# ALL-IN, ALL-OUT Replacement System

5 PLANNED DISEASE PREVENTION $

## WHY CHANGE?

One of the most profitable management changes poultrymen can make on multiple-age-group ranches is to adopt an all-in, all-out replacement system. "All-in, all-out" simply means that each ranch or location has only one age-group of birds.

Few pullet flocks are completely free of disease at housing time. The birds may look strong and healthy, but if they have fought off any previous infections, there still may be some chronic disease carriers capable of infecting susceptible birds with which they come in contact. Thus, when young replacements are added to a flock of older birds or are brought onto a multiple-age-group layer ranch, they may add diseases not already present.

Likewise, the older birds in the existing flock may harbor diseases that can be passed on to the younger replacements. Within a short time, the entire population may be suffering from a series of disease outbreaks. The more age-groups a ranch has, the more complicated the disease problem becomes.

A classic example of a disease organism that spreads from flock to flock on a multiple-age-group ranch is the coryza-producing bacterium, *Haemophilus gallinarum* (Hg). Coryza has been carried from one area to another by the movement of started pullets, spent hens for molting, males for breeder flocks, etc. Once the birds on a ranch are infected with coryza, each new brood or flock contracts the disease. Coryza rarely can be eliminated from a ranch without total bird depopulation, followed by cleaning and sanitizing. After repopulation, continuation of a well-planned disease-prevention program is necessary.

*Mycoplasma gallisepticum* (Mg) is another disease that perpetuates itself by spreading from brood to brood, flock to flock. Neither Mg nor Hg is necessarily a disastrous infection if it occurs alone. But if a single disease can be considered one unit of trouble, two diseases combined are four units of trouble. Mg, for example, in combination with stress like that caused by a bronchitis vaccination, can play havoc with any age-group.

Also, some pathogenic organisms become more virulent as the disease is passed on from one group to another. This can be demonstrated in the laboratory and appears to occur under field conditions, too. For instance, *Pasteurella multocida* (the bacteria causing fowl cholera) and laryngotracheitis virus often become more troublesome as successive flocks become infected. This may partly result from an increase in numbers of infective organisms, but an increase in virulence is also a possibility. An all-in, all-out replacement system reduces the likelihood of this occurring.

## MAKING THE CHANGE

Depopulation is the first logical step toward tighter management to prevent disease. Since the birds are the principal reservoirs of infection, most of the disease organisms go out with the flock when it is removed from the ranch. A thorough cleaning and disinfection of buildings and equipment should follow.

**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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Admittedly, it may be exceedingly difficult to schedule complete depopulation and restocking on some ranches, but it is not impossible. In the change to all-in, all-out, some production may be lost initially because some birds are held for a longer than average period of lay and others are removed before they complete a normal cycle.

The larger the ranch, the more difficult it is to switch to a single-age flock because of the problem of obtaining enough replacement pullets of the same age from one source. In one case, it took more than a year for a 240,000-bird layer ranch to schedule receiving all of its replacements at one time.

Another factor to consider in changing from a multiple-age-group ranch to a single-age flock is egg size. The more flocks in the multiple-age operation, the more normal is the size distribution of all eggs produced. But under an all-in, all-out replacement system, all eggs tend to be mostly small, or medium, or large, depending on the flock's age at a given time. This may create problems for the egg processor and distributor unless advance notice is given and plans made to compensate for the change in size distribution.

In areas where ranches are close to one another, the all-in, all-out concept is much more effective if all ranches adopt the single-age system. This has been amply demonstrated in California's San Joaquin Valley, which has a laying population of 10 million hens. Those communities in the Valley that have used an area-wide approach in converting to all-in, all-out replacement have been most successful in cleaning up troublesome disease problems.

## OTHER ADVANTAGES

In addition to disease control, changing to the all-in, all-out replacement system provides at least two economic benefits.

Table 1. Comparison of Production and Mortality in All-In, All-Out Flocks and Multiple-Age Flocks.[1]

| | Percent Hen-Day Production | Hen-Day Egg Production | Hen-Housed Egg Production | Percent Hen-Day Mortality and Culls |
|---|---|---|---|---|
| SINGLE-AGE-GROUP FLOCKS | | | | |
| Average of 8 flocks | 72 | 262 | 246 | 13.8 |
| Range | 67 to 75 | 243 to 273 | 228 to 264 | 8.2 to 22.9 |
| MULTIPLE-AGE-GROUP FLOCKS | | | | |
| Average of 12 flocks | 67 | 242 | 226 | 17.9 |
| Range | 60 to 72 | 220 to 259 | 202 to 250 | 8.0 to 50.8 |

[1]Complete-laying-year data from a 2½-year flock study by R. D. Young, formerly Farm Advisor, Stanislaus County.

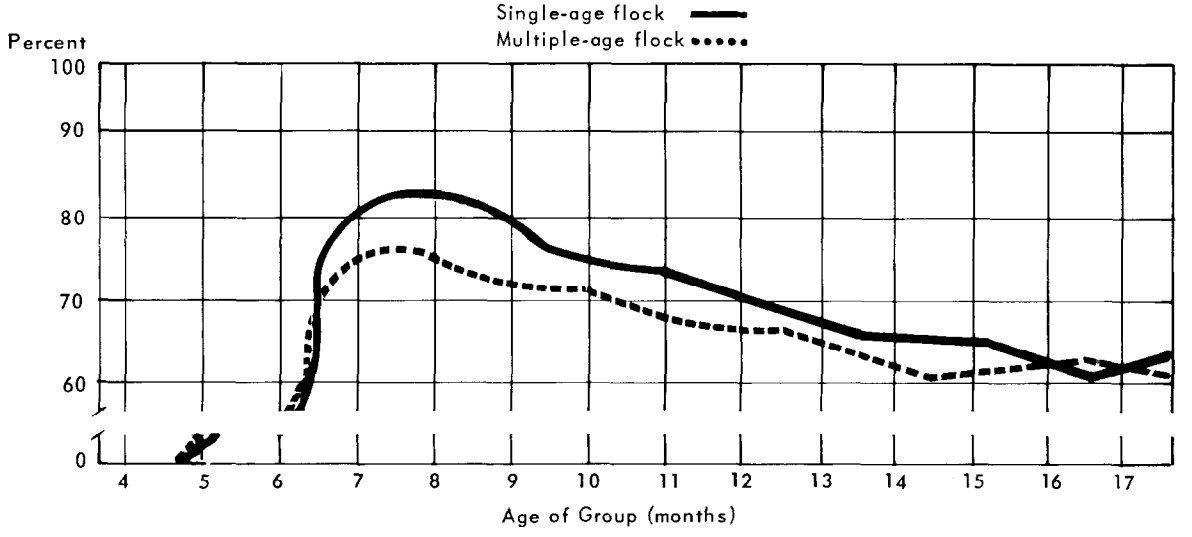


*Figure 1. Hen-day production of single-age-group flocks compared with that of multiple-age-group flocks. Data are from flock study by R. D. Young in the San Joaquin Valley.*

Increased egg production is the first big advantage. With reduced mortality and decreased stresses from disease, rates of lay are higher on both a hen-housed and a hen-day basis. Ranches that have converted from a multiple-age-group operation to an all-in, all-out system report increases ranging from 5 to 20 eggs per hen per year.

A single age-group also greatly simplifies ranch management and operation. For example, all birds are on the same vaccination schedule. The entire flock receives the same feed, making it unnecessary to stock several formulas at one time in a phase feeding program. For purposes of record keeping, the ranch has just one flock. It is much easier for the ranch manager to follow daily performance and analyze production records over the life of the flock.

## ALTERNATIVES

All new poultry operations should be planned to accommodate all-in, all-out replacement. Every effort should be made to convert existing multiple-age-group operations to the single-age system.

There are alternatives to all-in, all-out replacement, but the results usually do not measure up to those obtained with uniform-age flocks. However, some ranches, either because they have too many layers at one location or because they need to market eggs with a normal size distribution, may find it impracticable to change over immediately to a single-age flock. In such cases, the following recommendations are suggested to combat disease and increase production:

- Brood and grow replacement pullets on premises separate from the layer ranch.
- Reduce to a minimum the number of age-groups at any one location.
- House each age-group separately with as much distance between houses as possible.
- In daily care of several age-groups, service the youngest flock first and the oldest one last.

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