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FACT SHEET

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RODENT CONTROL ON POULTRY FARMS

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Costly losses from rats and mice often are ignored or unnoticed by poultry producers. Rodents consume and contaminate feed and may spread such diseases as infectious bronchitis, Newcastle, cholera, salmonella and coccidiosis. Rodents have been implicated in the spread and reinfestation of mites. They also damage insulation, curtains, equipment and electrical wiring, and may destroy chicks, poults and eggs. A systematic rodent control program is an effective management tool that will pay dividends by cutting these losses.

Two species of rats, the Norway and the Alex, or roof rat, as well as the common house mouse commonly infest poultry houses and neighboring premises. The Norway rat and the mouse are burrowers and establish dens in accumulated poultry droppings, dirt floors, beneath foundations, walks, stacks of lumber or equipment, and in high grass and weeded areas. The slightly smaller, more agile roof rat is a climber and inhabits ceilings, rafters and sidewalls of buildings. An uncontrolled rodent population may destroy insulation in ceilings and walls within a few weeks. Rats continually migrate from wooded areas, adjacent farm buildings and surrounding poultry farms. The two species of rats seldom are found together except in large buildings, because the Norway rat is more aggressive and usually drives the roof rat away. House mice may be found with either rat species. Field mice and wood rats seldom enter buildings except during unfavorable climatic conditions or food shortages.

Rodents mature sexually at less than 3 months of age. The gestation period for mice and rats are about 19 and 21 days, respectively. Both have 10-day estrous cycles and can conceive 48 hours after parturition. Under normal conditions a pair may produce 30 to 50 offspring per year which survive to maturity.

The occasional sighting of a rat or mouse in a poultry house may indicate a large rodent population. In cage layer houses, as many as 20 adult rats per 100 layers have been exterminated at the end of a laying cycle. More than 700 rats have been removed from commercial broiler houses where rodents were infrequently seen.

The average rat needs about 1 ounce of food and 1½ ounces of water every 24 hours. Rats weaken after 1 to 2 days without water or 3 to 4 days without food. A mouse is not so reliant on water, but eats an amount equal to about 10 percent of its body weight every 24 hours. If suitable food and shelter are present, rats and mice may range only 100 and 25 feet, respectively.

Control Measures

An effective rodent control program restricts shelter, food and water. Trapping and proper use of approved rodenticides can control rodent populations in floor and cage houses and on ranges. Minimize feed spillage. Remove all lumber and trash piled near poultry houses to eliminate sources of rodent infestation. Mow or use an approved herbicide to control vegetation adjacent to poultry house foundations. In commercial poultry operations, cats alone cannot control rats. Cats and rodents both may serve as reservoirs for poultry diseases such as cholera.

Control measures also include ratproofing buildings. Most Texas poultry buildings are difficult to ratproof. Openings as small as ½ inch will admit young rats, while ¼-inch openings will admit young mice. Present buildings can be modified and new construction planned to use ratproof materials at likely points of entry. Information on ratproofing new and existing buildings can be obtained from some lumber yards, feed dealers and your county Extension office.

Burrowing rodents can be controlled with calcium cyanide. A foot pump is normally used to place cyanide dust in burrows. Use fumigants carefully, following all instructions and label directions. Do not

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fumigate near buildings containing poultry. Fumigation equipment and calcium cyanide are available from agricultural chemical supply stores.

Spring traps placed in concealed areas and rodent runs along walls, rafters and on studdings assist in maintaining control of rodent populations once they are brought under control. Common trap baits include: meat, fish, peanut butter, cereal, bread, cake, fruit or cheese. Check baited traps frequently.

Unbaited traps placed in runs can be made more effective by attaching a square of cardboard or tin to the trigger on each trap. The trap should be placed at right angles to the run, with the enlarged trigger extending across the run, since rats are more apt to cross the narrow width than the length of the trap. Runs are easily identified by smears or rub marks left by rats.

Ultrasonic and electrical shock rodent control devices have been shown by Extension field studies to have no detrimental effect on rodent populations.

A baiting program using an approved rodenticide should be maintained on every poultry farm. All bait must be kept away from children and domestic animals.

Highly toxic poisons such as strychnine are extremely dangerous, but are sometimes used in bait to immediately control large rodent populations. Strychnine-treated baits will control mice but are not well accepted by rats.

Anticoagulant and zinc phosphide treated baits are recommended for regular use on poultry farms. When poultry feed is available, rodents may not accept some anticoagulants. Zinc phosphide is a one dose rodenticide and is usually well accepted when properly used, even in occupied caged layer houses. It is a dangerous chemical and should be used only by experienced or properly instructed personnel. Anticoagulant and zinc phosphide treated baits are often used in combination to eliminate rodents wary of one or another of the rodenticides.

Use such materials carefully and closely follow all precautions and directions for anticoagulant and zinc phosphide baits.

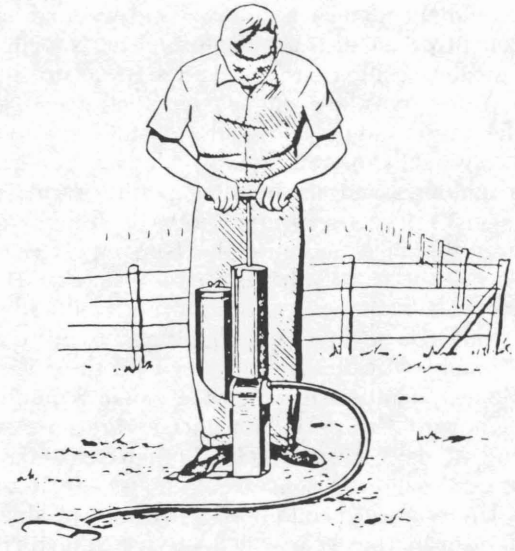
Anticoagulants

Active ingredients in anticoagulants may include Warfarin, Pival, Chlorophacinone, Funarin, Diphacin, Prolin or P.M.P. The chemicals inhibit coagulation of the blood causing death by internal hemorrhage. Anticoagulants are relatively safe for humans and present little danger to farm animals since the bait generally must be consumed for a 3-to-10 day period before a dose is lethal. A constant supply of bait must be made available until rodent activity ceases. Several hundred pounds may be required to treat a 30,000-bird house.

Anticoagulants can be obtained as a ready-mixed bait under various trade names, as a concentrate to mix with fresh cereal grain or in a water-soluble form. Rodents do not relate their deteriorating condition to the bait and do not become bait shy. Extension studies have shown rodents will not readily accept many commercial anticoagulant baits when poultry feed is available to them. Be certain the bait used is readily accepted by the rodent population. Water and dry bait anticoagulants should usually be used together to minimize the time required for a maximum kill.

For effective rodent control, treat all poultry houses with anticoagulant baits each time birds are removed. Identify the species (Norway rat, Alex rat or house mouse) involved, because each requires some variation in treatment. The following recommendations will provide maximum rodent kill:

- Remove all feed, including spillage, from the premises. Block auger entrance if bins contain feed. Rodents are accustomed to feed and may prefer it to the bait. Poultry feed contains vitamin K which acts as an antidote for the anticoagulant. Remove water as soon as the water-soluble anticoagulant is in place.
- For Norway rat control, provide anticoagulant cereal baits in small (½-pound) sacks or packages. This minimizes the amount of bait ruined through urination and defecation. Never place bait in large sacks, bait stations or open containers which rodents can readily enter. Place baits no more than 25 feet apart inside buildings, along walls, corners and by burrows. Initially distribute it in at least 20 to 30



Burrowing rodents around buildings and on ranges can be effectively controlled with fumigants. Extreme care should be exercised to minimize danger to the operator and livestock or poultry in the vicinity.

locations in each house. Cover bait placed outside buildings and by burrows under foundations, with heavy boxes having one or more small openings only large enough for a rat to enter. Pelleted bait can be scattered in runs and around burrows. Water-soluble anticoagulant bait placed in chick fountains and used with the dry bait will improve effectiveness. Six to ten chick jugs per house are needed for dispensing the bait.

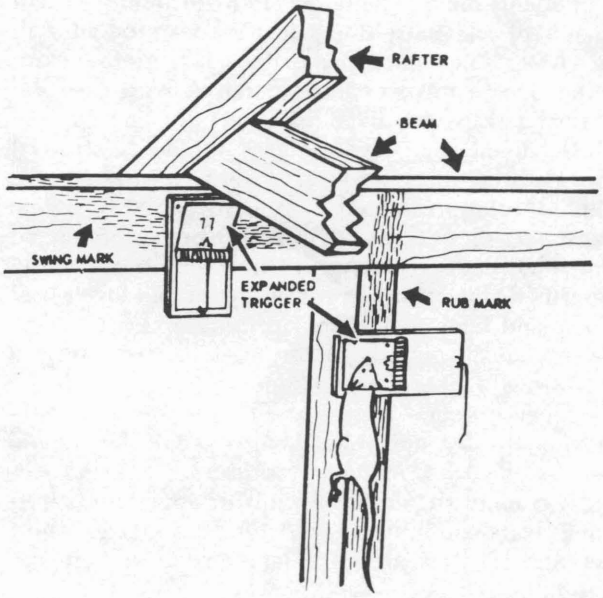
- For roof rat control, use the same methods of bait exposure, but place the water and dry baits on the wall plates or inside ceilings if necessary. Small platforms can also be constructed on rafters and walls to hold the bait.
- Mice can be controlled with anticoagulant baits if bait stations are no more than 10 to 15 feet apart. Small amounts of bait are needed. Water-soluble bait is not as important in mouse control as in rat control, since mice require very little water other than that derived from food.
- *Don't run out of bait*. During the treatment period, check bait daily and replace it as it is consumed. After the second or third night move untouched bait to major feeding areas.
- Disturb rodents as little as possible during treatment. Keep houses closed and dogs, cats and people out.

Continuous use of dry and water anticoagulant baits in protected areas will help control rodent populations in laying houses and other farm buildings. Check baited areas frequently and maintain a supply of fresh anticoagulant bait. Rodents like security and will prefer to feed at protected sites instead of at less protected feed troughs and waterers. Place baited feeding sites on poultry ranges near shelters and feeders.

The effectiveness of anticoagulants cannot always be measured by counting dead rodents. When baits are no longer being eaten, when there are no fresh droppings and when live rats or mice are no longer seen, results are as good as can be expected from any rodenticide.

Zinc Phosphide

Extension studies have shown most zinc phosphide baits, when properly used, are very effective in layer, breeder and broiler houses. Effective zinc phosphide pellets and grain baits are commercially available. An excellent bait can be made by mixing 94 percent technical zinc phosphide (1 percent, by weight) with fresh chicken feed which the rodents have been eating. Always mix zinc phosphide treated bait in the open with the material downwind to avoid inhaling it. A dust mask may be used for extra precaution. Avoid skin contact by wearing rubber gloves. An excessive amount of zinc phosphide in the feed can cause rodents to ignore the bait.



Snap traps placed in runs can effectively assist in controlling rodents.

Tumble the material in an enclosed container or stir to mix. For example, 10 pounds of 0.75 percent zinc phosphide treated bait can be mixed outside by placing 10 pounds of fresh chicken feed into a clean 5-gallon container and stirring 2 rounded tablespoonfuls of 94 percent technical zinc phosphide into the feed, sprinkling a small amount at a time. Mixing containers should be thoroughly cleaned, buried or stored behind a locked door. This bait, when properly distributed, works well even in houses with bait shy rodent populations. Zinc phosphide treated materials such as chipped sweet potatoes and fruit are usually poorly accepted in poultry houses and pens.

The feed and zinc bait is very effective in occupied cage layer houses when scattered ¼ to ½ inches deep in runs and in or around burrows. Apparently rodents relate the scattered feed to wasted feed from troughs and readily accept it. Bait shy rodent populations may not accept bait in small piles or bait stations.

Zinc phosphide baits such as the feed mixture also effectively eradicate rodents in empty breeder and broiler houses. Distribute small amounts of the bait in sections of feed troughs. The rodents normally eat from the troughs and will accept the bait more readily than if it is in another type of container. Begin treatment as soon as birds and feed are removed. Make water available during the 3-to-4 day treatment period to prevent the migration of rats to adjacent facilities. Also treat outside burrows. Remove and destroy all bait after 4 days or before new birds are housed.

Turkey ranges can be treated by placing bait in feeders immediately after birds and feed are removed.

Rodents die 6 to 24 hours after consuming a small amount of zinc phosphide bait. Few dead rodents will be visible since most make it back to dens before dying. Death involves heart paralysis with gastrointestinal and liver damage.

Occupied cage layer houses should be treated (two to three times per year or whenever rodents are sighted) using fresh feed thoroughly mixed with zinc phosphide (1 percent, by weight) or a commercial zinc phosphide bait. Apply the bait as previously described along visible runs on upper and lower wall plates and wherever rodent activity appears heavy. Twenty to 30 pounds of the feed bait will treat a 20,000-to-30,000 bird laying house.

Treat breeder houses each time birds are removed. Broiler and pullet houses should be treated between flocks if rodents are present.

Personnel should always mix or apply zinc phosphide baits carefully. If you store the bait for short periods seal it in airtight containers to prevent deterioration.

These anticoagulant cereal and water baits are properly placed for roof rats.

These anticoagulant cereal and water baits are properly placed for Norway rats and mice.

Conclusion

Important factors in preventing rats and mice from reinfesting poultry houses are:

- Follow rodenticide label directions explicitly.
- Make houses as rodent proof as possible.
- Control vegetation around houses.
- Minimize feed spillage.
- Eliminate or treat adjacent structures which may harbor rodent populations.
- Properly dispose of refuse and dead birds.
- Maintain and supervise an effective baiting program.

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