Make Those Pullets Lay!

Joseph W. Kelly
Iowa State College

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**MAKE THOSE Pullets Lay!**

They Should Have the Best Feed, Care, Housing That Are Available

By JOSEPH W. KELLY

I **T IS GOING** to take a lot of careful planning, good care and management to make our laying flocks pay for the scarce and valuable feed and labor of the coming year.

Most poultry keepers are aware of this, but just what can one do to help the situation? Here are a few suggestions we have to offer:

1. Keep only pullets unless you are a breeder and have unusually valuable old hens. Pullets will lay more eggs and the death loss will be lower—if they are good pullets that have been well cared for.

2. Cull strictly several times a year. That culling may well begin now, getting rid of the old hens as rapidly as possible so that they are all gone well in advance of the time the pullets start laying.

3. Put the house in the best possible shape, and insulate it if possible. A straw loft will result in a warmer house in winter and a cooler one in summer.

4. Give your laying house a thorough cleaning and disinfecting before the new pullet flock goes into it.

5. Make sure you have plenty of feeder space. There should be two 8-foot feeders, permitting the pullets to feed from both sides, for each 100 birds.

6. Don’t neglect the watering. One hundred layers will drink between 5 and 6 gallons of water daily.

7. Feed abundantly a ration that is “built” to produce eggs. It does not pay to make your hens and pullets roam over the farm and “hunt” their feed.

**The Feeding System**

Various systems and all kinds of rations are used in feeding birds for egg production. These include:

1. All-mash,
2. Grain feeding,
3. Mash and grain,
4. Free-choice,
5. Moist mash,
6. Pellets and various combinations of these systems.

The system used most commonly is probably the mash and grain method. An 18 or 20-percent protein mash is kept before the pullets constantly. The birds are given about as much grain in the late afternoon as they will clean up. Usually they will eat about equal parts of mash and grain.

Another system that is popular with Iowa farm people is the free-

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**SUGGESTED WARTIME LAYING MASHES**

<table>
<thead>
<tr>
<th>Percent Protein</th>
<th>18 Percent Protein</th>
<th>26 Percent Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 lbs.</td>
<td>Ground yellow corn</td>
<td>Pulverized oats or barley</td>
</tr>
<tr>
<td>75 lbs.</td>
<td>Ground wheat (or wheat bran or middlings)</td>
<td>35 lbs.</td>
</tr>
<tr>
<td>50 lbs.</td>
<td>Alfalfa meal (17% protein)</td>
<td>102</td>
</tr>
<tr>
<td>10 lbs.</td>
<td>Dried milk</td>
<td>10</td>
</tr>
<tr>
<td>15 lbs.</td>
<td>Meat scraps</td>
<td>25</td>
</tr>
<tr>
<td>70 lbs.</td>
<td>Soybean meal</td>
<td>180</td>
</tr>
<tr>
<td>25 lbs.</td>
<td>Corn gluten meal</td>
<td>30</td>
</tr>
<tr>
<td>20 lbs.</td>
<td>Oyster shell or limestone flour (95% calcium carbonate)</td>
<td>40</td>
</tr>
<tr>
<td>40 lbs.</td>
<td>Steamed bone meal</td>
<td>55</td>
</tr>
<tr>
<td>10 lbs.</td>
<td>Fine salt</td>
<td>20</td>
</tr>
<tr>
<td>2 lbs.</td>
<td>Feeding oil</td>
<td>4</td>
</tr>
<tr>
<td>1 oz.</td>
<td>Manganese sulfate</td>
<td>4 oz.</td>
</tr>
<tr>
<td>502 lbs.</td>
<td>Ground yellow corn</td>
<td>504 lbs.</td>
</tr>
</tbody>
</table>

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1. Feed approximately equal parts of whole grains (shelled yellow corn and oats or wheat) and mash when the 18-percent protein mash is used.

2. Self-feed grains with the 26-percent protein concentrate.

*3. The amount of vitamin A and D feeding oil included in these mash is based on an oil containing 400 A.O.A.C. chick units of vitamin D and 1,000 International units of vitamin A per gram. Feeding oils containing more or less of these vitamins per gram should be adjusted accordingly.

**4. Steamed bone meal can be replaced with rock phosphate or other suitable calcium and phosphorus materials containing less than 1 percent of fluorine.**

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[Image of chickens in a coop]

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choice method. With this system one keeps before the birds all of the time a 26 to 32-percent protein concentrate in a separate compartment of a feed hopper and grain in other compartments. This system allows the birds to satisfy their individual appetites. Some will eat more grain and less mash than others.

The free-choice method of feeding has the advantages of reducing the amount of labor and of keeping feed continually before the birds. Late or early chores will make no difference. Furthermore, the birds will eat more whole grain, thereby tending to reduce feed cost. The pullets will consume about one part of a 26-percent protein mash to three of grain. The total protein intake with either system of feeding will probably vary between 14 and 16 percent.

For good egg production, a well-balanced laying ration is indispensable. Ordinarily 20 to 40 percent of the total protein is derived from animal sources—dried milk, meat scraps, meat and bone meal—but because of the war, our laying rations now contain only from 1.12 to 2.25 percent, and the rest is made up from vegetable sources. It is important, then, to supplement the laying rations with proteins, minerals and vitamins obtained from tender, green feed whenever possible.

During this wartime period we have continually found it necessary to keep adjusting the laying rations to use the feeds available. The laying rations which we are suggesting now are shown in the accompanying table. We have listed both an 18-percent protein mash and a 26-percent protein concentrate.

The mashes suggested are planned for egg production—not for breeding flocks.

### Make Room for Pullets

Some of our poultrymen this year will probably be facing the problem of housing their early hatched pullets with only one laying house available and that being used by hens that are still laying. If pullets are left on the range until they start laying, they may undergo a partial molt and stop laying when they are transferred to the laying house.

Now if you are going to depend on your pullets for eggs during the coming year and are going to sell your old hens, then you had better move the hens out of the laying house in time to get it cleaned up and ready for the pullets. These old hens that are still laying may be transferred to range shelters or to some cheap shelter that can be fixed with roosts, nests and space for the feeders and water containers.

It seems far wiser to take a chance of throwing these old hens out of production than to leave the pullets out too long with the possibility of throwing them into a molt by moving them after they have started laying. Most of the old hens are probably close to the end of their laying period and will be marketed anyway.

About 2 weeks before the pullets are brought in to the laying house, shift them from growing mash to the laying mash which they will be fed when they are housed. It's enough of a change to move the birds without making them adjust themselves to a new mash. This shift to a laying mash while still on the range is just one more precaution against forcing the pullets into a molt.

By the time the pullets are into heavy production, most of the hens will have stopped laying and can be on the market. The only poultryman who ordinarily can afford to keep yearling or older hens in addition to pullets is the man who is producing hatching eggs—the breeder.

Put your time and energy and valuable feed into the pullets—they are the revenue-producers.

### Good Jar Seals... A 'MUST'

**A Discussion of Why Food Spoils, Jars Break, Explode or Lose Too Much Liquid**

**By HELEN VIRGINIA JOHNSON**

*One of the reasons women have difficulty with the spoiling of canned fruits and vegetables is that they fail to get proper seals on the jars. This was revealed in the survey which was made last fall by the Iowa State Nutrition Council and Iowa State College. This survey was reviewed in the April issue of Farm Science Reporter.*

From our observations here at the Iowa Station and from facts gathered elsewhere, we are presenting here the best information that we have concerning this problem and others in canning.

**Spoilage—Self-Sealing Lids**

A great deal of spoilage, as revealed in the survey, occurred when a certain brand of self-sealing lids was used. Other brands of self-sealing lids also entered into the picture. Whether certain self-sealing lids were actually inferior or whether merely more of them were available on the market remains a question. Very likely more were available at retail stores.

Why should self-sealing jar lids cause so much spoilage? Perhaps many women in their desire to do the canning job well, did not read carefully the new specific directions for this type of lid and, instead, followed the habits formed in previous years.

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The self-sealing cap consists of a flat metal lid held in place with a screw band. Rubber compound “put” on the underside of the metal lid takes the place of a separate rubber ring. The “right adjustment” is to screw it down completely and firmly, but without doing a vise-like job. There is enough “give” in this cap to allow steam to escape during canning. When the canning process is finished this type of jar cap should not be touched to make it “tighter.” Any attempt to tighten at this time may break the seal.

The amount of rubber compound on the self-sealing jar cap must no doubt be less than in previous years. This fact necessitates a thorough examination of the jars to be used. Since the seal takes place at the top of the jar rim, this rim must be smooth and flawless — without nicks or “bumps.” The less rubber compound on the jar lid, the more important it is for the jar rim to be flawless. One should examine the jars beforehand and eliminate all of those that are unfit for use with the self-sealing lid. These same jars, however, may be usable with another type of jar cap.

Excess water loss in canning will cause small particles of food to get under the rubber compound of the self-sealing lid. As a result, the lids may loosen.

Canning Explosions and Breakage

Canning explosions have frequently occurred when three-piece lids have been used. The three-piece cap consists of a metal screw band, a glass lid and a separate rubber ring. When the jar is filled, put the lid on the jar, rubber side down. Screw the metal band on firmly; then turn back one-quarter turn. This type of jar closure should never be sealed tight before processing. There must be some way for steam and air to escape. The three-piece cap requires a looser adjustment than any other type. When the canning process is finished, the screw band should be tightened to complete the seal. This is especially important in oven canning.

Lack of head space at the top of a jar — filling the jar too full — may also cause an explosion. Solid food should be put into a jar, covered with a good proportion of liquid and proper head space left at the top of the jar for the food to expand. Starchy corn, peas and beans may need 1 inch of head space. For other vegetables and fruits ½ inch is sufficient. As this space gets smaller due to expansion of the food, the pressure increases proportionately.

The filling temperature also affects the size of the head space. The cooler the food is at the time of filling, the less head space there will be later.

Sudden cooling of jars may cause breakage and even explosions. Slow cooling, such as leaving the jar in the pressure cooker for a while, will prevent some bad accidents. When the jar is cooled too quickly, too great a difference in pressure between the outside and inside of the jar will result in bursting of the jar if the seal is quite tight.

Explosions have occurred where women have held over jars which had been packed hot and would not go into the pressure cooker because it already was filled to capacity. Later, these jars were placed in the cooker and processed. Undoubtedly, they had sealed themselves while waiting.

Explosions can also be prevented by slow release of pressure when pressure cookers are used.

Square jars are more likely to break during processing than round ones. The forces resulting from pressure within the jar tend to make a square one want to bulge at the sides. In glass jars this might mean breakage.

Loss of Liquid

Loss of liquid in the jar depends upon several factors. In the pressure cooker it is generally believed that liquid is lost because the pressure exerted by the vapor in the jars is at some time greater than in the cooker. There are two times during processing when the two pressures may not be equal, if the pressure cooker cools rapidly or if the pressure fluctuates while processing.

Loss of liquid is greater the smaller the head space. Also, more liquid would escape if the jars were filled at a low temperature rather than a high one, for expansion would be greater.

In the pressure cooker the seal is also a factor in water loss. It has been found that the amount of liquid lost is much less when a tight seal rather than a loose seal is used. The largest proportion of liquid is lost in pressure cooker processing when the pressure is released at the end of the processing period. The shorter the period of steam escape, the greater the loss of liquid from the jar. It is advisable to release the pressure slowly, taking from 8 to 10 minutes to do so.