

REPLACING YOUR LAYING STOCK



Planned Disease Prevention should start with your decisions in purchasing replacement stock. You can prevent economic losses much more easily by not introducing a disease to your ranch than by acting after the disease has gained a foothold.

The source of your baby chicks or ready-to-lay replacement pullets and their quality when delivered to you are extremely important to the economic success or failure of your poultry operation. Today's major commercial strains of egg production stock all have good genetic potential for high egg production, but their actual performance depends on the management of the breeder flocks that produced the hatching eggs, as well as the conditions under which the eggs were incubated and the chicks hatched and grown out. Quality replacement pullets require good management techniques.

DAY-OLD CHICKS

Price should be one of your least important considerations when you buy disease-free, high quality, day-old chicks for raising your own replacement pullets. More significant questions are:

- Do the breeder and hatchery firms have reputations for honesty and fair dealing?
- Will the hatching eggs come from healthy breeders certified free of pullorum-typhoid and maintained in a relatively disease-free area?
- Are the parent flocks free of *Mycoplasma gallisepticum* (MG) and are the chicks also MG-free, having been hatched, sorted, and sexed with chicks from similar sources? (See section entitled "Egg-Transmitted Diseases.")

- Do the chicks carry a high degree of passive immunity to infectious bronchitis and Newcastle disease as a result of the vaccination regime of the parent flock? (See "Passive Immunity.")
- What is the Marek's disease vaccination history of the parent flock? How are the chicks vaccinated against Marek's disease?
- Will your entire order be filled by chicks of only one strain coming from just one hatchery and from eggs produced in a single location?
- What will be the age spread, if any, between the youngest and oldest chicks delivered to you?
- Is the strain of stock relatively free of such mortality-causing problems as flightiness, hysteria, and cannibalism?
- Does the strain's body size permit housing at the cage density for which you have planned?
- Do the egg size and quality characteristics of the strain meet your marketing requirements?
- Will the chicks be delivered in clean, uncontaminated boxes and equipment, without a prolonged period of transit? If new boxes are not used, how are the boxes cleaned and disinfected? New pads or liners should be used.

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.

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REPLACEMENT PULLETS

If you purchase started pullets, you need even more information than you require when you select a hatchery and strain of birds in buying day-old chicks. Quality stock is essential regardless of the age at which it is purchased. Make sure you buy well-developed, healthy replacement pullets, capable of expressing their full genetic potential as layers.

Your choice of a supplier of started pullets is most critical. Does he have adequate facilities for producing high-quality stock that will meet your standards and requirements? Does the operator have the knowledge and experience to raise quality birds?

In contracting for your replacement pullets, you and the pullet grower should agree on as many as possible of the following management practices he will use:

- Records to be kept.
- Strain and source of stock.
- Number of age-groups brooded on the ranch.
- Proximity to other poultry operations.
- Number of birds to be housed in each unit (depending on size of unit).
- Sanitation procedures and safeguards used to prevent introducing diseases.
- Feeding and lighting programs.
- Schedules and procedures for vaccinating and debeaking.
- Health monitoring practices during brooding and grow-out: diagnoses of loss.
- Precautions in delivering the pullets.

Written instructions should specify that you will receive: periodic weight and mortality information; data on feed consumption; the brand and serial number of each vaccine used, with vaccination dates, procedure followed, and post-vaccination results;

copies of reports from the monitoring veterinarian; and the right to visit the operation (obviously in clean protective clothing) during the growing period.

As a further precaution, you may wish to have the pullet grower submit samples of birds or blood samples to a poultry disease laboratory for examination and testing. Have a copy of the laboratory report sent to you before your birds are delivered. Agree beforehand on who will pay for this work. You should also reserve the right to reject individual birds or the entire lot if they do not meet the quality standards you have specified.

The manner in which the pullets are loaded, transported, and placed in the cages on your ranch will significantly affect their subsequent performance. Specify who is to deliver the birds, and insist on thoroughly sanitized equipment. Delivery instructions should be sufficiently detailed to include method and time of loading, type of hauling equipment to be used, number of birds per crate or cage, the route of travel, and arrival time. You or your manager should be on hand to supervise the distribution of the pullets into their laying cages.

SPENT HENS

Some poultrymen periodically replace their laying stock by buying hens (usually at the end of their first laying cycle) and force molting them. The risk is that the birds could be carrying a variety of diseases. Do not bring such stock onto a ranch where the birds will be housed close to other layers. Buy spent hens as replacements only when you can house them on an all-in, all-out location.

To further minimize problems, secure the hens from only one production unit, basing your decision to purchase on flock records and an evaluation of the birds by both the operator of that unit and a veterinarian. Here again, an exploratory laboratory diagnosis of the health status of samples of birds may prove beneficial. In each case, compile as much information as possible on past performance and disease history.

Procedures used to transport spent hens are just as important as those used for younger replacement stock. Prescribe the steps to be followed when the birds are moved to your operation. Once the hens are accustomed to their new surroundings, give them the booster vaccines required by stock under your ranch conditions.

When you purchase older hens, you must rely heavily on the seller's integrity. Never buy this type of stock from anyone who does not have a long-term reputation for honesty and trustworthiness. Do not buy from anyone from whom you cannot obtain detailed statistical information. And this includes a knowledge of "area problems" as well as those in other age-groups on the same or nearby ranches. Coryza has moved into clean areas because apparently healthy spent hens still carrying the infection were brought in and infected clean stock.

BIRD TRANSFER WITHIN AN ORGANIZATION

Carefully monitor the transfer of stock from one unit to another within your operation. In considering such a move, give thought to the environmental similarity of the birds' housing, the ages of the stock, the health histories of the different lots of birds, and the

vaccination and immunity levels of the birds being moved and of those with which the new stock will come into contact. Once you determine how to make such a move, bird transport again becomes an important consideration. Stock movement must take place with as little stress on the birds as possible.

REMEMBER

Regardless of their ages, any birds brought into your poultry operation can introduce disease and production problems. You can minimize such problems only through careful planning and consideration of where the stock is obtained and how it has been raised. Without high quality replacements, you will have a hard time maintaining good production levels, even with the best management techniques. Don't purchase any lot of birds unless you are sure that they fit your operation in all details.

EGG-TRANSMITTED DISEASES

Mycoplasma gallisepticum (MG) is an egg-transmitted organism that causes chronic respiratory disease in chickens. The symptoms of the infection are usually mild, but they can be quite severe if complicated by stress factors, such as the use of live virus vaccines, improper ventilation or temperature control, or an outbreak of another disease like coryza, infectious bronchitis, and Newcastle disease. Therefore, many breeder organizations have eradicated MG from their breeding flocks and are able to supply MG-free chicks to pullet growers and market-egg producers. In planning, you must know the MG status of the stock you are to receive as well as the status of all birds on the ranch to which the chicks are to be taken.

Make every effort to obtain and maintain MG-free stock, especially where the ranch is free of the disease. On ranches with an all-in, all-out setup, such chicks, brooded and grown in isolation, can withstand vaccination or even such airborne field infections as infectious bronchitis better than chicks from MG-infected parent flocks. And if all groups on a multiple-age ranch are MG-free, you can keep MG off the ranch only by making absolutely sure your chicks are also MG-free.

The purchase of MG-free chicks is recommended even for multiple-age-group ranches on which the older groups have a low level of MG infection. With proper planning—segregating birds, work, and personnel—the spread of any MG infection will be so slow that vaccination for infectious bronchitis, for instance, can be carried out with no air-sacculitis development. Because MG-free chicks do better, they reduce your management problems.

Other egg-transmitted diseases of concern are *Mycoplasma synoviae* (MS), which causes synovitis, and avian encephalomyelitis (AE), also known as epidemic tremor. From an infected parent flock, MG and MS can be egg-transmitted (vertically) to a few chicks. From these few infected chicks MS or MG can be spread to many or all of the other chicks in the brood by chick-to-chick (horizontal) transmission. AE, however, is transmitted to the egg by actively infected dams and affects chick quality for short periods of time. Horizontal transmission of AE has no significant effect. In neither mycoplasma nor AE infections is the chick protected against infection by passive (congenital) immunity received by the chick from the dam.

PASSIVE IMMUNITY

A young chick may be able to resist a particular disease as the result of passive immunity. Congenital immunity, which is the important kind of passive immunity, is passed from the hen to the chick through the yolk of the egg. The hen is immune because of previous infection or vaccination. Congenital immunity is highest when the chick is 24 to 48 hours old, then diminishes and finally disappears 2 to 4 weeks later. The amount of congenital immunity varies, because it is the result of active immunity of the dam, which differs from bird to bird.

Although such an effect is normally useful for some early protection of the chick, passive immunity can actually interfere with the immune response to early vaccination. This is often true when birds are first vaccinated against Newcastle disease and infectious bronchitis. In addition, chicks are not fully capable of a satisfactory immune response until they are "immunologically mature" at about 6 to 7 weeks of

age. When they are young they just cannot generate a full antibody or protective response.

When day-old chicks are vaccinated for Marek's disease (MD), passive immunity to Turkey Herpes virus (HVT) may in some instances interfere with an adequate protective immune response from the HVT vaccine. However, causes for ineffective MD vaccination are not thoroughly understood. Interference does not occur between either the mild or MD-causing (pathogenic) strains of Chicken Herpes virus and HVT.

Thus, when you plan a disease prevention program for your pullet replacements, to do the best job, you need to know the complete history, including vaccinations, of the parent flocks. You would then know the status of your chicks, their susceptibility to various infections, and how and when to apply vaccine.

Prepared by W. Stanley Coates, Farm Advisor, Sonoma County; A. S. Rosenwald, Extension Poultry Pathologist, Emeritus; and Milo H. Swanson, Extension Poultry Specialist, Riverside.

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