Fungi and Pigeons.

If ever there was a subject that seems to cause confusion amongst pigeon fanciers, it is the effect of fungi on their birds' health. Much of the information available to pigeon fanciers, through sources such as the Internet, is quite simply wrong and yet much of this information has been widely distributed and through being repeated over the years has become fact. And so, what are the facts about fungi, and how do they cause health problems in pigeons?

Fungi and grain.

Fungi are a large group of simple plants that instead of having stems or branches similar to bushes or trees, have tubular processes that are called fungal branches or hyphae. Along the length of these branches, the fungal equivalent of flowers are produced, called fruiting bodies. These fruiting bodies in turn produce the fungal equivalent of seeds, which are called spores. Spores are microscopic and are released in large numbers into the air, so that everything pretty well (including you and the book you are now reading) has a variety of different types of fungal spores scattered over its surface. Like the seeds from different types of bushes and trees, the spores from different types of fungi will only germinate and grow when they land on something that suits them. In this way, some fungi, for example, might only grow on the cold damp side of a tree while others will only grow in a warmer dry location or on a different base.

As fungi grow, like all living things, they produce metabolites, which are essentially the left-over products of their metabolism. The metabolites can be retained in the fungi or soak in to the substance on which the fungus is growing. In some types of fungus, these metabolites are poisonous to birds and mammals.

The significance for pigeon fanciers is that some types of fungi like to grow on grain. As the fungus grows, the energy and nutrition from the grain move into the fungus and the grain starts to decay. In this way, the grains' nutritional value for the pigeon is decreased. As the grain decays, dies and is progressively digested, it can also become a base for bacterial growth, which further complicates things. In addition, if the fungus is of a type whose metabolites are toxic, poisonous fungal toxins will accumulate in the damaged grain. The end result is a grain blend that is of decreased nutritional value and that is contaminated with an increased number of bacteria and also potentially harmful toxins.

The different types of fungal toxin once ingested can affect the pigeon in different ways. The usual way, however, is to interfere with the functioning of the immune system. Combining this effect with the poorer quality nutrition provided by the damaged grain increases the pigeon's vulnerability to disease and makes the attainment of real health difficult.

How should the fancier protect himself?

Good quality grain should be free of weevil damage, dust, water marks and smell fresh and clean. However, it is not usually possible to detect fungal contamination by simply looking at or handling grain. In Australia, most reputable grain merchants have their grain tested prior to sale. It should not be the job of the fancier to make sure the grain is free of fungal contamination but rather the merchant who sells the grain to him. Grain should be sent to an accredited lab where an accurate fungal spore count and fungal toxin level can be determined. It is important that accurate and correct testing is done so that results are valid and reproducible. I have had some fanciers and incredibly even veterinarians tell me that the grain they are using is a problem because they spread it out on cotton wool or a commercial growth medium and it went mouldy. This is an absolute nonsense. All grain, like everything else, is covered by fungal spores, and will go mouldy if the spores on it are given the chance to grow,. This also applies to the food we eat. The relevant factor is whether spores on the grain sample have been given the opportunity to grow, damage it and contaminate it with fungal toxins.

Often fanciers find it easiest to blame the grain for a loss of form when in fact it is unusual to find problem grain available for sale. Currently the grain available for sale in Australia to fanciers seems to be of very good quality. Over the last 2 months, we have forwarded on to the testing lab we normally use about 40 grain samples. Without exception, all of these have come back with a fungal toxin level of less then 1 part per billion, which is the lowest detectable level. Anything below 5 parts per billion is regarded as being fine for human consumption. Interestingly, some of these samples had earlier been condemned through an inappropriate grain culture technique. This had created problems for both the grain merchants and also the fanciers who were failing to identify the real cause behind their birds' health problems.

When buying grain, simply ask the grain merchant if the grain is certified free of fungal contamination

This can be done because if the overall reading is down, this usually means that all grains are clear
but if a high reading is recorded, then the actual type of toxin can be identified. As different fungi grow on different grain, the problem grain can then be identified. As batches are usually of several tonnes, this makes testing financially practical for the merchant, adding on less than 50 cents to the cost of a 20 kg bag of grain. Most fanciers are more than happy to pay this knowing that the grain is toxin-free.

Fungi on droppings.

Does fungi growing on droppings mean there is a problem with the grain or that the birds are sick? No - of course not. Fungal spores are everywhere and simply grow when they land on something that they can germinate on. What it does mean is that the humidity in the loft is too high, i.e. the loft is damp. In summer in Australia, droppings dry out quickly and become unsuitable for fungal growth. In winter, when it is cold and damp, the droppings retain their moisture and fungi can grow on them. What this does mean, however, is that because inhaled fungal spores can cause disease, the loft must be cleaned more frequently and the droppings removed before they go mouldy (i.e. before the fungi grow and start to release their spores).

Fungi and 'air sac disease'.

Can fungi cause air-sac disease? The answer is no. Air sac disease refers to an infection of the air sacs due to Chlamydia and Mycoplasma. Ingesting fungal toxins and damaged grain weakens the birds, interferes with their ability to resist infection and predisposes them to disease generally. It does not make them specifically more vulnerable to air-sac infection.

Fungi and respiratory infection.

Can fungi infect the respiratory system? The answer is yes. If large numbers of fungal spores are inhaled over a short period of time, they can massively irritate the air sacs, causing inflammatory fluid to weep into them, causing symptoms similar to asthma in people. Even if small numbers of fungal spores are inhaled deeply into the air sacs, they have the potential to germinate and grow there, in the end not looking not much different, if found at autopsy, from a mould growing on an old slice of bread. This has a devastating effect on the bird's health, with an infected bird not only having difficulty breathing but also becoming severely sick in itself. Less commonly, fungi can grow in the skin, in the sinuses, lungs or internally in other sites. Rarely, spores will get into the blood stream and after spreading throughout the body cause widespread disease.

Fungal disease in pigeons in general is more likely to occur if they are not being well cared for (so that they are already weakened) or they are on a poor diet, particularly one that is low in vitamin A. Every effort should be made to ensure that the available air for pigeons is clean and fresh. Fungi usually grow wherever there is dampness and so wet droppings accumulating under perches and around nest bowls are always a risk. Similarly, the straw used in race and tossing baskets can become mouldy and become a source of exposure if not regularly replaced.

Fungi and medication.

A number of unscrupulous product suppliers market products reputedly for 'fungal problems'. Often labeled as 'gut cleansers', etc, such products are a total waste of time and money. Is there a product that treats pigeons against fungal toxin exposure? Absolutely not! It is matter of identifying the source and preventing further exposure. Any ingested toxin is gradually metabolized away, usually without any persistent effect. How long this takes depends on the type and amount of toxin ingested but usually takes days to weeks. Is there a product that treats ingested fungal spores? Absolutely not and there doesn't need to be. Fungal spores are everywhere. We all have them in our digestive tracts all the time. They just go through our system and are passed. Are there medications to treat fungal infections in the body? Absolutely yes! A small number of prescription medications, such as itraconazole and fluconazole, are effectively absorbed from the bowel into the body and can treat fungal infections of the respiratory system or other internal sites. Treatment, however, is often protracted and not always successful.

It is always much easier and best to avoid problems with fungi rather than have to deal with the consequences of exposure or infection. This is not particularly difficult for the informed fancier. To avoid exposure to fungal toxins, simply make sure that the grain that you purchase is certified free, while keeping the loft and baskets clean and dry will do much to minimize exposure to fungal spores.