UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXTENSION SERVICE

CIRCULAR 507 Columbia, Mo. MARCH, 1944

Feeding Baby Chicks

H. L. KEMPSTER

Success in raising baby chicks depends largely upon feeding proper rations. Chicks must get a good start if they are to develop into vigorous growing stock and good layers. Strong, healthy chicks are necessary, but they also require sanitary quarters, freedom from dampness, and a comfortable temperature. Of equal importance, however, is a properly selected diet.

The Way to Feed

Rations for chicks consist of starter and growing mashes and grains. The starter mash constitutes the entire ration for the first 6 to 8 weeks. The first feed may be given preferably by the time the chicks are 48 hours old rather than later.

While mashes are fed in hoppers it is a good plan to place the first feed on card board trays placed near the hover. In feeding chicks it is especially important to provide adequate hopper feeding space. At least 2 linear inches of feeding space should be provided each chick and more as the chicks increase in

THE MISSOURI WARTIME CHICK RATIONS

Chick Starter		Growing Mash	
Yellow corn meal (46%)	230 lbs.	Yellow corn meal (26.3%)	100 lbs.
Wheat shorts (15%)	75 "	Wheat shorts (26.3%)	100 "
Wheat bran (5%)	25 "	Wheat bran (26.3%)	100 "
Alfalfa leaf meal (10%)	50 "	Alfalfa leaf meal (4.2%)	16 "
Meat scrap (7%)	35 "	Meat scrap (7.9%)	30 "
Soybean oil meal (15%)	75 "	Soybean oil meal (7.9%)	30 "
Salt (1%)	5 "	Salt (1%)	4 "
Feeding oil* (1%)	5 "		
Total (100%)	500 lbs.	Total (100%)	380 lbs.

*The standard feeding oil has a vitamin D potency of 85 AOAC chick units per gram or approximately 39,000 units per pound.

According to the U. S. Department of Agriculture, if one-half of 1% of the total ration is feeding oil of this potency adequate protection is provided. Fortified oils carrying 400 AOAC vitamin D units per gram should be used at the rate of one-eighth pound per 100 pounds of feed and are frequently less expensive as a source of vitamin D. In fact, vitamin D concentrates known as "D activated" animal sterols and having a potency of 1000 and even as high as 2000 AOAC units are now available. As soon as the chicks can be exposed to direct sunshine the use of cod liver oil or other sources of vitamin D in the diet can be discontinued.

size. (For details on feeding and watering equipment see Missouri Agricultural Extension Service Circular 419, Homemade Poultry Equipment.)

The cockerels, if they are to be marketed as broilers, can be fed on the starter mash until marketed but those chicks to be retained as laying pullets or breeders should be changed to a grain and mash system of feeding at least by the time the chicks are 8 weeks old. The growing mash should be fed in conjunction with grains such as corn, wheat, oats, etc., which may also be hopper fed. Such a ration may be fed until the pullets are transferred to winter quarters.

The problem of the poultryman relative to feeding is to see that feed is always before the chicks, that liberal feeding is practiced and that the feed is clean and wholesome. The drinking utensils should be kept clean and clean fresh water should always be provided, except of course when liquid milk is fed. Good sanitation suggests the frequent changing of the location of the feed hoppers; also the use of care to discourage the chicks from picking up feed from the ground. For this purpose outdoor hoppers may be employed for both the grain and mash.

What Makes a Good Ration

Rations for baby chicks should contain nutrients necessary to furnish both heat and energy and to manufacture tissue, bone, muscle and feathers. Since poultry must be protected regularly from vitamin deficiencies, the prudent feeder will provide vitamins as carefully as he will provide proteins or minerals. The ration should be made up of clean, wholesome feeds properly mixed, and having a limited but adequate amount of crude fiber or roughage.

Adequate Protein is Necessary

Chick starter rations should contain 18-20% protein; broiler rations 22% protein and rations for growing stock approximately 16%. It is thus seen that while grains and grain by-products form the major portion of a chick's diet, these must be supplemented with feeds rich in protein if the chick is to be grown successfully. Feeds rich in protein from animal sources commonly used in chick rations are milk, meat scrap and fish meal.

Milk, Good Source of Protein

Milk in some form, such as liquid skimmilk, dried milk products or condensed buttermilk, is probably the most satisfactory type of animal food. If liquid skimmilk is to be depended upon as the sole source of protein concentrate it should be given as a drink and to insure the consumption of an adequate amount no water should be given. The value of milk in chick rations is greatly enhanced by the fact that it is a rich source of riboflavin and contains many other valuable nutrients.

Because of their scarcity and higher cost, milk products are not used in poultry rations as much as in former years. It is possible to design satisfactory poultry rations which do not include milk.

Meat Scrap Supplies Protein

Commercial meat scrap is also an excellent animal protein supplement. Meat scrap should contain 50 to 55% protein and not over 10% fat. Meat scrap of this quality usually contains 20 to 25% bonemeal. Meat-and-bone meal contains a much higher amount of bonemeal and, if used in baby chick starter rations, may increase the mineral content of the ration to such a high level that trouble from perosis (slipped tendons) may occur. Fish meal is frequently used in chick rations and may be considered a substitute for the meat scrap.

Soybean Oil Meal

Feeds rich in protein from vegetable sources may be used to provide protein. Recent investigations indicate that soybean oil meal may be used as a substitute for animal protein concentrates in chick rations. The usual recommendation is that one-fifth of the protein should be derived from animal sources but rations using smaller proportions of protein from animal sources have proved satisfactory. To do this it is necessary to provide adequate minerals and vitamins from other sources.

Poultry Needs Abundance of Vitamins

Vitamins are necessary for growth and the maintenance of health. Where natural feedstuffs constitute the ration the vitamins most likely to be deficient in poultry rations are vitamins A and D and riboflavin. Vitamin D must be purchased as a concentrate. The other two can be provided by common feedstuffs if they are properly selected.

Vitamin A in Yellow Corn and Green Feed

Yellow corn and the green leafy parts of plants are excellent sources of vitamin A. When yellow corn constitutes approximately 50% of the starter mash the chick's vitamin A requirements are usually met. Dried leafy products such as alfalfa leaf meal, dehydrated alfalfa, etc., are usually found in most chick starters.

Vitamin D is Important

The chick must have this vitamin D in order to utilize the minerals necessary for growth. So-called leg weakness, which used to be so common with chicks grown out of season, was due to absence of vitamin D. Either the vitamin must be fed or the chicks should be exposed to direct sunshine which is equivalent in its effect. Since sunshine through glass or glass substitutes is ineffective it is necessary to get chicks outdoors at the earliest opportunity or, if confined, the chicks should get vitamin D in the ration.

Green Feed and Milk Supply Riboflavin

Characteristic symptoms of riboflavin deficiency are poor growth and curled-toe paralysis. The baby chick requirements are 1.5 milligrams per 100 pounds of feed. Extremely rich sources of riboflavin are liver and yeast. Synthetic or crystalline riboflavin is becoming available.

Milk and green leafy materials, dehydrated alfalfa leaf meal, alfalfa leaf meal and distillers dried solubles are important sources of riboflavin. Where the range furnishes an abundance of green leafy material and weather permits the chicks to be exposed to sunshine, excellent results may be secured from rations which would be entirely inadequate for chicks grown in confinement. Even though the chicks are allowed the use of range there are periods of the year when green leafy material is not available. At such times the use of dried leafy material is advisable. Frequently the dry leaves that shatter from legume hays can be saved and used to advantage in feeding the poultry flock. In order to meet the standards it is necessary to include about 10% alfalfa leaf meal in the rations. Formerly chick starters contained 5% of alfalfa and 5% dried milk in order to provide the necessary amount of riboflavin.

Minerals are Important

While the absence of certain minerals will cause certain deficiency diseases, a ration containing milk, meat scrap, and natural feedstuffs will ordinarily furnish an adequate supply of minerals with the exception of salt, which should comprise from ½ to 1% of the ration. A ration containing 7% meat scrap in addition to the other ingredients ordinarily used in chick rations will furnish sufficient minerals to satisfy the chick's requirements. Occurrence of perosis (slipped tendons) may result from too much mineral in the ration. A deficiency of manganese may also cause the same trouble. One-fourth of a pound of manganese sulfate to a ton of feed is sufficient to prevent slipped tendons. Should all the protein in the ration be derived from plant sources the ration should contain 3% bonemeal.

Wheat By-Products Are Desirable

Wheat by-products such as bran, middlings, shorts or mill feeds should be added to the ration. A combination of ground wheat and bran may also be used. Ground oats of good quality and low in fiber may be used as a substitute for shorts in chick rations. There is evidence that the use of oats discourages cannibalism. The use of wheat bran in addition to furnishing desirable food nutrients also adds the necessary bulk to the ration. Adequate fiber in the ration improves feathering and reduces the incidence of gizard erosions. Rations which are extremely fine are not so desirable. On the other hand the presence of too much bulk is inadvisable.

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
J. W. BURCH, Director, Agricultural Extension Service
Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914

University Libraries
University of Missouri

Digitization Information Page

Local identifier	EC507-1944

Source information

Format	Book
Content type	Text
Source ID	
Notes	

Capture information

Date captured	3/12/2024
Scanner manufacturer	Fujitsu
Scanner model	fi-7460
Scanning system software	ScandAll Pro v. 2.1.5 Premium
Optical resolution	600 dpi
Color settings	8 bit grayscale
File types	tiff
Notes	

Derivatives - Access copy

Compression	Tiff: LZW compression
Editing software	Adobe Photoshop
Resolution	600 dpi
Color	grayscale
File types	tiff
Notes	Images cropped, straightened, brightened.