

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

SDSU Extension Fact Sheets

SDSU Extension

1970

Feeding Chickens

Cooperative Extension South Dakota State University

Follow this and additional works at: https://openprairie.sdstate.edu/extension_fact

Recommended Citation

South Dakota State University, Cooperative Extension, "Feeding Chickens" (1970). *SDSU Extension Fact Sheets*. 545.

https://openprairie.sdstate.edu/extension_fact/545

This Fact Sheet is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in SDSU Extension Fact Sheets by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



For current policies and practices, contact SDSU Extension

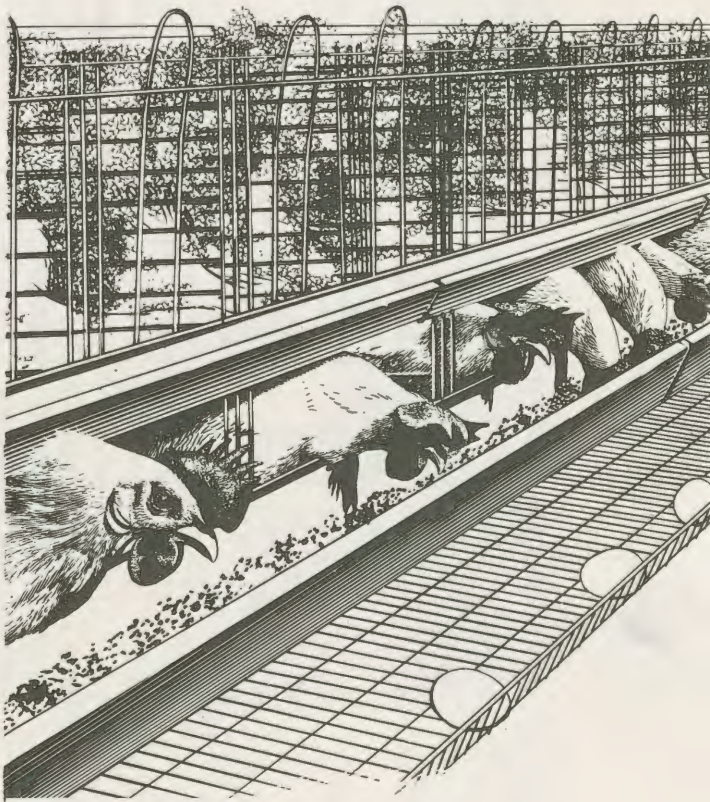
Website: extension.sdstate.edu

Phone: 605-688-4792

Email: sdsu.extension@sdstate.edu

SDSU Extension is an equal opportunity provider and employer in accordance with the nondiscrimination policies of South Dakota State University, the South Dakota Board of Regents and the United States Department of Agriculture.

Feeding Chickens



Cooperative Extension Service
South Dakota State University
U. S. Department of Agriculture

FEEDING CHICKENS

In South Dakota, most of the poultry feed sold is used to raise replacement pullets and feed layers. It takes about \$4 million in feed to raise the egg production replacement flock for the state each year and an additional \$12-15 million worth to produce the egg crop.

Getting the right nutrients to the birds in an efficient and practical form requires the teamwork of many people. The nutritionist must keep up-to-date in the research field to be able to prescribe the latest formulas to provide the required nutrients in the most efficient way. The feed mixer keeps abreast of research to know which ingredients to use and how they should be mixed. He should have adequate equipment to build the formulas according to the nutritionist's specifications. Finally, the flockowner needs to supply the right feed to the chickens in the right amounts and at the right time to do the right job.

STARTING THE PULLETS

Start young pullets on feed between 24 and 48 hours after they are hatched. The first feed can be rolled oats or cracked corn. Let them fill up on this for 5 to 6 hours. A low protein feed such as this will minimize sticky droppings or "pasting" trouble.

A balanced diet is essential after the first feeding period. A good quality chick starter is usually adequate. However, a prestarter feed fortified with high vitamin and antibiotic levels may get the chicks off to a faster start under stress conditions.

Starter feed should be available to the birds at all times until they are 8-10 weeks of age. Birds can be fed whole grains in small amounts at about 6 weeks of age where this fits into feeding system recommendations.

GROWING THE PULLETS

At 10 weeks of age, the pullets may go on one of several feeding systems. These vary from the simple program of cafeteria feeding (18% to 27% protein mash, crumbles, or pellets, each fed with grain) to a complete feed containing about 12% to 15% protein.

Some prefer feeding systems which either restrict the amount of feed or the availability of nutrients in the feed through the use of low energy or high fiber ingredients. The system to use depends upon the grower's preference. Restricting the amount of a regular high energy feed requires that attention be given to the feed consumption records. The feed should be restricted to about 70% of normal or no more than 12-14 pounds of feed per 100 pullets per day, depending on their age.

When using the low energy or high fiber grower feeds given in Table 2, the pullets should be allowed to eat all the feed they want. They may consume great

amounts, and some poultrymen have objected to the increased labor requirement for handling the feed.

The low energy feeding system does not retard sexual maturity to the extent of the restricted high energy or the high fiber system, but the birds will lay small eggs when production starts. Some interest is developing in the use of progestin type hormones to restrict sexual maturity.

A reduction in laying house mortality is usually experienced when either of the feed restriction systems is used.

Any one of the systems can be used to do a good job. Follow instructions given by the feed manufacturers. It is important that pullets receive the correct amounts of the minerals and vitamins listed in Table 1.

FEEDING THE LAYING HENS

Maximum performance at minimum cost is the guiding principle for producing eggs. For Leghorn-type pullets, the maximum nutrient intake should produce the best returns. Thus, a balanced ration must always be available and all hens must be able to eat when they are hungry.

Various feeding systems are about equal for egg production. Four systems are: (1) A complete feed such as mash, pellets, or crumbles. (2) Mash or crumbles with pellet supplements. (3) 18% to 22% protein mixtures with restricted whole grain. (4) 26% to 27% protein fed free choice with whole grain. These are all satisfactory feeding systems when used properly.

The complete feed system is by far the most popular with the increased use of mechanical feeders and bulk handling. Quality controlled egg programs require that a complete ration be fed.

There is evidence that up to a 10% increase in feed efficiency can be obtained from the all-mash systems compared to grain with mash systems, though egg production may not be greatly affected.

Whether a poultryman should use commercial complete feed, a commercial concentrate to mix with his own grains, or attempt to mix a complete ration according to formulas available through his county agent or Extension specialist, is largely a matter of availability, cost of ingredients or individual preference. A means of obtaining the proper feed by one poultryman may not be most economical or desirable for another.

It is usually impractical for a poultryman with up to 50,000 hens to own facilities for mixing such ingredients as 1 gram of riboflavin or 5 grams of an antibiotic in a ton of feed. Some find it economical to mix commercial concentrates with home grown

grains. Some own the mixing equipment; others rely on portable mills or local commercial mixers.

Those who do not have their own grains can often purchase the complete feed for less than it would cost for the ingredients, charges for mixing, and the value of time involved in hauling and mixing.

RECOMMENDED FEED FORMULAS

Table 2 shows one set of recommended formulas for the South Dakota area.

If you decide to use one of the formulas, be certain to use the exact ingredients in the specified amounts. A change in any formula, no matter how minor it may seem, should be cleared with its originator.

An egg breaker mash is included in the formula table for flocks producing eggs for a special breaker market. Do not use such a feed to produce eggs for the

table egg market, since the yolks will be dark and downgrading may result. It will take about 10 days to 2 weeks on this feed for the maximum dark yolk color to be produced, and dark yolked eggs will be produced for 3-4 weeks after the hens are returned to a more normal feed.

Some table egg markets may object to the color of yolks produced with 72% corn, as the regular all-mash feed contains. If so, it is permissible to replace part of the corn with wheat, oats, barley, proso millet, or milo. However, except for milo or wheat, no more than 500 pounds of these grains should be used per ton of feed.

Using higher fiber feeds such as oats, barley, and proso millet will lower feed efficiency, increase water consumption, and increase the volume of droppings produced.

TABLE 1. SOME COMPONENTS OF POULTRY DIETS

| NUTRIENT | VALUE* | SOURCES |
|---------------------------------|--|--|
| Carbohydrates and fats | Energy, convert to body and egg fat | Cereals, by-products, animal and vegetable fats and oils |
| Proteins—Essential amino acids† | Muscle, egg yolk and white, blood constituents, etc. | Soybean meal, meat scraps, fish meal |
| Water | 55-70% of egg and body weight | Fresh water |
| Minerals‡ | | |
| Calcium | Skeleton, egg shells, body fluids (rickets) | Oyster shell, limestones |
| Phosphorus | Skeleton, body fluids (rickets) | Various phosphates (rock or dicalcium) |
| Manganese | Normal bone formation (perosis) | Manganese sulfate |
| Iodine | Normal thyroid function (goiter) | Iodized salt |
| Sodium | Ionic balance of body fluids | Iodized salt |
| Chlorine | Ionic balance of body fluids | Iodized salt |
| Zinc | Normal bone formation (enlarged hocks) | Zinc chloride (or sulphate) |
| Vitamins‡ | All necessary for rapid growth | |
| A | Normal surface tissues, general condition | Alfalfa, yellow corn, synthetics |
| D | Normal bone formation (rickets, thin shells) | Synthetics |
| E | Anti-oxidant, nervous tissue (crazy chick) | Whole cereals, green feeds, synthetics |
| K | Normal blood clotting (hemorrhage) | Green feeds, synthetics |
| Riboflavin | Good hatchability (curled toes) | Milk or fermentation by-products, synthetics |
| Cobalamine (B ₁₂) | Good hatchability (death at 19-20 days) | Animal proteins and fermentation by-products |
| Niacin | General condition (broken feathers-perosis) | Wheat by-products, synthetics |
| Pantothenic acid | General condition (dermatitis) | Cereal grains, synthetics |
| Choline | General condition (perosis-fatty liver) | Soybean meal, synthetics |
| Drugs—(Not essential) | | |
| Antibacterial agents | Will increase growth rate and feed efficiency and possibly egg production or hatchability under stress | Fermentation by-products, microbial growth, synthetics |
| Tranquilizers | Anti-stress agents, e.g. layers in hot weather crowding, catching, and moving, etc. | Synthetics |
| Coccidiostats | Allow development of immunity with no mortality | Synthetics |

*Items in parentheses are deficiency symptoms.

†Five amino acids most likely to be deficient are arginine, glycine, lysine, methionine, and tryptophane.

‡Only those of much practical importance for chickens are listed.

TABLE 2. RECOMMENDED FEED FORMULAS (LBS. PER TON)

| INGREDIENTS | STARTER DIETS | | GROWER (10-20 wks.) | | | | LAYING DIETS | | | BREEDER |
|----------------------|-------------------|---------|---------------------|------------|------------|----------|---------------|-------|--------------|---------|
| | Egg prod. pullets | Broiler | All-mash | | | All-mash | Egg break-er† | | Free Choice* | Mash |
| | | | Regular | Low energy | High fiber | | Free choice* | | | |
| Calculated % protein | 20 | 25 | 16 | 14 | 12 | 26 | 16 | 16 | 26 | 16 |
| Ground yellow corn‡ | 1,239 | 983 | 1,510 | ----- | ----- | 510 | 1,429 | 1,099 | 240 | 1,364 |
| Oat hulls | ----- | ----- | ----- | ----- | 600 | ----- | ----- | ----- | ----- | ----- |
| Ground oats | ----- | ----- | ----- | 1,650 | 1,000 | 400 | ----- | ----- | 100 | ----- |
| Wheat midds | ----- | ----- | ----- | 100 | 100 | 100 | ----- | ----- | 600 | ----- |
| Soybean meal (47%) | 500 | 740 | 240 | 40 | 90 | 550 | 280 | 200 | 260 | 280 |
| Meat scraps | 100 | ----- | 100 | 40 | 40 | 100 | 100 | 100 | 300 | 100 |
| Alfalfa meal (17%) | 40 | ----- | 40 | 40 | 40 | 120 | 40 | ----- | 120 | 40 |
| Alfalfa meal (20%) | ----- | 20 | ----- | ----- | ----- | ----- | ----- | 400 | ----- | ----- |
| Fish meal | 40 | 40 | 20 | 20 | 20 | 30 | ----- | ----- | 120 | 20 |
| Dried whey | 40 | 40 | 40 | 40 | 40 | 100 | ----- | ----- | 120 | 40 |
| Dicalcium phosphate§ | 10 | 30 | 10 | 20 | 20 | 40 | 30 | 30 | 80 | 30 |
| Salt | 10 | 10 | 10 | 10 | 10 | 20 | 10 | 10 | 30 | 10 |
| Limestone | 10 | 20 | 20 | 30 | 30 | ----- | 100 | 100 | ----- | 100 |
| Methionine | 1 | 2 | ----- | ----- | ----- | ----- | 1 | 1 | ----- | 1 |
| Yellow grease** | ----- | 100 | ----- | ----- | ----- | ----- | ----- | 50 | ----- | ----- |
| Vitamin supplement†† | 10 | 15 | 10 | 10 | 10 | 30 | 10 | 10 | 30 | 15 |

*To be used free-choice with grain such as corn (2 parts) and oats (1 part). Oyster shells and granite grit should be available at all times, granite grit also with all-mash rations.

†To be used only for production of dark-yolked eggs. Fresh high quality 20% protein alfalfa meal is essential as is new crop yellow corn. Also marigold meal, corn gluten meal, and synthetic pigments may be used according to manufacturers' directions.

‡Other cereal grains, such as oats or barley, could replace corn in these diets, except for 0-4 weeks. Lower feed efficiency would result, but such low energy diets may be desirable for replacement stock. Wheat or milo could be used pound for pound in place of corn.

§Any high grade phosphorus containing product can be used. Availability and content of phosphorus must be considered.

||Salt containing 0.5% manganese, 0.2% zinc, and 0.1% iodine or a near equivalent.

**Stabilized animal fat, yellow grease preferred to tallow.

††Vitamin and antibiotic supplement.

TABLE 3. VITAMIN AND ANTIBIOTIC SUPPLEMENT

| INGREDIENT | | AMOUNT IN 10 POUNDS | | | |
|---------------------------------------|--------|---------------------|-----------|-----------|-----------|
| | | Starter | Grower | Layer | Breeder |
| Vitamin A | I.U. | 2,000,000 | 2,000,000 | 4,000,000 | 4,000,000 |
| Vitamin D ₃ | I.C.U. | 500,000 | 500,000 | 1,000,000 | 2,000,000 |
| Vitamin E | I.U. | 5,000 | 5,000 | 5,000 | 10,000 |
| Menadione (Sodium Bisulfite) | gm. | 1 | 1 | 1 | 1 |
| *Riboflavin | gm. | 5 | 4 | 4 | 6 |
| *Pantothenic Acid | gm. | 10 | 8 | 8 | 12 |
| Choline | gm. | 150 | 100 | 100 | 100 |
| *Niacin | gm. | 30 | 24 | 24 | 24 |
| Cobalamine (B ₁₂) | mg. | 12 | 6 | 6 | 12 |
| Santoquin (or BHT) | gm. | 100 | 100 | 100 | 100 |
| *Antibacterial Agent ^{1,2,3} | | +1,2,3 | ±1,2 | ±1,2 | ±1,2 |

*Only ingredients needed in grower rations if outside range and ample green forage are provided.

¹This could be any one of the following, per 10 lbs. of supplement: (Check for F.D.A. approval) 10-25 gm. Aureomycin, Terramycin, Tylosin, Bacitracin or furazolidone (nf-180), or penicillin-streptomycin or penicillin-bacitracin mixture, 2-4 gm. Oleandomycin or Erythromycin, 45 gm. 3-nitro, 4-hydroxyphenylarsonic acid (30 gm. for broiler or breeder), or 90 gm. arsenic acid (60 gm. for broiler or breeder).

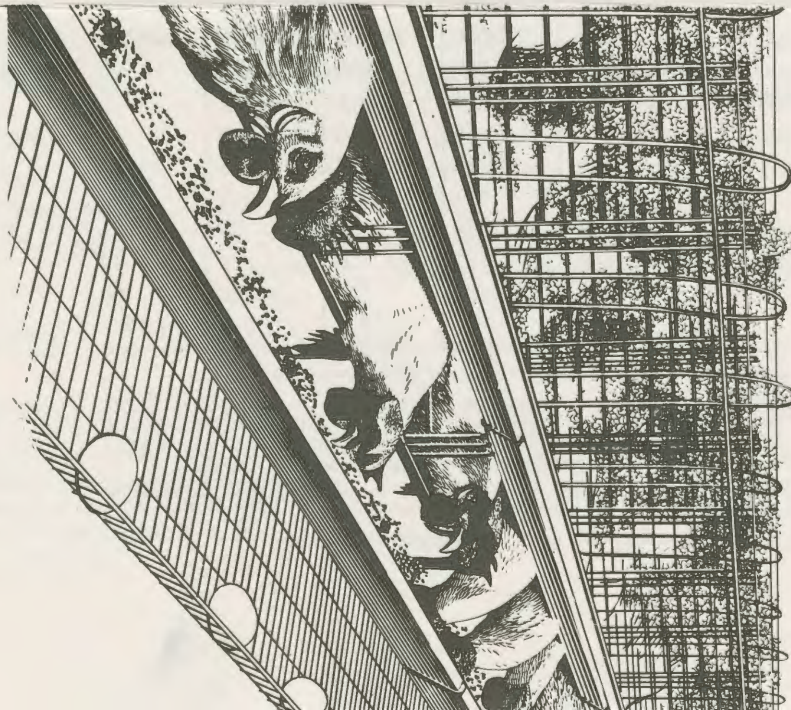
²For therapeutic treatments, 50 to 200 gm. of Aureomycin, Terramycin, Tylosin, Bacitracin, furazolidone (nf-180), or penicillin mixtures could be used.

³A coccidiostat should be used in starter diets according to the manufacturer's directions.

TABLE 4. FEEDING SUGGESTIONS AND EQUIPMENT

| | FEED | KIND OF EQUIPMENT | AMOUNT OF EQUIPMENT |
|-------------------------------|--|--|--|
| Starting period | Oat meal or cracked corn (5 to 6 hours) Starter | Clean egg flats for 3 or 4 days and cut down chick boxes to 10 days Round hanging feeders, trough type or automatic feeders | Four egg flats or 1 box per 100 birds. Two to three hanging feeders or 5 feet of automatic trough or two 5-foot trough type per 100 birds |
| | Grain (if fed, from 6-10 weeks) | Place in mash feeders or in litter | |
| 0-10 weeks | Chick size grit | Sprinkle on feed twice a week | |
| | Water | 1-quart glass fountains first 10 days Larger or automatic fountains or drinking cups or nipples | 2 per 100 birds 1 to 200 birds |
| Growing period 10-20 weeks | All-mash or mash and grain combination (12-16% protein in total ration) | Range—Feeders that will protect the feed from wind and rain Confinement—Round hanging feeders, trough type or automatic feeders | Four 5-foot trough feeders or 4 round hanging feeders per 100 or automatic, according to manufacturer's directions |
| | Medium size grit and oyster shell | Grit and shell hoppers | 1 round hanging feeder per 500 birds |
| Laying period | Water | Large fountains or automatic waterers, cups or nipples | 1 per 100, or automatic, according to manufacturer's directions |
| | All-mash or mash and grain in several combinations (about 16% protein in total ration) | Round hanging feeders, trough type or automatic feeders | 4 round hanging or four 5-foot per 100, or automatic, according to manufacturer's directions |
| | Hen size grit and oyster shell | Grit and shell hoppers | 1 round hanging feeder of each per 500 birds |
| | Water | Automatic fountains, cups or nipples | According to manufacturer's directions. Within 10-12 feet of feed in all areas of the house |

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture
John T. Stone, Dean of Extension, South Dakota State University, Brookings, 57006.
5M-4-70—File 4.9-3—Replaces FS 316-10936



Feeding Chickens

Cooperative Extension Service
South Dakota State University
U. S. Department of Agriculture