

## **Feeding Bobwhite Quail**

**I**t is becoming increasingly popular to raise bobwhite quail for release in hunting or conservation areas and for sale to the gourmet food market. Bobwhite quail are the most popular game birds in the southeastern United States, and some farmers raise them for sport or additional income.

Although bobwhite quail have been raised domestically for many years, they are still "wild" birds compared to other domestic fowl. Consequently, a combination of good management and sound nutrition are essential to raising these birds successfully. Several good management guides are available from local libraries and county Agricultural Extension Service agents. This guide provides feeding information to supplement that available in management guide books.

### **Feed Quality**

Good commercially prepared game bird feed, available from most local feed stores, will usually satisfy the nutritional needs of bobwhite quail. For a large game bird operation, it may be less expensive to mix the complete feed on the farm.

Regardless of how the feed is obtained, it must be stored away from rodents and insects in a clean, dry place to prevent mold growth. A pair of rats can eat or contaminate almost 100 pounds of feed in a year. Use the feed within three weeks of the manufacturing date—sooner during hot, humid weather.

Stale or bad-smelling feed is evidence of spoilage and possible mold contamination. Never feed moldy feed because some molds produce mycotoxins that can cause serious health problems or poor growth. Bobwhite quail, especially the young chicks, are sensitive to poor feed quality.

The quality of feed ingredients is very important. Do not use grains that are contaminated with molds, weed seeds (such as crotalaria or coffeeweed), or dirt.

Avoid using old vitamin-mineral packs because they lose their effectiveness with time, especially if they have been exposed to sunlight or heat.

### **Feed Form**

Bobwhite quail prefer to eat feed particles that are "bite size." They avoid eating particles that are too small or too big. If the particle size is inconsistent, they may consume only certain ingredients of the feed, resulting in an unbalanced diet. A consistent fine crumble form is best for bobwhites before eight weeks of age and a coarse crumble or pellet is best for older ones. Pelleted feed results in better performance than mash feed. If mash feed must be used, it should not be powdery. Feed that is powdery can collect on the birds' toes and in the corners of their beaks, possibly causing an infection.

Bobwhite quail have a strong inclination to peck one another. This behavior is known as cannibalism and is common among released bobwhites that are 12 weeks of age and older. If cannibalism becomes a problem, it may be helpful to feed some whole oats, barley, or scratch grain along with some grit-free choice. Some ripe tomatoes, cabbage, turnip greens, a little alfalfa hay, or a few split green corn stalks in the pen corners may also be helpful. They provide valuable nutrients and keep bobwhites busy pecking on something other than each other.

### **Feeders and Waterers**

Bobwhites should be allowed free access to feed at all times. No matter how good the feed, proper feeder and waterer height and sanitation are critical to achieving uniform flock growth and minimizing cannibalism. The feeder should be at a level even with the crop area of the average bird. Waterers should be even with the back of the average bird. Feeders and waterers that are too low result in excessive waste. Those that are too high restrict the feed and water

consumption of the smallest birds and thus increase the size variation in the flock.

It is very important to provide sufficient linear space for each bird at the feeder and waterer to limit competition among birds. Table 1 gives the space requirements for bobwhite quail of different ages. Space requirements vary with the type of equipment and facility. Linear feed troughs and water jars are best for brooding bobwhite chicks. After the birds are two weeks old, circular feeders and waterers are best because they make the most efficient use of floor area.

**Table 1. Floor, Feeder, and Waterer Space Requirements for Bobwhite Quail**

Age	Floor Bird Density (sq ft/bird)	Feeder Linear Space (in./bird)	Waterer Linear Space (in./bird)
1 to 10 days	0.25	0.5	0.25
10 days to 6 weeks	1.0	1.0	0.5
6 weeks to maturity	2.0	1.5	0.5
Flight pen	5	1.5	0.5
Breeder cage	0.8	1.5	0.5
Breeder pen	2	2	0.5

Keep feeders and waterers clean of litter and other foreign matter. Shelter feeders from the sun, wind, rain, and snow to minimize feed spoilage. Also keep other animals, especially rodents and wild birds, away from the quail's feed because they can transmit diseases. Waterers should be cleaned and sanitized with a commercial nontoxic disinfectant three times a week. Avoid pouring the rinse water on the litter; instead pour it into a bucket and remove it from the pen to maintain a dry, clean environment for the birds. Always check that the waterers are working properly and not leaking.

**Table 2. Suggested Nutrient Requirements of Bobwhite Quail**

Nutrient	Age (weeks)				
	0-4	4-6	6-12	12-Adult	Breeder <sup>1</sup>
Metabolizable energy (kcal/lb)	1,300-1,400	1,300-1,430	1,300-1,430	1,200-1,430	1,150-1,300
Protein (%)	28	24	18	18	20
Lysine (%)	1.60	1.40	1.20	1.00	1.00
Methionine + cystine (%)	1.10	0.90	0.70	0.70	0.70
Glycine (%)	1.60	1.45	1.10	1.10	1.15
Calcium (%)	1.10	1.00	0.90	0.70	2.85
Total phosphorus (%)	1.00	0.75	0.80	0.65	0.70
Available phosphorus	0.60	0.50	0.45	0.40	0.45
Linoleic acid (%)	1.00	1.00	0.80	0.80	1.00

<sup>1</sup>Begin feeding breeder feed two weeks before the first egg is laid.

## Nutritional Requirements

The specific nutritional requirements for bobwhite quail are not known with certainty, but they are believed to be similar to those of other types of fowl. Suggested macronutrient and micronutrient requirements for bobwhite quail in different age categories are listed in Tables 2 and 3, respectively. Example rations that meet these nutrient specifications are listed in Table 4 on the last page.

## Feed for Small Flocks

Feed that is especially prepared for bobwhite quail is ideal. However, beware of cheap rations that contain large amounts of by-product ingredients. These feeds may cost you money through decreased weight gain, poor feathering, reduced egg production and hatchability, and other problems. A quality feed from a reputable dealer is usually the most profitable feed in the long run.

If the availability or cost of bobwhite feed is a serious limitation, turkey and chicken feed can be used as an alternative. A 28 percent protein turkey starter can be used for the first four weeks, followed by a 20 percent protein broiler or pullet replacement diet. The 20 percent protein diet can also be used as a starter if fast growth is not imperative, as when bobwhite quail are raised for a hunting preserve.

## Drugs for Disease Control

Ulcerative enteritis (quail disease) is the most common and destructive disease of quail. It is a bacterial infection of the gut, and death losses of young birds maybe as high as 100 percent if the disease is not controlled. The addition of zinc bacitracin or bacitracin methylene disalicylate, at 20 grams per ton of complete feed, helps control this disease.

Coccidiosis also frequently attacks quail raised on litter floors or on the ground. This disease usually occurs when the birds are from two to six weeks of age. Older birds that are reared in wire cages and then placed on the ground for flight conditioning may also contract a clinical case of coccidiosis, especially if unsanitary conditions exist in the flight pen. Adding amprolium, a coccidiostat, at 0.025 percent of the diet of growing quail can help control coccidiosis.

Penicillin may be used at 5 to 20 grams per ton of complete feed as an aid in stimulating the growth and improving feed efficiency of quail chicks up to five weeks of age.

The effectiveness of drugs in controlling disease or stimulating growth is best under good management and sanitation practices. Always consult a veterinarian for advice on proper drug usage, especially if a persistent or serious disease problem occurs.

### Sources of Additional Information

- McNaughton, J. L., and R. L. Haynes. 1978. *Nutritional Requirements of Game Birds*. Mississippi Cooperative Extension Service, Mississippi State University, Starkville.
- Reynnells, R. D., and S. A. Vezey. 1984. *Game Bird Production and Health*. Cooperative Extension Service, University of Georgia, Athens.

**Table 3. Micronutrient Requirements of Bobwhite Quail**

Nutrient	Vitamin-Mineral Package		
	1 0 to 6 Weeks	2 6 Weeks to Adult	3 Breeder
<b>Minerals</b>			
Potassium (%)	0.2	0.16	0.16
Sodium (%)	0.15	0.15	0.15
Sodium chloride (%)	0.20	0.20	0.20
Chlorine (%)	0.11	0.12	0.12
Magnesium (mg/lb)	300.0	300.0	300.0
Manganese (mg/lb)	40.0	40.0	40.0
Zinc (mg/lb)	35.0	25.0	30.0
Iron (mg/lb)	45.0	40.0	30.0
Copper (mg/lb)	3.6	3.0	3.6
Iodine (mg/lb)	0.15	0.15	0.20
Cobalt (mcg/lb)	90.0	90.0	90.0
Selenium (mcg/lb)	45.0	45.0	45.0
<b>Vitamins</b>			
Vitamin A (IU/lb)	3,000	2,000	3,000
Vitamin D (ICU/lb)	600	500	600
Vitamin E (IU/lb)	8.0	6.0	12.0
Vitamin K <sub>1</sub> (mg/lb)	1.1	1.1	1.1
Riboflavin (mg/lb)	4.0	2.0	4.0
d-pantothenic acid (mg/lb)	7.0	5.5	8.0
Niacin (mg/lb)	30.0	20.0	20.0
Vitamin B <sub>12</sub> (mcg/lb)	8.0	5.0	11.0
Choline (mg/lb)	1,000.0	800.0	600.0
Biotin (mg/lb)	0.14	0.10	0.10
Folic Acid (mg/lb)	1.5	1.0	1.0
Thiamine (mg/lb)	1.5	1.5	2.0
Pyridoxine (mg/lb)	2.0	1.5	1.8
Ethoxyquin (mg/lb)	60.0	60.0	60.0

Walker, W. S. 1983. *Raising Bobwhite Quail for Commercial Use*. Cooperative Extension Service, Clemson University, Clemson, South Carolina.

West, J. R. 1984. *Bobwhite Quail Management*. North Carolina Agricultural Extension Service, Department of Poultry Science, North Carolina State University, Raleigh.

Wilson, H. R., and C. R. Douglas. 1983. *Bobwhite Quail Production*. Information Series 83-1. Florida Cooperative Extension Service, University of Florida, Gainesville.

**Table 4. Example Rations for Bobwhite Quail**

Ingredient	Percentage of Complete Ration				
	0-4 Weeks	4-6 Weeks	6-12 Weeks	12 Weeks- Adult	Breeder
Yellow corn, #2 dent	44.15	55.85	71.85	65.40	59.00
Wheat middlings (std.)	.....	.....	.....	5.00	4.35
Soybean meal (48% protein)	43.50	34.80	18.70	24.00	24.5
Alfalfa meal (17% protein)	2.50	2.50	2.00	2.65	.....
Fish meal (60% protein)	5.00	4.00	.....	.....	.....
Meat and bone meal	.....	.....	5.00	.....	5.00
Animal fat	1.70	.....	.....	.....	.....
D.L. methionine	0.18	0.10	0.15	0.13	0.10
L-lysine-HCl	.....	.....	0.41	0.07	.....
Dicalcium phosphate (18.5% P)	1.60	1.30	0.70	1.50	0.60
Limestone	0.90	1.00	0.74	0.80	6.00
Iodized salt	0.25	0.25	0.25	0.25	0.25
Vitamin-mineral pack	0.20 <sup>1</sup>	0.20 <sup>1</sup>	0.20 <sup>2</sup>	0.20 <sup>2</sup>	0.20 <sup>3</sup>
Amprolium	0.025	0.025	.....	.....	.....
Bacitracin <sup>4</sup>	0.020	0.020	.....	.....	.....
<b>Calculated Analysis</b>					
Protein (%)	28.0	24.0	18.0	18.0	20.0
Metabolizable energy (kcal/lb)	1,300	1,320	1,380	1,350	1,275
Calcium (%)	1.10	1.00	0.95	0.75	2.95
Available phosphate (%)	0.60	0.50	0.45	0.40	0.45
Lysine (%)	1.70	1.40	1.20	1.00	1.00
Methionine + cystine (%)	1.10	0.90	0.70	0.75	0.75

<sup>1</sup>Supplies per pound of complete ration the vitamins and minerals in the amounts listed in package No. 1 (Table 3).

<sup>2</sup>Supplies per pound of complete ration the vitamins and minerals in the amounts listed in Package No. 2 (Table 3).

<sup>3</sup>Supplies per pound of complete ration the vitamins and minerals in the amounts listed in Package No. 3 (Table 3).

<sup>4</sup>Zinc bacitracin or bacitracin methylene disalicylate.

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