Some canary breeders shy away from formulating their own food and seek an easy way out by purchasing already formulated seed mixtures and nestling foods. There is nothing wrong with purchasing already prepared diets providing you purchase from a reliable source. There are many commercial companies that provide such foods, and some of them are good.

On the other hand, if you are the type of person who is a skeptic and likes to know exactly what your birds are eating, you must learn something about diets and dietary requirements. This article will point to the known facts about nutrition already discovered by scientists throughout the world; then we will logically use this knowledge and prepare our own food to benefit our birds and pockets.

Let’s look at some of the facts. On the average, nestlings and young birds are made up of 70% water, 22% protein, 3-5% fats and 4.5% ashes. The adults instead are made up of 60% water, 17% protein, 19.5% fats and 3.5% ashes. Sticking to our subject “Nutrition During Breeding Season,” we are mainly concerned with the nestlings and young birds. We already learned that if we remove all of the moisture from the young bird, the only thing left is protein (mainly what makes up muscles, body organs, skin and feathers), and ashes (mostly calcium and phosphorus, which makes up the skeleton).

Considering these facts, we can conclude that young birds need food rich in good proteins (proteins of high biological values), minerals and water.

The food value of proteins depends on the kind and amount of amino acids it contains, not on the total amount of protein in each serving. For example, peanuts are high in total protein, but the biological value of the protein (percentage of useful amino acids) is low. Eggs have a much lower percentage of protein, but the percentage of useful amino acids in eggs is three times that in a peanut. (Figure 1)
Carlson's Spray Millet comes in Regular and Premium Lengths.

Regular Premium
8" to 10" 10" and Sprays Longer Sprays

$15.00 $18.00
$24.00 $30.00
$46.00 $55.00

Ibs.
4
2
Cartons
5
10

Carlson’s is pesticide free and completely safe for even the smallest, most delicate birds.

Postage is paid in Continental USA. Inquire for quantity prices.

Carlson's Spray Millet

1. More people buy Spray Millet from Carlson's than from any grower in the country.
People like our freshness and quality. They expect each hand-picked millet spray from Carlson’s to be as clean and nutritious as nature intended.

2. Carlson's Millet is Pesticide Free!
Unlike imported millets which are thoroughly fumigated with chemical pesticides, Carlson's is pesticide free and completely safe for even the smallest, most delicate birds.

3. Carlson's Spray Millet comes in Regular and Premium Lengths.

Three Facts You Want to Know About Carlson Spray Millet

Carlson Specialty Seed
RT. 2, BOX 535
PLAINFIELD, WI 54966
(715)335-4564

Figure 2

The top curve is of the Northern Frill, and the lower curve is of the Roller canary. Note the similarities with the exception of the Northern Frill reaching higher weight. Note also the loss of weight at approximately the 22nd day when the nestlings fledged the nest. I don’t know if loss of weight is a coincidence or if this is typical loss of weight prior to the big day of flight. The relevant part of the graph is the first 15 days. Note that the first 15 to 16 days indicates the fastest gain of weight and, therefore, the most critical period of good nutrition.

Figure 2

Babies left the nest

The speed at which nestlings acquire feathers is very important. In the case of an average common canary, protein which makes up the feathers constitutes 20% of the total body protein. In contrast, other varieties such as the frilled canaries have larger feathers, and their content of protein constitutes 25% to 35% of the total body protein.

Based on facts and knowledge we have learned, good protein is very important, and the amount of digestible protein within nestling food should vary depending on the variety of the...
canary we breed. For example, the frilled varieties during breeding season should be fed with nestling food that contains 26 to 28% digestible proteins. The smaller varieties with small feathers, such as color-bred canaries, Lizards, Borders, Glosters, Rollers, etc., is suggested to be fed with nestling food containing 22 to 26% digestible proteins. Although, I have raised canaries with formulas containing 16% to 19% protein.

Digestible proteins differ from crude proteins. The crude proteins include all parts of the food that can be considered as proteins. A portion of crude proteins is undigestible; therefore, only digestible proteins are useful.

<table>
<thead>
<tr>
<th>Concentrate</th>
<th>Crude protein %</th>
<th>Digestible protein %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soya flour</td>
<td>45-46</td>
<td>42</td>
</tr>
<tr>
<td>Brewer’s yeast</td>
<td>52</td>
<td>45.2</td>
</tr>
<tr>
<td>Milk powder, non fat</td>
<td>35</td>
<td>32</td>
</tr>
</tbody>
</table>

Following is a chemical composition of nestling food for canaries and most finches.

digestible protein: 22-28%
carbohydrates: 60-65%
minerals: 4%
fat: 4-6%
fiber: 1-2%
water: 4-6%

To achieve this chemical composition, the ingredients are: flour products, protein concentrates, vitamins, minerals, and oily seeds.

Flour products: Bread crumbs (preferably from bread that was made without oil and other fats); corn flour; cream of wheat; etc.

Protein concentrates: Soya flour; wheat germ; brewer’s yeast; hard boiled eggs; powdered milk; casein; fish meal; etc.

To give you an idea of what can be put together from the above ingredients, I will give you my own formula which I am presently using. See Table A.

The percentage of protein in each ingredient within the total nestling formula is calculated in the following manner. We will use bread for an example. Divide the weight of the bread (500 grams) by the total formula weight (1,350 grams). Then multiply that number by the percentage of protein in the ingredients (10%), as follows:

\[
\frac{500 \text{ grams}}{1,350 \text{ grams}} \times 10\% = 3.7\% 
\]

To the above dry mixture add:
1 tbsp. Vitamin-mineral powder concentrate
1 tbsp. Iodized kitchen salt
1 tbsp. Bone meal
1 tbsp. Dry kelp

All of the dry ingredients are thoroughly mixed and kept in a dry, cool place. To prepare the final nestling food, I will suggest the following method:

Boil for 10 minutes one cup of seed mixture, made of equal amounts of niger, rape and canary seed. Drain, and rinse with cold water. Drain well, and place in a mixing bowl. To the seeds in the bowl, add one tablespoon of wheat germ oil (vitamin "E"), one tablespoon of cod liver oil (vitamin "D"), and mix thoroughly. Then add 4 cups of the dry mixture (which we prepared previously). Mix thoroughly. Finally, four hard boiled eggs (boiled for 10 minutes) are grated or finely mashed, then added to the rest of the mixture and mixed thoroughly. The texture of the food should be moist and crumbly. If it appears to be too wet, add some dry mixture.

During the breeding season I offer nestling food three times a day: early morning, noon and late afternoon. The portion should be enough to last 2-3 hours. The frequency of offering and small portions assures unspoiled food.

Hygiene is of utmost importance. Containers which are used for nestling food should be washed in soap and water every day.

REFERENCES:

<table>
<thead>
<tr>
<th>Approx. Amounts</th>
<th>Ingredients</th>
<th>% of protein in ingredient</th>
<th>Amount of ingredient</th>
<th>% of protein in the formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 cups</td>
<td>Bread crumbs</td>
<td>10</td>
<td>500 grams</td>
<td>3.7</td>
</tr>
<tr>
<td>4 cups</td>
<td>Baby cereal</td>
<td>35</td>
<td>200 grams</td>
<td>5.1</td>
</tr>
<tr>
<td>1 cup</td>
<td>Dry milk</td>
<td>35</td>
<td>100 grams</td>
<td>2.8</td>
</tr>
<tr>
<td>1 cup</td>
<td>Corn meal</td>
<td>10</td>
<td>200 grams</td>
<td>1.5</td>
</tr>
<tr>
<td>1 cup</td>
<td>Brewer’s yeast</td>
<td>50</td>
<td>100 grams</td>
<td>3.7</td>
</tr>
<tr>
<td>1 cup</td>
<td>Dry alfalfa</td>
<td>20</td>
<td>100 grams</td>
<td>1.5</td>
</tr>
<tr>
<td>1 cup</td>
<td>Soya flour</td>
<td>42</td>
<td>100 grams</td>
<td>3.1</td>
</tr>
<tr>
<td>5 tblsp.</td>
<td>Fish meal</td>
<td>60</td>
<td>50 grams</td>
<td>2.2</td>
</tr>
</tbody>
</table>

|                  |                  |                           |                     |                             |
| 1,350 grams      | 23.6%            |                           |                     |                             |
Experts, like Earl Milliken, agree on the importance of minerals in a bird's diet. That's why they use and recommend AVIMIN® Liquid Mineral Supplement.

AVIMIN, you see, is made with six essential minerals that help promote strong bones... sturdy eggshells... healthy skin... balanced body fluid... and muscle tone. And aid in reducing the possibility of anemia... rickets... goiters... and slipped tendons due to mineral deficiency.

And with AVIMIN, mineral intake is a must. Because AVIMIN mixes right into the drinking water... to deliver a balanced combination of minerals every time the bird drinks.

It's plain to see why experts use and recommend AVIMIN. Not only is it convenient... it's an extremely effective way to give minerals!

But why take the experts' word for it. Starting today, give your bird AVIMIN. We're convinced your expert opinion will find AVIMIN one of the best mineral supplements money can buy.

AVIMIN is available from your pet supply dealer in 8 ounce, 16 ounce, and one gallon (aviary) sizes.