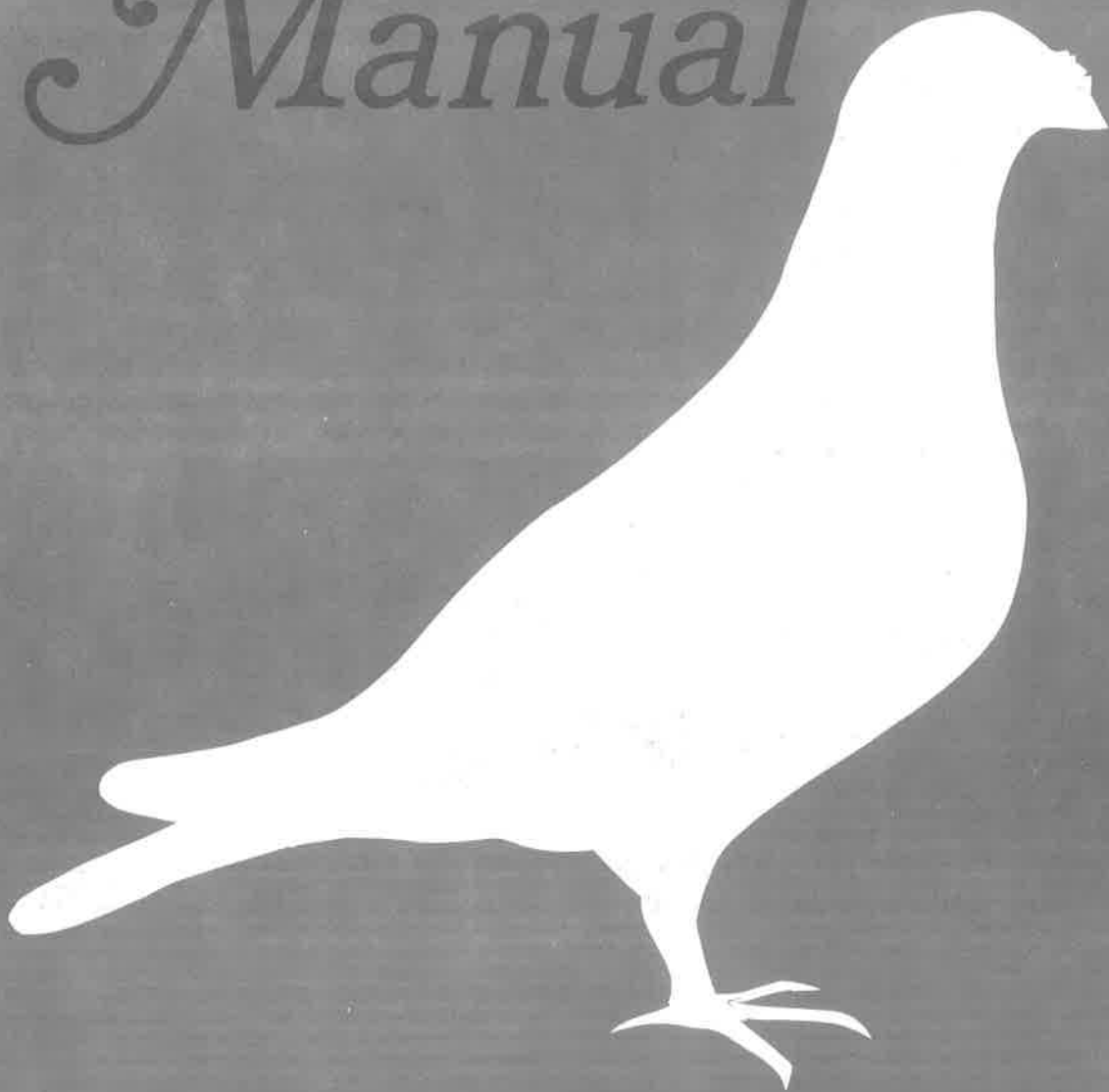


4-H Pigeon Manual

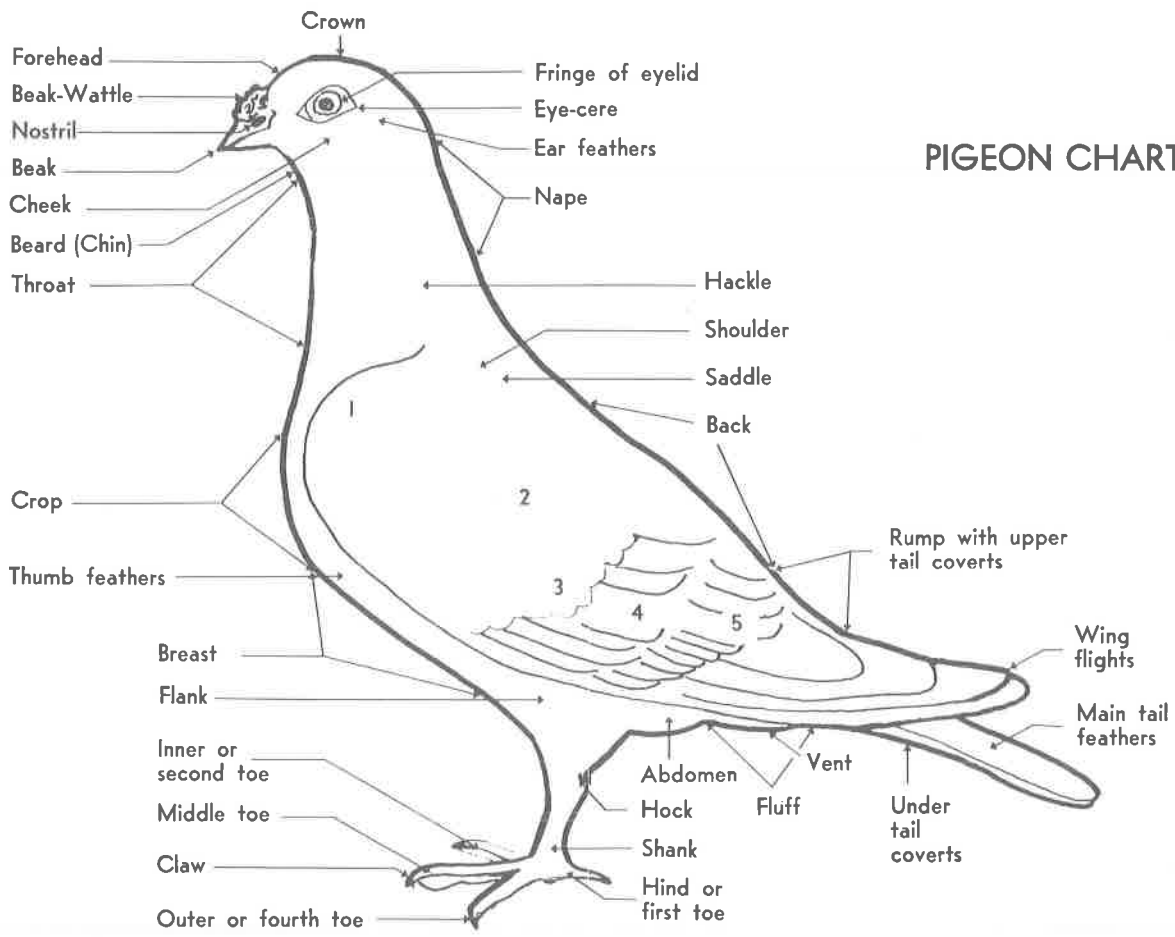


COOPERATIVE EXTENSION UNIVERSITY OF CALIFORNIA

4-H-Ag48
Reprinted 2/77

The purpose of this booklet is to introduce 4-H members and their leaders to the possibilities of raising pigeons as a 4-H project.

PIGEON CHART



- Wing: 1. Wrist or wing butt
 2. Lesser coverts 4. Second wing bar
 3. Middle coverts 5. First wing bar

4-H Pigeon Manual

Pigeons are adaptable to many conditions. They normally can be raised in rural, suburban, or urban areas. They are easy to raise, inexpensive to maintain, and require very little room. They are quiet and have few offensive odors. Pigeons may offer boys and girls a chance to have an agricultural project that is seldom restricted by zoning and may be within their means and facilities.

Suggested Project Goals

| | | |
|-------------|---------------------|---|
| Size | First year: | Raise one or two pairs of birds of the same breed and color. |
| | Second year: | Keep two to four breeding pairs of the same breed and color. As you gain experience, consider training homing pigeons in actual free flight (not applicable unless the project is for flying homers). |
| | Each year: | Attend project meetings, 4-H club meetings, and keep records. |

Breed Any breed or color of pigeons recognized in The Pigeon Standard is permissible.

Management Pigeons must be housed in clean, well equipped quarters. They must be fed and watered daily and protected from cats, dogs, and other natural enemies.

Records Record forms are provided for keeping track of all purchases and sales for the flock. Individual records should be kept on eggs laid, squabs reared, racing times, and for those with racing varieties, records of meets entered.

Other Opportunities

Demonstrations Develop and participate in at least one pigeon project demonstration. Example: building a loft, dressing a squab, training a racing pigeon.

Exhibition Exhibiting birds is not compulsory; however, members are encouraged to participate in exhibitions when practical and possible.

Participation Judging and showmanship contests and project tours.

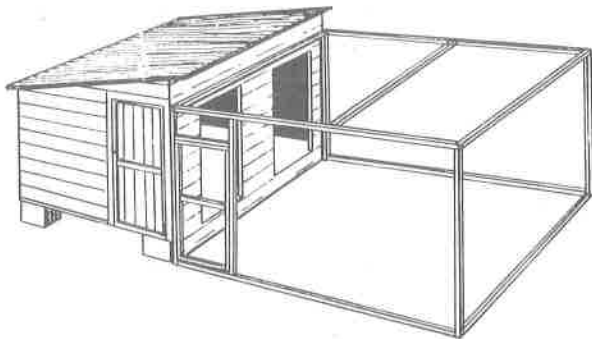
HOUSING AND EQUIPMENT

Pigeon houses are called lofts. As long as the loft is kept dry, clean, free from drafts, and has plenty of fresh air, feed, and water, the birds will be happy. The loft must be cat- and rodent-proof. Each pigeon must have a separate perch and each mated pair a separate nest box, preferably large enough to accommodate two settings of two eggs each. A good size is 12 inches high, 18 to 24 inches wide, and 12 to 16 inches deep.

Different styles of nest front can be used. Some consist of a 5-inch board nailed across the bottom of the nest. This will keep the young from falling out. The other type of nest front is made in a frame with 1-inch slats or dowels spaced 2-inch apart with a 6-inch opening in the center that can be closed, allowing the nest box to be used for a mating cage, and acting as a perch when open.

Perches are built similarly to the nest boxes but are narrower. Use 1- x 4-inch lumber; make each perch 12-inch wide, 10-inch high and 4-inch deep. This type of perch is called a box perch. Use the box perch in the young bird section, as it discourages the mating of young birds.

Too small a loft is not desirable; rats and cats may torment the birds. Furthermore it severely limits the number of birds that can be kept.



Suggested arrangement of house and fly pen.

The loft should be at least 4 feet wide, 6 feet deep and as high as you can reach, but not to exceed 6½ feet. An ideal loft would be two or three compartments 4 feet wide, 8 feet deep, and 6½ feet high. The height limitation prevents birds from flying out of reach when you are trying to catch them.

If a large area is to be used for a loft, it is better to partition it off into smaller sections. This will keep the birds under control. When there is more than one compartment available, loft management is much easier. It provides a separate loft for the young birds which is necessary, and it also allows separation by sex in the fall.

Racing pigeons' lofts do not have a flypen. They are exercised by the owner in the open, and have a special door or bob allowing them to re-enter but not leave the loft.

It is advisable to have the loft face south. This allows the maximum amount of sunlight. Pigeons like the sun and enjoy bathing in it. The loft should have enough windows so that there aren't any dark corners. It should have adequate ventilation to keep fresh and dry. Take every precaution to keep rain and snow out of the loft. A damp loft will eventually result in sick birds. Artificial lights and heat are not necessary; however, the addition of light will give you much enjoyment during the dark winter months.

Remember: Cleanliness is essential; and a neat attractive appearance increases the enjoyment you get from your project. It is not expected that 4-H'ers have an elaborate loft, but it should be kept neat and tidy. Paint and a few bushes or flowers planted around the outside of your pigeon house—can turn it into a very attractive part of any home site.

Each pair of pigeons should have a double nest with two nest bowls. Special aluminum, ceramic, or disposable pulp nest bowls may be purchased or small boxes made (approximately 2-inch deep by 8-inch square). Double nests are preferred as the female pigeon will usually lay again before the squabs are old enough to leave the nest.

Provide nesting material in a covered rack in one corner of the pen. Pine needles, tobacco stems, or long cedar shavings make good material. Long leaf pine needles are especially clean and desirable because of their odor. The birds will select and build their own nests.

The use of bathing facilities is enjoyable to pigeons but is not a requirement. Baths may be provided once or twice a week for about a 2-hour period. A galvanized can 5-inch deep and 15- to 20-inch in diameter makes a good bathtub.

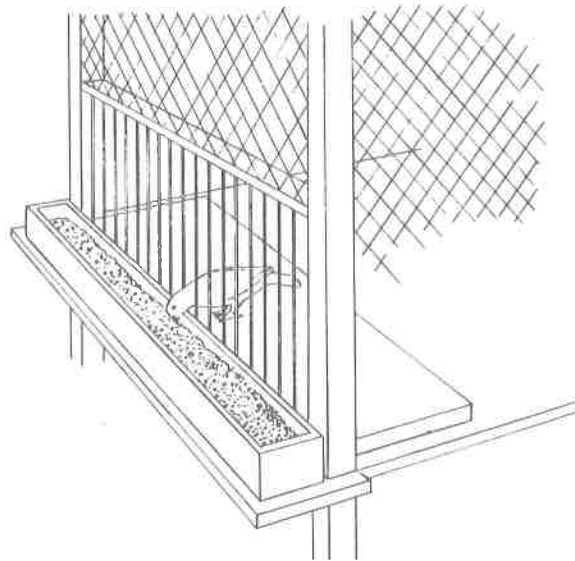
Certain features are necessary for good pigeon quarters. These include:

Waterer—clean, easily reached and protected from contamination.

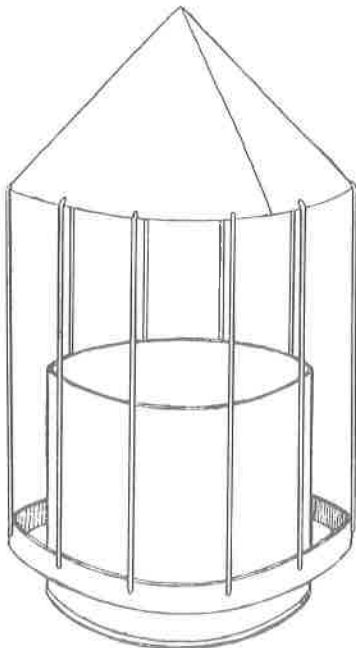
Feeders—clean, protected from weather and contamination. So arranged that the birds will not waste feed.

Grit Hopper—protected from weather and contamination. So arranged that the birds will not waste feed.

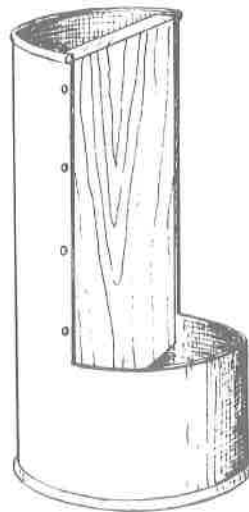
Perches—at least one for each pair in the pen. Perches arranged so as not to be directly over each other where two or more are required.



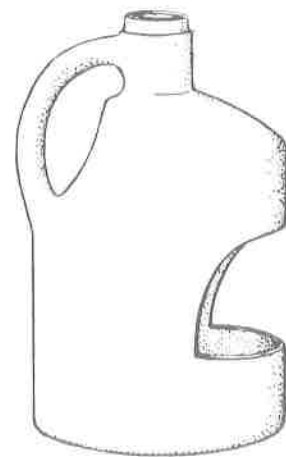
Causing pigeons to eat or drink through a partition in the pen is a good way to prevent roosting on and dirt in the containers.



One pound coffee cans may become good feeders or waterers by the addition of covers and wire sides.



46 ounce fruit juice cans can be 'remodeled' into satisfactory feeders.



Good feeders and waterers can be made from empty ½ and 1 gallon plastic jugs.

MANAGEMENT

It is very important for the birds to become well acquainted with you. This should allow you to handle them easily. They should not panic or hurt themselves when you are in the pen. The reasons for gentle care are simple:

Racing pigeons or homers come home because they like it there. Scaring or abusing the birds may cause them to become very poor trappers. (That is, the birds may not come home.)

Scaring squab-producing pigeons may cause them not to set, to the point that their eggs will not hatch.

Exhibition birds are judged by the quality of their feathers. Broken feathers or bruises eliminate them from top placings.

Good managers carefully observe each pen regularly for signs of trouble. They note the actions of the birds, conditions of the nest, appearance of the manure, and the cleanliness of the feed and water. Regular observations may prevent diseases and keep parasites from becoming established.

FEEDING

Pigeons are grain eaters. They normally prefer a variety or mixture of grains. Mixed pigeon feeds are usually made up of field or Canadian peas, flint corn, whole wheat, and grain sorghums. Commercial mixes are available from most feed companies. Some companies also sell a pigeon pellet. These are normally quite expensive. The Northern California Squab Cooperative prefers squabs not raised on a pelleted feed. Do not feed pigeons a chicken mash, chicken pellet, or grain that is freshly harvested.

If pigeon pellets are fed, use a mixture of 50 percent grain and 50 percent pellets. Feed pellets in the morning and grain at night. If the feed becomes wet, remove it immediately.

Do not allow uneaten grain to remain on the floor of the house. (Wet, moldy feed will often make birds sick.)

Grit is to the pigeon what teeth are to people: to grind food. Pigeons need a supply of small gravel or granite grit at all times. (They do not consume very much but they do need some.) Pigeons also require a small amount of oyster shell or calcium carbonate for good egg shell formation. Do not confuse oyster shell and grit; both are needed and for different purposes. Special pigeon grit and mineral mixtures can be purchased at feed stores or can be ordered by mail.

A balanced mineral and grit mixture is very essential to the pigeons. Problems that may arise if adequate mineral is not provided are sterile eggs, poor hatchability, and crippled squabs.

Water is the cheapest part of pigeons diet. Make sure they have plenty of clean, fresh water all the time. Pigeons drink by swallowing, as a person does; therefore, you must make sure that water supply is 1- to 2-inch deep at all times. Wash and disinfect waterers at least once a week to prevent diseases.

CLEANING

Clean the loft at least once a week. Flies often lay their eggs in fresh droppings. If these eggs are allowed to hatch, they can carry through their entire life cycle within the pigeons' house. Fly development is most apt to take place in nest boxes, especially when occupied by young birds.

Place 1 inch of sand on the floor to make the pen easier to clean.

Be sure that the flypen has good drainage so that water will not stand after a rain.

If birds die in the pen, remove and destroy those immediately.

MOLTING

Mature pigeons gradually lose their feathers during summer and fall. New ones grow back immediately. During this period the birds may appear rough and normally cease to raise young.

MATING

Pigeons will produce offspring only as good as they are themselves. Second rate breeders, old worn out birds, or sick stock harbor trouble. Select a good reliable breeder with a reputation of honesty. Purchase a young healthy pair of birds. If you are choosing racing pigeons, obtain those bearing aluminum leg bands. This band normally gives the birds' age. It also enables the breeder to show you the birds' parents, pedigree records, and flying times.

Male and female look somewhat alike, so in the beginning, secure mated pairs. Pigeons mate for life unless birds are separated and forced to accept other mates.

Each pair has its own quarters. This area, nest or perch, may be forbidden to other birds. A smart pigeon manager does not disturb a pigeon's home. Pigeons will nest any time during the year. During extremely cold weather, losses of eggs and squabs may occur due to freezing. It may be wise, if you live where it freezes in winter, to remove nests and nesting materials in the late fall so that the birds will not nest again until spring. If you are flying homer birds on the racing team, allow them to complete their molt before flying time.

Number each nest and maintain a record of the pair of birds using it. Mark down the date eggs are laid and the number of young that hatch. It takes 18 to 19 days for pigeons to incubate and hatch.

Three or 4 days after the young have hatched, remove the remaining eggs. Normally a pair may begin the second family soon after one set of babies have hatched. Do not disturb newly hatched squabs.

Both parents care for the young. They feed them by regurgitating a thick creamy substance called pigeon's milk into the youngsters' open mouths.

Squabs grow rapidly and are ready to leave the nest in 28 to 30 days. If they are to be eaten as squabs, they should be slaughtered just before leaving the nest. If they are to be

kept as breeders, allow them a few days of flight in the pen with their parents before removing them to separate pens for young unmated birds. They will be ready to mate at about 4 months of age.

Do not be misled by the size of young squabs. The female is often smaller than the male. Selection based on squab weight alone may produce only males.

Young birds should not remain in the same pen as mated birds. Maintain juniors in flock pens until old enough to mate. After pairs are mated, place them in the breeding pen.

Once you have gained enough experience so that you can tell male pigeons from female, you may pair them according to their pedigree records by maintaining them in a nest area for several days.

DISEASES AND PARASITES

Canker (trichomoniasis). This is a frequent killer of young squabs. It is often transmitted to the offspring by parents who are carriers but not affected by the disease. It normally shows up in yellowish white pustules or crust in the throat of the young bird. Canker eventually grows large enough to suffocate the bird.

Treat the affected area with a mild astringent. Where flock treatment is required, soluble Cyzine[®], at a strength of 0.3 percent, may be mixed in drinking water for 7 days.

Colds. Colds produce watery eyes or puffiness around the eyes. Affected pigeons may also breathe with a raspy and rattling sound; otherwise, birds may appear normal. The best treatment is to put antibiotics in the feed or drinking water. The antibiotics can also be injected into the birds.

Pigeon Pox. This disease produces hard crusty light-colored spores, that may appear around the mouth or eyes and often hinder the bird's eating or seeing. Vaccinations with pigeon pox vaccine is recommended where birds need to be protected.

[®] = Registered trade name.

The author is Bob L. Willoughby, County Director and Farm Advisor, Trinity County.

Acknowledgement

The illustrations in this publication are reproduced from: *Pigeon Care and Management*, Circular 4-H 135, University of Wisconsin, Madison; and from: *4-H Pigeon Project* E.M. 2432 (Revised), September 1972. Washington State University, Pullman.

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked.

Thinly spread all leftover spray material on the soil where it cannot contaminate crops or standing or underground water supplies. (Do not pour down sink or toilet.) Wrap empty containers in newspaper and put in the garbage can. Never burn pesticide containers.

PHYTOTOXICITY: Certain chemicals may cause plant injury if used at the wrong stage of plant development or when temperatures are too high. Injury may also result from excessive amounts or the wrong formulation or from mixing incompatible materials. Inert ingredients, such as wetters, spreaders, emulsifiers, diluents, and solvents, can cause plant injury. Since formulations are often changed by manufacturers, it is possible that plant injury may occur, even though no injury was noted in previous seasons.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

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MAJOR PARASITES AND DISEASES OF PIGEONS

University of California

Agricultural Extension Service

AXT-221

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Compiled by:

Stanley Coates, Farm Advisor, Alameda County
A. S. Rosenwald, Extension Poultry Pathologist

This information is compiled from materials received from the University of California, veterinarians, agricultural service organizations, and operators of commercial squab enterprises.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

CAUTION: Use all feed additives, drugs, and pesticides according to federal and state regulations and as suggested by the written instructions of the manufacturer.

MAJOR PARASITES AND DISEASES OF PIGEONS

Operators of commercial squab businesses must be able to control the common diseases and parasites of pigeons. Each year diseases and parasites cost the commercial operator money by killing stock, reducing gain, and by forcing operators to spend time and money in their control.

MANAGEMENT PRACTICES TO PREVENT DISEASE

- Buy your initial stock from disease-free sources that have records of low mortality over a period of several years. Do not introduce or return adult stock to a loft after the initial purchase.

(Pigeons can be active carriers of disease and show no sign of illness. A disease outbreak may occur when pigeons carrying active disease-causing organisms come into contact with stock that is not immune to these organisms.)

- If birds show characteristic signs of a disease, take or send them to a diagnostic laboratory or private veterinarian for diagnosis. (Veterinarian diagnostic personnel and facilities can be extremely helpful to any commercial squab producer in determining the precise problem and how best to solve it or prevent it.) Stock sent for diagnosis must be accompanied by descriptive information on the problem.
- Kill or completely isolate all sick birds. (These practices can stop or retard many disease outbreaks.)
- As a part of your management program, maintain warm, dry, and well-ventilated housing; use drinking fountains and feeders that can be kept clean and free of contamination; clean and disinfect housing, nests, and other equipment before using them for new or different stock.

Note: Many operators use a form of chlorine in the drinking water as a means of curtailing the spread of organisms among birds (1 ounce of 5.25% sodium hypochlorite solution may be mixed in each 3 gallons of water).

DISEASES

Paratyphoid Infection

Paratyphoid, caused by Salmonella bacteria, is one of the common diseases of pigeons. This organism will attack adult pigeons, squabs, and even embryos. It is passed in droppings and can thus contaminate feed, water, the nest, and the loft area.

One sign suggesting paratyphoid infection is a soft lump or swelling at a joint, especially on the wing or leg. Squabs may show loss of appetite, thinness, and a reduced rate of growth. The feathers may appear to have grown faster than the body. Birds also may have glassy eyes, and diarrhea, and lose muscle control.

At present, we recommend feeding NF 180 (Furazolidone) to birds having this disease. This material may be fed to adult pigeons in a pellet form or as a coating on the grain in combination with either molasses or fish oil. Feed at a level of 0.022 percent of the entire ration for a period of 3 weeks. If symptoms persist or recur after the initial treatment, a second treatment is advisable. NF 180 will mildly depress egg production, may affect the

hatchability of the eggs laid, and may actually improve the marketability of the squabs. Combinations of neomycin in the water and other antibiotics in or on the feed also have been suggested.

Sulfonamide drugs added to the drinking water may assist in minimizing losses in pigeons from paratyphoid. Combination sulfonamide drugs containing varying percentages of Sulfamethazine, Sulfamerazine, and Sulfathiazole may be used for this purpose. Mix 1 ounce of a 12½ percent solution in each 1 gallon of drinking water. The normal treatment schedule is to give this to the pigeons continuously for 3 days, discontinue for 3 days, then complete the treatment with a final 1- or 2-day period. The sulfa drugs should not be used in water treated with sodium hypochlorite, but may be used in the water during the same time the pigeons are being fed feed containing NF 180.

Destroy adult pigeons whose squabs regularly exhibit diagnosed symptoms of paratyphoid. Do not use them for breeding.

Canker or Trichomoniasis

A single-celled, microscopic parasite causes canker. It is present in the crops of many pigeons and may do no harm unless the pigeon is injured or conditions are such that the organism can attack the mucous membrane of the mouth, pharynx, esophagus, or crop. Pigeons housed in lofts under "stress" conditions may furnish this organism an ideal situation in which to multiply.

The organism (Trichomonas columbae) often attacks the squab. It may be found in the mouth or navel. Signs of canker will often appear in the mouth when squabs are from 5 to 12 days old. The disease may first be seen as a cheesy, yellowish or whitish substance covering a portion of the upper throat.

Unless treated promptly, the infection will spread until the squab is unable to eat. In the navel of the young squab (7 to 12 days old) this organism may cause a solid lesion, like a boil.

In adult pigeons, canker often appears as a yellow patch in the inside corner of the mouth. This lesion is usually of long duration. Many operators solve this problem, in individual adult pigeons, through the following management program.

- Step I Remove the canker and clean the area of infection.
- Step II Immediately dust the infected area of the bird with a blackhead control material such as soluble Cyzine (Enheptin).
- Step III Two days later, again clean the infected area and dust with the material used above. No further treatment should be required.

Some operators swab canker areas with tincture of iodine or other iodine compounds to control canker in individual birds.

Where a number of adult pigeons show canker at the same time or where operators are not able to treat individual birds, a flock treatment with the blackhead control material is recommended. If soluble Cyzine is used, place it in all water available to the pens being treated at a solution strength of 0.3 percent (1 level teaspoon of Cyzine per gallon of water). Keep this solution before the birds for 7 days. Stock being marketed should not be given Cyzine during the 7 days immediately preceding marketing. Squabs that have canker usually are destroyed. Outstanding squabs, desired as breeders, may be treated individually in the same manner as the adult birds, but may remain carriers and produce infected squabs.

Destroy pairs of pigeons whose records show that they consistently pass canker to their squabs.

Solutions of Enheptin, Hepzide, or other blackhead control compounds may be used to prevent the spread of canker. As a preventive, a 0.015 percent Cyzine solution (1 level teaspoon per 2 gallons of water) may be substituted for the drinking water normally kept before the birds. (Stock must not have been treated with Cyzine solution of any type during the 7 days immediately preceding the time they are marketed as a meat product.)

Hepzide solutions also may be substituted for the normal drinking water of pigeons. Mix 1 ounce of 16.7 percent Hepzide in each gallon of water. This solution may be given the pigeons for a 7- to 10-day period. Discontinue its use 24 hours prior to the time the stock is sent to the market. Pigeons may be re-treated with Hepzide 5 to 7 days after the preceding treatment was discontinued. Be sure that all mixed Hepzide solutions are used by the pigeons within 24 hours of the time they are mixed.

Copper sulfate solutions also may be used as a preventive for canker. They may be mixed as follows:

Dissolve 1 pound of copper sulfate in 1 gallon of hot water. If you do not have soft water, add 1 cup of vinegar to the water before adding the copper sulfate. Store the solution in a clean, colored glass or crockery bottle. This is the stock solution.

Take 1 tablespoon of the stock solution and mix with each gallon of water to be placed before the pigeons. Since this solution will damage metal containers, use glass, plastic, or crockery waterers. Birds may be kept on the copper sulfate solution for 2 or 3 days. Do not give them any other water during this period.

Ornithosis (Psittacosis)

This disease is caused by a small organism similar to the larger viruses. Pigeons may carry and transmit it without showing visible evidence of the disease. The agent is infectious to humans, and may cause sickness or death. Anyone who becomes ill while working with pigeons should contact a physician immediately.

In pigeons, the disease often occurs in combination with a paratyphoid infection. Pigeons affected by it may appear healthy. Others may be visibly sick and listless, show no interest in food, and have runny droppings and soiled vent feathers. If birds show these symptoms, take them to the laboratory or veterinarian for diagnosis. It is important that you follow prescribed control and management recommendations with all active cases of this disease.

CRD and Related Respiratory Problems

A pleuropneumonia-like organism (PPLO), similar to the one found in chickens and turkeys, has been isolated from pigeons. In many instances, the problem known as "one-eye cold" may be caused by this organism.

Affected pigeons often are between 6 and 16 weeks of age. Frequently they are being raised under stress conditions such as overcrowding, dampness, impaired ventilation, etc. Signs of this problem include watery eyes, respiratory distress, lack of interest in feed, and inactivity.

Materials that may help control this organism are Erythromycin, Tylosin, or those containing a combination of streptomycin and dihydrostreptomycin. An injection of 25 mg streptomycin material per pound of body weight may be placed in the leg or breast of each sick bird. This dose may be repeated after 7 days. A third injection may be given

on the 15th day. Pigeons being marketed or eaten should not be killed until 3 weeks after the last injection.

Injectable Tylosin must be injected under the pigeon's skin, usually at the back of the head, just below the base of the skull. Inject $\frac{1}{2}$ cc of this material per pound of body weight (maximum dose $2\frac{1}{2}$ cc per bird). Any bird to be marketed must not be slaughtered within 3 days of the time it is treated with Tylosin. This material is sterile when purchased. It must be used within 24 hours after mixing.

Injectable Erythromycin or similar materials also may be injected into the leg or the breast of the pigeon. Apply Erythromycin at a rate of 5 mg per pound of body weight. Repeat applications may be made after 5 to 7 days. Pigeons cannot be marketed until 48 hours after the final injection.

Erythromycin, Tylosin, Aureomycin, or Terramycin also may be placed in the pigeons' drinking water. As an example: Mix 1 level teaspoon of "Gallimycin Poultry Formula" (Erythromycin) in each gallon of water. This solution may replace the drinking water for a 5-day period. Repeat treatments may be given the pigeons 5 days after the last treatment.

Pigeon Pox

Pox in pigeons is similar to fowl pox of chickens or turkeys, but is caused by a different virus. This pigeon pox virus may affect all pigeons not immune from previous exposure or vaccination for this disease.

Pox lesions usually are found on the feet, around the eyes, and on the beak—but sometimes on the skin of the body and wings. The characteristic nodules or vesicles may be pea-size or larger. After 10 days they become dry and crusty, and will fall off within a week or two. All pigeons that recover will be immune to this disease. Pigeons die from this

disease when cankerlike infections form in the mouth or windpipe and shut off breathing.

Pox lesions may be easily mistaken for canker. When your birds show signs of illness, get definite diagnoses. Operators normally isolate infected birds and treat them individually. Remove scabs of pox lesions located in the mouth cavity, the eye, or other unfeathered portions of the head or face. Paint the infected area with an iodine solution. (An example: Lugol's Solution applied at one-half strength.) Continue the iodine treatment every second or third day until you observe definite signs of healing.

If you wish to vaccinate unexposed birds, use a pigeon pox vaccine (not a fowl pox vaccine). Remove three or four feathers, and apply the vaccine to the follicles with a stiff brush. Remember, this vaccine contains living pox-forming virus. Viruses can be passed from infected parents to their offspring during feeding. Do not vaccinate squabs to be marketed for meat.

INTERNAL PARASITES

Roundworms

The most common internal parasite in pigeons is the ascarid or roundworm. When present in large numbers, these worms weaken the pigeons, causing them to lose their appetites, and become pale and anemic. Birds with extremely heavy infestations may die from impacted intestines.

The worms lay their eggs in the intestines, and the pigeons void the eggs in the litter, feed, or water. The worm eggs become infective after 10 days. If eaten by a pigeon, the eggs hatch in the intestines, grow to maturity, and lay eggs. This repeated cycle increases the severity of infection.

Roundworm populations may be controlled through the use of soluble Piperazine compounds. Mix these materials in the pigeons' drinking water according to the manufacturer's directions.

Note: Piperazine compounds do not prevent ascarid reinfection of stock. To prevent reinfection, remove or destroy all worm eggs in the loft and fly pen areas. Ascarid buildup may be further minimized by using wire floors, and feeding and watering equipment that protects feed or water from contamination by droppings.

EXTERNAL PARASITES

For recent chemical recommendations for controlling external parasites of pigeons, ask your county Agricultural Extension office for "Control of External Parasites of Chickens and Pigeons."

Pigeon Lice

Lice are the most common external parasites of pigeons. Lice spend their entire lifetime on the body of the pigeon, obtaining nourishment from the feathers and skin of the host. In small numbers they do little damage, but heavy concentrations can weaken the pigeons.

Control recommendations for this insect in 1965 included use of a 4 percent dust formulation of malathion or a 5 percent dust formulation of Sevin. Apply these materials by hand directly to the bird or in the nest, or blow them lightly over the nesting area with a power or a hand duster.

Note: Operators using the 5 percent Sevin dust must observe a number of restrictions. Do not allow the chemical to contaminate the pigeons' feed or water. Do not re-treat stock until 30 days after the last treatment. Stock coming in direct contact with Sevin cannot be marketed until 7 days after the last application of the material. To date, there are no

regulations of this type on the use of malathion.

Heavy applications of sulfur will give excellent louse control, but under certain conditions it can burn the pigeons' skin.

For many years pigeon growers have treated individual birds by ruffling pinches of sodium fluoride through the feathers. This is still a satisfactory method of controlling these insects.

Common Poultry or Red Mite

The red mite of poultry also may become a pest in pigeon operations. Normally this will occur only where pigeons are housed in buildings previously used for poultry or where this mite has been carried to the lofts by chickens, stray pigeons, sparrows, or other birds.

This mite, about one-third the size of the head of a common pin, is gray when unfed, but becomes bright red when full of blood. During the daytime the mite usually hides in cracks or crevices, where it breeds. At night it migrates to the pigeon to feed. When large numbers of these pests are present, they can be seen swarming everywhere, day or night, over the squabs, the nesting material, the nests, and landing boards.

The 1965 control recommendations include sprays of nicotine sulfate and dusts of either malathion or Sevin. Remove pigeons and squabs before treating the infested area. As these birds are removed, hand-dust individually with 4 percent malathion or 5 percent Sevin dust, to kill the mites on the birds.

Large populations of red mites are not easy to eliminate. Only careful and complete cleanup operations will destroy them. Remove the droppings and nesting materials from the infested area and immediately burn them, or dip or treat to destroy the mite population.

Thoroughly clean the infested area and spray with a 2 percent nicotine sulfate (Black Leaf 40) spray solution (mix 1 part of 40 percent nicotine sulfate with 19 parts water). To increase the effectiveness of the spray solution, add a small amount of detergent. Spray lightly over all surfaces so that the fumes from the nicotine sulfate will have access to all areas infested by the mites. When the sprayed area is completely dry, return the pigeons to their nests. Nicotine sulfate may be applied at 7- to 10-day intervals or as needed.

Nicotine sulfate and its solutions are poisonous and must be handled with extreme caution. When working with these materials, wear protective clothing, a face mask, and rubberized gloves, boots, and headgear. If the concentrated material is spilled on the skin, wash immediately. Remove and wash contaminated clothing.

FACTORS THAT CAUSE STRESS

Factors that reduce the natural resistance of the pigeon to disease or parasitic infestations are known as stresses. The successful pigeon operator plans and manages his operation so that the growing and producing birds are protected from as many stress factors as possible. A few of the factors causing stress are:

Moisture

Keep the pigeon loft as dry as possible at all times. Prevent unnecessary moisture from entering or building up in the litter. Do not allow water to spill on areas to which the birds have access.

Ventilation and Temperature

Pigeons need plenty of fresh air, but do not like cold, wind, or drafts.

Rapidly fluctuating or extreme temperatures place pigeons under stress. Lofts should be designed to compensate for fluctuations in temperature and protect the birds from extreme heat or cold.

Cleanliness

Pigeon housing need not be scrubbed and cleaned regularly if the loft and fly pen are dry and the pigeons are healthy. However, when the entire pen of birds is moved or disease occurs, clean and sterilize the pen and its equipment.

Crowding

Crowding will cause stress. Too many birds for the size of the pen, the number of nests, or the amount of feeder or waterer space can result in dampness, fighting, flightiness, injured birds, cull formation, poor production, improperly fed squabs, and dirty food and water.

Differences in Ages of Stock

Do not house growing stock with producing stock. Establish pens of producing birds of similar ages. Maintain such pens with as little population change as production results allow.

Operator Chore Route

Design and build housing so that operators seldom need to enter pens to perform chores or observe birds. Follow a regular time schedule. Place feeders and waterers so filling, cleaning, and inspecting can be done from outside the pen.

Management Observation and Action

Good managers carefully observe each pen of birds regularly for signs of trouble. They note the actions of the birds, condition of the nests, appearance of the manure, and cleanliness of feed and water. Regular observations may prevent diseases and parasites from becoming established and spreading.

Workers can spread disease and parasites from one pen to another.

Make sure that rats, mice, predatory animals, sparrows, wild pigeons, and other poultry cannot enter the pens. These pests disturb the pigeons and carry transmissible diseases and parasites. They both eat and soil the pigeons' food. All of these are stresses that cause economic loss in any pigeon operation.

Noises

Birds raised in an atmosphere of noise and commotion soon become accustomed to these disturbances. Birds not used to these conditions are easily frightened and occasionally may not produce top quality squabs. Animals, such as dogs and cats, also can disturb producing pigeons.

Improper Equipment

Small, improperly constructed nests may allow squabs to leave earlier than they should. These squabs may be injured by the adult pigeons and become culls. Sharp edges and corners can injure the pigeons and provide access for infective organisms. Narrow mating boards make mating more difficult. Insufficient feeder or waterer space can increase fighting and cannibalism among the pigeons.

Nutritional Deficiencies

Pigeons prefer certain types of feeds during the different stages in their growth and production cycle. If the proper feeds and minerals are not provided, this may lead to decreased feed consumption and poor body condition.

Through 1965, the commercial pigeon industry had not adopted the regular use of pelleted feed. When this type of feed and the type of management program required to make it successful have been developed and accepted by the industry, fewer disease and parasite problems should occur.

