous in all parts of the world. They are known as social insects since they live in colonies or communities, where every individual works for the good



2 1/2X NORMAL SIZE

of the entire colony and not for itself alone. There are several dif-

ferent species varying in color and size in Arizona.

Control

Ants are very suspicious of foods and traps. Before placing out any poison, be certain that the ants are feeding on the bait material used. Find out if the ants you want to control are feeding on grease, or on sugar-bearing materials. Then use bait accordingly.

Tartar emetic works well with either sweet or grease feeding ants. Mix 1 part tartar emetic to 20 parts of honey. Or roll a piece of fat

bacon in the powder. There also are many ant poisons sold commercially that give excellent results.

Keep the kitchen clean of crumbs and other foods that attract ants.

A 5-percent chlordane dust or 2-percent spray is very effective for house ants.

For large red ants in the yard use 5-percent chlordane dust. Do not put the dust in the opening of the ant hill. Make a ring of the dust around the ant hole about 6 inches from the opening. Best results are secured following an irrigation.

FLEAS

Many different kinds of fleas may be jumping around in yards, homes and outhouses, especially if cats or dogs are not kept free of them. Fleas are small, dark-colored insects with legs shaped for jumping rather quickly.

Control

When fleas get into the home they can be controlled easily with a 5-percent DDT-oil spray or a 2-percent chlordane-oil spray.

When fleas are found in the yard or outhouses, dust with a dusting sulfur or a 5 or 10-percent DDT



7X NORMAL SIZE

dust. If you are equipped for spraying cattle, you may spray the infested areas with a wettable DDT spray.

When fleas are on a dog or cat, use any animal flea powder. **Do not use DDT or chlordane on cats.** Usually the flea powders that will not harm domestic animals are best to use.

CRICKETS

Crickets quite often invade homes and feed on clothing and household fabrics. In some parts of Arizona great hoards attempt to infest homes.

Control

When crickets are a menace indoors, 5-percent chlordane dust or 2-percent chlordane spray is effective.



NORMAL SIZE

Poisoned baits work very well when large numbers of crickets are present. For further information on control by baits consult your County Agricultural Agent.

WASPS

Several kinds of wasps are a nuisance around the home. Most common is one of the yellow jackets. These wasps frequently build very large nests in trees, shrubs and even in the ground. Wasps of this kind are called paper wasps, social wasps, yellow jackets and hornets.

Many people are very susceptible to the sting of wasps and in some cases are made deathly sick. Treat a wasp sting with household ammonia or bluing water.



1½X NORMAL SIZE

Control

Wasps can be controlled by burning out their nests with fire on a long pole. Or you may use insecticides.

Quite often 10-percent DDT dust or a DDT emulsion spray is used. Chlordane and lindane are also very effective. It is wise to apply the dusts and sprays at night unless you have power equipment.

MOSQUITOES

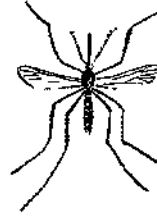
Several kinds of mosquitoes are found in Arizona. The greater number of them are pests only to man. Mosquitoes are principally pests because they bite man and otherwise annoy him. Dr. F. C. Bishop, assistant chief, Bureau of Entomology and Plant Quarantine, calls our mosquitoes "domestic mosquitoes."

In Arizona, the house mosquito is the most common. Other mosquitoes breed in salt marshes and bogs and cause considerable worry in some parts of the state. Some mosquitoes transmit diseases such as yellow fever and malaria. However, none of these is in Arizona.

All mosquitoes breed in water. Some lay their eggs on the ground, but the eggs do not hatch until they have been covered with water. The larva must have water if it wishes to live and develop into a mosquito.

Many mosquitoes breed in tin cans and small depressions that contain water. The adults rest nearby in weeds, tall grass, vines and shrubbery.

House mosquitoes usually deposit their eggs on the surface of water in stagnant pools, tin cans, evaporative coolers and other places where water stands for any length of time. Some mosquitoes deposit their eggs on the side of a container, while others lay their eggs on the ground around salt marshes. These eggs do not hatch until they become wet. It usually takes about 2 days for the eggs to hatch after they become wet.



3X NORMAL SIZE

The eggs when hatched produce very light-colored wigglers that are active in the container or place where they are breeding. The wigglers move rather sporadically from bottom to top of the container. They usually are full grown in 6 to 8 days, at which time they pupate and are inactive for 2 days. From this pupa emerges the adult mosquito.

Domestic mosquitoes feed on the blood of warm-blooded animals. The female bites, while the male feeds on the nectar of flowers. The domestic mosquitoes like to hide in dark shrubbery and feed only at night. Yet inside of homes they will feed in the daytime.

Salt marsh mosquitoes also feed in the daytime. House mosquitoes do not travel far, but some salt marsh mosquitoes will be blown considerable distance.

Many house mosquitoes winter-over in the house, but only the fertilized females survive.

Control

It is necessary to control both the adult mosquitoes and also the larvae. Find where mosquitoes are breeding. If it is possible to destroy the breeding places, do so at once.

Never throw out tin cans or other objects that will hold water. Do not let water stand indefinitely in bird baths or watering troughs. Keep water in the base of an evaporative cooler moving. If water cannot be eliminated, cover with an oil-DDT spray.

For adult mosquitoes inside of the house, use ordinary DDT-pyreth-

rum-oil sprays or DDT-pyrethrum bombs. Mosquitoes can be controlled out-of-doors by DDT sprays for a short while, but elimination of breeding places is essential.

A repellent also can be used. The best contains dimethylphthalate, indolone, and Repellent 6-12 or a mixture of all. You may spray your clothes with this as well as apply it to exposed parts of the body.

SPIDERS

There are many spiders around the home, most of them perfectly harmless. However, one known to most people as the black-widow spider is poisonous to humans.

The female, which carries the picture of a red hourglass on the under side of its abdomen, is very poisonous. The male is harmless. The body color is shiny black.



5X NORMAL SIZE

Control

Use DDT household sprays inside of the home to control spiders. A 10-percent DDT or 5-percent chlordane in outhouses will control.

SCORPIONS

Scorpions (Spanish *Alacran*) are very common in the warm southwestern regions, though unknown in the north. There are many species. The "sting" of two species is supposed to be deadly poisonous to small children, or adults in poor health.

Scorpions do not bite, having no mouth parts capable of inflicting injury on the human body. They



2X NORMAL SIZE

cannot do injury by means of their "pincers."

The scorpion stings by throwing the slender part of the abdomen

(so-called tail) up and forward over the back and striking forcibly with it. The curved spine or "sting" is driven with sufficient force to make a wound and inject the poison that is developed in the bulbous base of the stinger, according to the late C. T. Vorhies of the University of Arizona.

Scorpions are usually found under rubbish, especially scrap lumber and like. They wander into homes and cause considerable worry and fear at times. If some member of the family is stung by a scorpion, it is wise to pack the stung portion in ice and visit a doctor at once.

Control

DDT oil solutions have been used for several years with rather good results. However, with new insecticides appearing on the market, better controls are being secured.

Many householders still get good results with a 5 or 10-percent DDT oil spray. Some pest-control operators are dusting on the outside with a 10-percent DDT, and in some

instances they have used the dust in attics.

A 2-percent chlordane spray is very effective in control of scorpions. Spray the door facings, window facings and cooling and heating ducts. Apply the spray heavy enough to leave a residue on the objects when the oil evaporates or sinks into the sprayed surfaces.

You may use a 5-percent chlordane dust around the home. Spread the dust around outside the house, especially near the base of the house. This prevents many scorpions from ever entering the home. You may put this dust in the attic, also.

Some combinations of insecticides may give better results and may be used. However, when these are not available, the chlordane will give good results if used correctly.

Do not expect one application to control scorpions. Spray about once a week for several weeks. This will overcome the loss of the insecticide from cleaning the house. Scorpions absorb the poison by crawling over the residue of the insecticide.

CEREAL INSECTS

There are at least half a hundred insects attacking stored grains and grain products. These range from small weevils of various shapes to flour and Indian meal moths.



SAWTOOTH BEETLE
5X NORMAL SIZE

Control

If only a few packages of the materials are infested, cereal insects may be controlled by placing materials and containers in the oven with a temperature of 125° to 140° F. for several minutes. All of the insects will be killed, and by sifting the materials in coarse wire, the insects will be sifted out.

If the insects become general in the kitchen, it may be necessary to have the house fumigated by a commercial fumigator.

It is best to watch closely for insects. Don't keep grain products too long.



GRAIN WEEVIL
8X NORMAL SIZE



CONFUSED FLOUR BEETLE
8X NORMAL SIZE

RATS AND MICE

Rats and mice are smart. If you intend to control them you will have to: (1) Poison them; (2) Trap; or (3) Fumigate. The first two methods are the simplest to use.

Control

In poisoning, be sure to pre-bait in order to know what the pests will feed on. When the bait is determined, mix poison in it, and you will get results.

No poison will kill rats or mice and keep them from dying in run-



ways, etc., where eventually they will cause an objectionable odor.

Always be careful with poison baits because of children, cats, dogs, and domestic animals.

Place traps where they will do the most good. Bait each trap with a material that the rodents are feeding on. To secure better catches, make the trigger larger by

the use of a piece of cardboard and place the trap near an exit hole or in runways.

Recent work shows warfarin (developed by Wisconsin Research Foundation) to be very effective for control of rats and mice. This material works slowly and must be used according to directions.

Fumigation may be done in burrows and outbuildings that are

tight. Use cyanide gas or car-exhaust fumigants. **Cyanide is very dangerous to use and should be applied with great care.** Car fumes, if handled correctly, will give good results.

The new material known as 1080 is very dangerous to use. In fact it can be used only by a licensed operator.

WARNING!

All insecticides are poisonous. Be sure to follow directions on the containers as well as the recommendations for use. If in doubt, ask your local County Agricultural Agent.