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Introduction

Welcome to module 3 of the Pigeon Racing Master's Program, in this module we are going to cover feeding and nutrition.

The topic of feeding and nutrition is one of the most sought after topics in pigeon racing, everyone wants to learn about this subject. Not only is it a sought after subject but it's also one of the most essential topics in our sport. Without proper feeding and nutrition it doesn't matter how good your birds are or how well they are trained, if they don't have the proper nutrition to withstand racing then your results will suffer no matter what.

Just like any other athlete both human and animal, proper nutrition can be the difference between success and failure.

There is one problem when it comes to this subject that we hope that we can solve in this program.

The problem with feeding and nutrition is that there is no one way to do it, what I mean by that is nutrition is 100% dependent on what racing systems your using, what cycle your pigeons are in whether your racing short, middle or long distance, whether your focusing on young birds, old birds or breeders and many other variables that lay in-between. Each specific thing requires different nutritional requirements so what we did in the Pigeon Racing Master's Program to make it even more effective for you is we included the proper feeding and nutrition inside each topic where it belongs.

So for example inside the breeding module you will also learn proper nutrition as it pertains to breeding and in the training module for instance in the "widowhood" section you will learn nutrition for training on widowhood and so on and so forth. In the future we will be putting together easy to follow feeding and nutrition "cheat sheets" for each which you will get as a valued member of the Pigeon Racing Master's Program as they are released. Now in the rest of this module we will go over some overall information on nutrition and feeding that will help you fast track your success, then as you read through the other modules you will learn more about nutrition as it pertains to the specific topics.

Again we did things this way to help you better understand the topic of feeding and nutrition without overwhelming you.

So go ahead and read through this module then move on to the others when you are ready.

Feeding to Win

During the racing season, the main function of food is to provide the fuel for flying. Our common aim is to provide the racing pigeon with the best fuel for race day. To do this consistently we must have a good understanding of the food itself. The following paragraphs will introduce you to the science (or theory) of feeding, but for racing success you must also become expert at the practice (or art) of feeding. Only practice and observation can teach you the art of feeding, but hopefully the methods of feeding described here can help you find the pathway to feeding success.

We can only begin the art of good feeding when both the quality of the food is guaranteed and the flock is healthy. A healthy bowel is required before we can test our feeding systems, because an unhealthy bowel fails to deliver the fuel of good grain to the pigeon's body. Bowel diseases such as E. coli, coccidiosis, worms and wet canker all decrease the amount of nutrients entering the body.

By using the best quality grains and with a healthy race team, the fancier can now think about a racing mix appropriate for his particular family of birds and training methods. The mix chosen must provide a good balance of protein (amino acids) and for this to be achieved at least 8 different grains must be used. After this balance is achieved, the energy content of the mix becomes the most important part of successful feeding.

The feed system provides the race team with the correct energy levels for training and racing. The goal of feeding is to provide the training and racing pigeon with exactly enough (not too much and not too little) fuel (energy in the food) for sustained flight (loft exercise or racing). Of course, the fuel requirements of the training pigeon vary enormously from day to day. It is the constantly changing energy requirements of the competition pigeon that makes feeding such a challenge to even the best fanciers. The competition pigeon will not perform to its fitness level when the "energy balance" is incorrect. The "energy balance" must be assessed short term (daily) and long term (weekly) with fit flocks during the race season, because the fitness level will drop both when too much and too little energy is supplied. During young bird training special attention must be made to prevent depletion of the energy reserves in the liver and muscle.

Overfeeding relative to workload (positive energy balance) renders the race team less competitive because of excess baggage ("leady"). Excess energy is stored as fat with subsequent loss of buoyancy and fitness. It is well to remember that the excess energy of mixes which are too high in protein (legumes) relative to the work load will be stored as fat.

Underfeeding relative to workload (negative energy balance) renders the race team less competitive because of “depowering”. Feed systems low in energy relative to the workload of the race team will result in the depletion of the energy reserves in the liver, fat and muscle.

The fancier can recognize a race team that is in a negative energy balance by the following signs:

- No wing flapping in the early morning or after feeding.
- Disinterest in leaving loft or toss basket, lower lid laziness etc.
- The race team in negative energy balance (inadequate energy intake relative to the workload) is susceptible to illness, especially “respiratory” diseases.

Buoyancy

Most fanciers understand the importance of buoyancy for success, but few understand the best way to achieve this in their race teams. Buoyancy is best achieved by supplying the flock with enough feed (a positive energy balance) to promote vigorous loft flying (or tossing) in order to maximize lean body mass (i.e. muscle) and minimize body fat. Instead many fanciers believe that the best path to buoyancy is to restrict caloric (energy) intake (feed less) in order to lose excess weight and thereby produce the buoyancy that we see with top form. However, buoyancy is not only weightlessness, but also power, and the buoyancy of fitness only comes when lean body mass is maximized. The restriction of calories in an effort to produce buoyancy in fact lowers the fitness level of the flock and renders it susceptible to illness. Severe caloric restriction will cause a loss of not only body fat but also lean body mass (muscle) with the accompanying loss of fitness and power.

Nutrition, vitamins and minerals

There’s more to feeding than just grain and grit.

Nowadays, pigeon fanciers know that there’s more to feeding than just grain and grit. Certainly, grains are an excellent source of energy, protein, and fiber, but they are very low in the minerals, trace elements and vitamins required for the exertions of top racing and breeding robust youngsters.

For a long time, fanciers have used grit to provide the minerals in the diet of the racing and breeding pigeon, but only recently have they realized that shell grit does not contain all of the minerals and trace elements required for sustained racing and breeding success. Vitamins must also be added to the diet of the pigeon. The old timers understood this vitamin need from seeing the benefits of

giving spinach and carrots to their birds. Today, most fanciers give vitamin supplements in the water or on the food.

The theory of nutrition for the pigeon is really quite easy to understand.

The fancier must give:

- Grain for energy, protein and fiber.
- Minerals grits, powdered minerals and trace elements.
- Vitamins are usually given with trace elements in the water.
- Extra energy, vitamins and protein can be given in the form of special oils on the food during the high energy times of racing and when the adults are feeding young.

Pigeons can survive on grain and grit alone, but they cannot reach the level of health required to withstand the pressures of racing or breeding. Eventually their health will fail under these extreme physical pressures. Good feeding will control most illnesses of pigeons. For example, there is a major increase in the minerals and trace elements required when the adult pigeons are feeding babies, but grit alone does not provide all of the necessary minerals and trace elements for continuing good health. Without mineral additives the end result is often egg laying problems, canker outbreaks and other illnesses. During racing there are increased needs for energy, protein and vitamins, as well as trace elements and minerals. The race team tires easy and is more susceptible to fatigue related respiratory and wet canker illnesses when extra vitamins and minerals are not provided.

The feed (grain) mixes do not provide enough vitamins and minerals for top performance. The fancier must select a feed mix that provides the energy and protein balance needed for the particular stage of the pigeon calendar. Breeding and moulting birds require a grain mix which is higher in protein, has a different essential amino acid balance than the pigeon in full training during the racing season. The feed mix requires at least six different grain types in the mix in order to get the best protein level and quality (i.e. balance of essential amino acids). The best quality of protein is seldom met and lysine (a very important amino acid for the pigeon) deficiencies are common in grain mixes with fewer than 4 grains. The protein quality of the grain mix can be improved by adding protein/amino acid supplements prior to feeding.

All grains are low in calcium (0.01- 0.20%) and sodium (20-600ppm). Phosphorous, copper, zinc, manganese, and selenium are also low in some grains. The vitamin concentrations in seeds are highly variable. Seeds do not contain vitamin A (corn provides carotenoids), or vitamin D. Vitamin E and vitamin K levels are low to undetectable. Among the B vitamins riboflavin, niacin,

and pantothenic acid are often low and vitamin B12 is not present. This means that the vitamins, minerals and trace elements lacking in the grain must give to the pigeons in some form or other. Many fanciers use spinach and shell grit, but this is still not enough to balance the nutritional requirements of the athletic pigeon. Nowadays most fanciers add vitamin and trace elements to the water once or twice a week and provide the minerals in powdered or block form ad lib.

The racing pigeon diet has evolved over time as research has revealed the specific nutritional requirements for optimal breeding and racing performance in the racing pigeon. No longer is the diet of 30 years ago, a diet of just peas and wheat, sufficient. Even a bird diet of multiple seeds will not provide the necessary nutrition, even with the addition of a large variety of grains. In this three-part article series we will focus on optimizing our birds' nutrition with supplementation.

Importance of Nutrition

Every fancier possesses the basic knowledge that nutrition is important. Good nutrition not only enhances the competitive performance of the racing pigeon but it is also necessary for successful breeding and survival of the offspring.

Inadequate nutrition will:

- Result in poor health
- Lower resistance to disease
- Compromise growth
- Prolong recovery from exertion or illness
- Decrease reproductive performance

Seeds are the basis of the balanced diet

The foundation of a balanced diet in birds is seeds. Seeds provide protein, carbohydrates and fat. But seeds alone cannot meet the nutritional needs of the bird and, even with the addition of grains, must be supplemented.

Seeds are deficient in the following nutrients:

- Vitamin B12
- Vitamin A
- Riboflavin
- Niacin
- Folic acid
- Vitamin K
- Vitamin E

The following amino acids

- Lysine
- Methionine
- Tryptophane

The following minerals

- Calcium
- Manganese
- Sodium
- Copper
- Zinc
- Iodine
- Selenium

The informed fancier knows the necessity of nutritional supplementation and will proceed with caution, avoiding the “backyard potions” that provide no benefit and considering that some of the older methods of supplementation are quite effective.

When supplementing, ensure that the supplements are actually digestible and in a form that the bird can assimilate. Another important consideration is palatability. It doesn't pay to add foul tasting albeit healthy ingredients. Always make sure the feed is delicious enough that the pigeon will race home for it.

Next, let's look at the recommended supplementation of each specific nutrient.

Nutrient Supplementation

Vitamin B12 is low or even absent in most plant foods. The most popular and effective form of supplementation is with yeast, such as Baker's or Brewer's yeast. Another source is inactivated yeast supplements such as the Australian Pigeon Company's ID Yeast. All yeast contains not only Vitamin B12 but also additional micronutrients. And birds love the taste.

Another required supplement is Vitamin A, which is found in greens, such as silverbeet, spinach, and carrots. Pigeons love a plate of mixed chopped greens and diced carrots. Vitamin A can also be provided with diluted carrot juice. Vitamin A in the plant form carries no risk of toxicity as it is technically beta-carotene, the natural precursor to Vitamin A.

Cod liver oil is also a good source but it does contain gizzerine, which is associated with the development of stomach ulcers. Also, cod liver oil will rapidly become rancid if exposed to the sunlight. Rancid oil can lead to a Vitamin E deficiency.

Riboflavin needs to be added to the diet and this is also found in yeast. Yeast supplementation is recommended by incorporating an inactivated, or sterile, dry yeast, such as ID Yeast, after pre-moistening the seed with seed oil. The dry yeast adheres to the seed and is easily consumed.

Also found in yeast is the vitamin, niacin. Niacin is also in sunflower seeds, however, sunflower seeds, unless purchased from a reliable source and stored properly, is easily contaminated with an unhealthy fungus.

Supplementation of folic acid is necessary. Folic acid is found in yeast products and wheat germ or wheat germ oil. Wheat germ is often the base of the better conditioning oils such as Polyseed Oil.

Wheat germ oil is great as a pre-moistening oil for grains and seeds to prepare them for the addition of a yeast powder. The recommended amount is 0.5 to 1.0 ml per kg of grain. Birds love the taste and get excited when they hear it being mixed.

Vitamin K is actually two—Vitamin K1 found in green, leafy vegetables and Vitamin K2, produced by the normal bacteria in the bowel. Both need to be supplement. K2 levels can become deficient with antibiotic use or if the birds are not allowed to eat their own droppings.

The final vitamin needed to be supplemented is Vitamin E. A good source of Vitamin E is vegetable oils.

Amino Acids

Supplementation of the amino acids lysine, methionine, and tryptophane are necessary. All of these are found in yeast products and wheat germ oil. Lysine is also found in legumes such as peas. If your feed mix is comprised of 30% or more of peas, then lysine deficiency is not a concern.

Mineral Supplementation

Calcium is a necessary addition and can be found in a range of soft grits such as cuttle fish, sea shells and calcite. Always have a blended soft grit and pink mineral mix available to the racing pigeons.

Sodium, an ingredient of salt, must be added. Sodium is also found in some grits and pink minerals. If fed grain only, pigeons will 'crave' salt and eat sodium-containing supplements voraciously, putting themselves at risk for dehydration if there is no free water available.

Make salt a part of the optimal diet for racing pigeons. A good amount is about 0.1% of the total diet. These are the amounts in the better brands of pink mineral. PVM Powder is a good source of salt, containing 11 grams per one kilogram.

The additional minerals you need to add are manganese, copper, zinc and selenium. These are all found in yeast products.

The amount of iodine available in the seed mix varies, depending on the amount in the soil in which the seed was grown. Additional iodine can be found in yeast and in water supplementation.

For water supplementation, Lugol's Iodine is recommended. Using Lugol's Iodine, make a concentrated solution of 2 ml. of iodine to 30 ml of water. Then add four drops of this concentrated solution to each liter of drinking water.

In the third and final part of this series on nutrition, we will look at additional nutritional considerations. A diet recipe is also provided by Dr. Colin Walker.

The loss of nutrients in stored seed should be considered when ensuring optimal nutrition for your racing pigeons. Consider the fact that seed gets harvested once a year so, at some point, the available seeds can be a year or more old. As the seed ages, there is loss of vitamins due to the process of oxidation. Also, the fats in the seed become rancid.

The successful fancier will prevent accelerated nutrient loss through the proper storage of seed and other feeds. Store seed in a cool place, away from moisture. Prevent unnecessary oxidation by filling storage bins to the brim before sealing.

Provide additional nutritional insurance through the administration of a complete water-soluble multivitamin, such as Multi-vite Plus. And always have pink mineral available.

Proper Amounts of Protein and Fat

Basically, all-seed diets are low in protein but high in fat. As birds eat to meet both their protein needs and energy requirements, they will become obese. Certainly not fit for racing! Ensuring that the correct levels of protein and fat are

provided for racing and then again for breeding requires some careful consideration.

Protein and Fat Requirements for the Racing Bird

The racing pigeon requires 12% protein and 4% fat. If the amount of protein is too low, the result is an impairment of the normal enzyme and hormonal activity, a delay in the healing and recovery process and abnormal growth of the muscles, bones and feathers.

If the protein level exceeds what is needed, there is an increase workload on the kidneys, which can be fatal. There was a case where stock pigeons died from kidney failure after being fed a diet of only turkey pellets (30% protein) for over six months.

If the fat level exceeds what is nutritionally required, the bird will become obese. If there is not enough fat, there will be weight loss, poor growth and reduced resistance to disease.

It is challenging to correctly balance the birds' diet to deliver the right levels of protein and fat for health and also match the current workload. In addition, you need to obtain the correct weight and fitness in the bird.

Dr. Colin Walker, a veterinarian who races pigeons, has provided us with a recipe for a good racing diet, which contains 12% protein and 4% fat. Here it is:

- Base racing diet of 30 to 40% peas
- 15% each of maize, sorghum, wheat and safflower
- One to two handfuls of mixed small seed (millet, canary, rape, and linseed) per 12-liter bucket

You can adjust the diets by substituting the protein sources, such as using vetches (35% protein) in place of peas. Of course, you will need to adjust the level of peas to keep protein level from becoming too high.

Also, the breeding diet consists of 18% protein so you will need to adjust the levels of peas, beans or vetches to achieve that protein level.

Also, in both the racing diet and the breeding diet, remember to supplement as discussed above.

To give you a quick summary, the following nutritional supplementation is recommended, again by Dr. Walker:

- Complete multivitamin/trace element drink one day per week in the drinking water (Multivite Plus)
- Free access to pink mineral and balanced grit (PVM Powder and the Australian Pigeon Company's Health Grit)
- Wheat germ oil-based supplement together with yeast on seed for two or more feeds weekly (eg Polyseed Oil)
- Chopped green vegetables with diced carrots weekly (or diluted carrot juice)

Again, other supplements may have some nutritional advantages and should be used wisely, such as commercially available teas that contain micronutrients and naturally occurring acids that help to protect the bowel from disease.

Overall, do not feed correct blend of seeds cafeteria style thinking your birds know what they need and will eat only what they need. Actually, the birds will eat only what they prefer- like a kid allowed dessert before the vegetables.

What does "preparing before the race" mean?

Preparing before the race means preparing your birds for the type of race they will compete. This article does not cover "setting up" or different psychological tricks you can play to motivate birds. This article covers how to physically prepare your birds for the race they are going to compete. It covers how much you should train your birds, how much you should rest your birds and how much you should feed your birds.

Preparing for Sprints (races between 50-150 miles)

A sprint race in good weather with good wind will not stress out a racing pigeon that is in good physical condition. They will be able to compete in the race, make good time and be ready to compete the next week. If you are making short tosses during mid week, continue to do so even if you plan on shipping to a sprint race on that weekend. Feed the birds as you normally do. If you feed in the evening, you may want to change to a morning feeding on the day of shipping. The birds will be ready. A sprint race is often just another training toss compared to the long difficult races yet to come in the season.

Preparing for Middle Distance (races between 200-400 miles)

A good weather and wind middle distance race can be flown with the birds bouncing back and racing another middle distance race the following weekend. sometimes, in very difficult weather or conditions, a middle distance race can be just as tough or long as a 500 mile race. This is probably the most difficult distance to prepare.

There is a fine edge on the nutrition necessary versus, lack of loading that may be required. On a good weather, good wind race, you can feed the birds as you normally do the day of shipping. If you feed in the evening continue to do so. If time allows you may want to move feeding up a couple of hours. If that is not possible it won't be a detriment. You should ensure the birds get a good drink before shipping. I am not a fan of force watering birds, as I feel there is a danger whenever you attempt for force water via a syringe or other method. The best method is to remove the water pans an hour after feeding the night before shipping night. Feed again in the morning and put the water pans back for a half hour. Remove the pans again. When given their meal the day of shipping, put the pans back after feeding.

The birds should take good long drinks prior to shipping. Most racing trucks trailers do have water systems for the birds, but there is no guarantee that your birds will on the right side of the shipping crate or will take it upon themselves to drink. If it look as though it is going to be a hard race with rough weather, prepare the birds as though it was going to be a long distance race.

NOTE for hot weather — if you are in a hot weather climate, do not remove the water pans at all. Ensure water is in front of the birds all day as they will need to hydrate throughout the day in the loft.

Preparing for Long Distance (races between 400-600+ miles)

Most clubs consider them 2 day races. Race winners will generally on a good race clock by the end of the first day. Long distance races are different because the birds need to be nutritionally prepared much differently. There are two philosophies regarding preparing for long distance races. One is to carbohydrate load the pigeons. The other is to include fats and oil rich foods as well. A good rule is to consider the race by the distance. The longer the distance the earlier in the week you need to start preparing the birds. You also need to not feed your middle distance and sprint birds the same as you will prepare your long distance birds. This will require selecting your pigeons in advance and separating them when you feed. You still need to feed the birds enough to nutritionally sustain them, but so much that you are over feeding them. This is probably one of the most difficult things for a fancier to master. What you are changing is the types of feed you are supplying our pigeons. For a 400 mile race start mixing corn (maize) into their diet on Tuesday, Wednesday and Thursday if you are shipping on a Thursday night. I would give safflower on Wednesday and Thursday as well.

For a 500 mile race, start adding corn on Monday and start adding Safflower on Tuesday. On Wednesday night I might even add peanuts

For a 600 miles race, start adding corn on Monday, Safflower on Tuesday and Peanuts on Wednesday. Some fanciers like to mix their feed with wheat germ oil or other fatty oils to increase the fat or carbohydrate amount of the feed. I have never done this, but it seems like something to consider.

When the race is over, After the Return.

“The first thing I’m going to do when I get home is...”

Prepare for the next race while this week’s race is in progress.

Heh, wait a minute!!! Shouldn’t we take things one race and one week at a time? Yes and no. We do take the races one at a time, or in my combine two at a time because we sometimes race a medium and long distance race on the same weekend. On the day of the return you actually have two different tasks. One is to recuperate the birds that are coming home and the other is to prepare the birds for the next race. Here are things to consider while preparing for the return in regards to feeding and nutrition.

Water

This is the most important thing your birds need when they return from a race. A bird can fly off almost 1/2 it’s body weight on a race. They exhaust their energy reserves while racing and a good portion of the weight they are losing is water. If you change water pans normally in the evening, ensure you put fresh water in the loft the morning of the race. You may want to add electrolytes or something else to the water on the day of return. While in the race truck, your birds probably drank from a community water tray. They were exposed to other birds and any ailments those birds might have had. So on the 2nd day after the return you will surely want to add a 3 in 1 or 5 in 1 medication as a preventive. On race day, I add 1/2 tsp on Clorox to a gallon of water for their drinking water.

Feed

There are many schools of thought on this. If you shipped a long distance race on Thursday and now it’s Saturday or Sunday, a returning bird is going to be famished. The danger is that they will gorge themselves on feed. Here’s where preparing for next week’s race can interfere with recuperating from this week’s race. If I am not going to be home for the return, I put barley in the feeder. The birds in the loft will not eat too much barley as they don’t care for it much. A bird returning will eat as much as he needs but won’t gorge. Feeding barely to returning birds along with the birds that remained home will not interfere with loading the birds for next week. You can think if it as feeding light to heavy. If

you have a separate section for birds returning to enter you can place a small feeder with pellets. Pellets are nutritionally good, easy to digest but will cause a bird to need to drink lots of water. A returning bird will need to consume a lot of water anyway, so it's a good way to feed them. I do not like to feed pellets to the birds that remained home and will be racing next week.

Resources

Here are some great resource videos that will help you even more.

[Click here to check them out](#)

