PREVENTING AVIAN POX

Pox, described as early as the 17th century, is universal in distribution. Avian pox, which has been called fowl pox, canker, sorehead, and diphtheria, is relatively slow-spreading and occurs on the unfeathered parts of a bird's body or, in some instances, in the mouth, larynx, or trachea. It is caused by a filtrable virus which infects the birds through scratches or broken skin and mucous membranes. Mosquitoes feeding on infected birds mechanically spread the virus to other birds when they feed again.

Cutaneous or "dry" pox. Typical lesions of pox are small, wartlike growths on the skins (wattles, comb, face, eye, shank). Small, yellow eruptions are seen first; these increase in size, their surfaces become rough and dry, and their color changes to dark brown. After 2 to 4 weeks a dry scab forms, loosens, and drops off (figs. 1, 2, 3).

Damage from the disease depends on the size and extent of the lesions on individual birds, and on the number of birds in the flock affected. In mild cases, a few pocks develop on the skin and later dry and drop off; mortality is low, although there may be a drop in egg production. In more severe cases, there is a sharp drop in egg production, but very little increase in mortality. Individual birds usually recover from "dry" pox within a month. Since pox spread slowly, however, it may affect a flock over a period of several weeks or months.

Diphtheric or "wet" pox. Yellow, cheesy masses may restrict air intake and even cause suffocation if they close the windpipe. When this cankerlike growth is removed, the area underneath appears eroded.

Transmission

In the northern San Joaquin Valley, avian pox outbreaks usually occur from September through November. In some years, a great many nonvaccinated birds are infected; in other years, very few are.

Mosquitoes are the primary mechanical vectors in the spread of pox; at least ten species of mosquitoes have been shown to carry the pox virus. Fortunately, not all of these species feed on California poultry. *Culex tarsalis,* a fresh water breeder and *C. pipiens,* a foul water breeder, appear to be the two main carriers of the virus in the Sacramento and San Joaquin valleys. Mosquitoes are capable of transmitting the virus for several weeks after a single feeding on an infected

This is one of a series of publications on Planned Disease Prevention, which includes all aspects of management to help prevent exposure of poultry to disease and to minimize the effects of disease. The publications have been prepared by University of California Cooperative Extension and Experiment Station personnel as part of a statewide poultry disease prevention project.

Fig. 1. Mild early comb and wattle lesions of pox.

Fig. 2. Two pox lesions on a 10- to 14-day-old chick.

Fig. 3. Very severe fowl pox on head, comb, and wattles of a fancy chicken.

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bird. Research has shown that the stable fly may also transmit the virus, suggesting that other blood-sucking insects, such as gnats, can also transmit pox. A susceptible bird with a break in its skin also can become infected by direct or indirect contact with infected pen mates.

Treatment

Prevention by vaccination is better than treatment. However, individual affected birds in small flocks may be treated. Swab lesions in the mouth, throat, or nostrils with a 15 percent solution of argyrol or Lugol's Solution of iodine (available at most pharmacies) either before or after removal of the cankers. Lugol's Solution consists of 5 percent free iodine plus 10 percent potassium iodide in an aqueous solution. Iodine must be used carefully on internal surfaces.

Paint pock marks on the comb, wattles, or other external areas with Lugol's Solution.

Vaccination

The best vaccination program depends on the specific need, type of birds, area, and time of year. Consult a veterinarian or farm advisor. This is suggested for backyard or small chicken flocks and for small groups of turkeys, especially in mosquito areas.

Fowl pox vaccine is used to vaccinate chickens, turkeys, and pheasants. Pigeon pox vaccine is used for pigeons and applied with a small brush to the feather follicle. Vaccination of chickens in production may cause production drops. Birds in lay are occasionally vaccinated, however, to have the problem "over and done with" in a short period of time rather than let it drag on.

The stick method, using fowl pox vaccine virus, is the most widely used. The vaccine packet contains a bottle of vaccine, a bottle of diluent, and a vaccinating piece with a double-needle stick which is dipped in the vaccine and inserted into the web of the wing or the skin of the thigh (see figs. 4 and 5). Pox vaccine for poultry is packaged in multiple doses in excess of the amount you probably will need. However, the use of higher vaccine concentrations is not dangerous as long as the vaccine is well mixed. Vaccines should be stored unmixed in the refrigerator until used. Follow the manufacturer's written directions for mixing and applying. Avoid spilling the vaccine on your premises. Dispose of empty vials by incineration or boil them before they are discarded.

Fryers

Vaccination is usually not required; however, in some areas where the mosquito population is high, especially in the fall or early winter, it may be necessary to vaccinate. Fryers can be vaccinated as young as one day of age, with a single needle in the flank (see fig. 6).

Pox lesions found during processing will cause downgrading or condemnation of fryers.

Layer replacements

In the San Joaquin and Sacramento valleys, all pullets raised for layer replacements should be vaccinated for pox. The disease or the live virus vaccine may cause a drop in egg production but usually causes few deaths, unless another disease is also present.

Turkeys

Fowl pox vaccine does not produce lasting immunity in turkeys. Turkeys are vaccinated at 4 to 10 weeks of age; breeders should be revaccinated as adults.

As a precautionary measure in California, most commercial breeder and some meat turkeys are vaccinated.

Fig. 4. Preferred, feather-free area on the thigh for vaccination of growing chickens and turkeys.

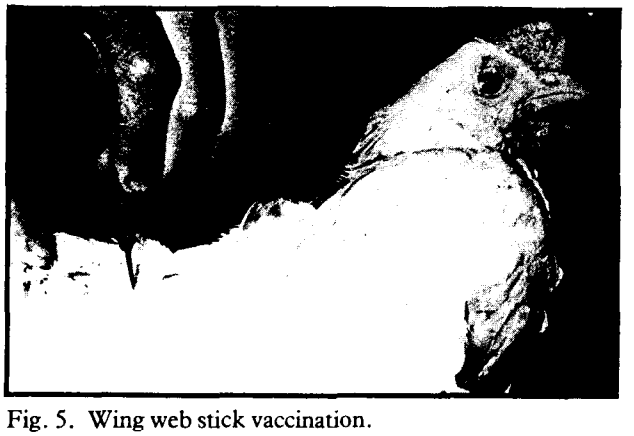

Fig. 5. Wing web stick vaccination.

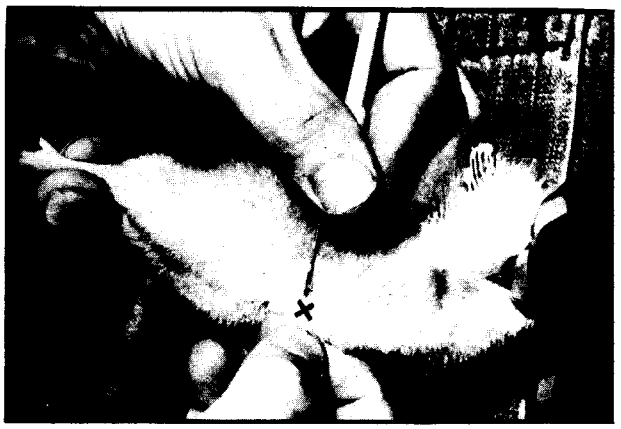

Fig. 6. "X" marks the spot for vaccination in the **flank** of 1- to 10-day-old chicks. Rotate the flank skin outward and carefully stick a single needle containing pox vaccine through the skin. Release bird.

Pheasants

Pheasants are generally not vaccinated, but the procedure and response is similar to that in turkeys.

Pigeons

Although condemnations because of pox have run as high as 100 percent in squabs produced in the San Joaquin Valley, squabs intended for market should not be vaccinated for pox. Squabs are marketed at 4 to 5 weeks and vaccine won't take effect soon enough to be of value. Lesions are quite obvious on the feet, eyes, beak, or vent, but not easily seen in the mouth or on the back. Pox lesions in the upper respiratory tract of pigeons may be easily mistaken for canker. Lesions on the back, which become apparent after the feathers are removed at processing, are cause for condemnation.

If older birds are vaccinated, the only effective vaccine is pigeon pox vaccine brushed into the feather follicle after pulling four to eight feathers.

Various methods, such as sulfur in the feed and grit, repellent sprays in nest boxes, and foggers on the premises, have been tried to keep mosquitoes away from squabs. At present, there is no procedure that can be recommended to eliminate pox in squabs.

Mosquito control

Although mosquitoes may not be the only insect vector of pox, the incidence of this disease in flocks is sometimes reduced considerably when measures are taken to control mosquito populations in the environment of poultry and squab ranches.

Some mosquitoes reproduce in standing water in nearby irrigated pastures and cornfields; poultry and squabs should be housed as far from these crops as possible. Ranches next to orchards or vineyards offer greater protection, since mosquitoes are less apt to breed on these irrigated croplands.

Also, some mosquitoes which transmit pox may breed in foul water such as inside septic tanks and in above-ground, organic, contaminated water sources. These should be inspected and treated to prevent on-ranch mosquito production.

In those ranch areas with a history of pox and where pox is a constant problem, contact your local Mosquito Abatement Districts for inspection services and for treatment of areas by fogging and larvicide applications. In those areas not serviced by abatement districts, contact your local farm advisor.

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