

Questions on Probiotics answered by Dr David Reynolds.

Q. When fanciers can use economic product like natural yoghurt to assist the pigeon what is so special about your product and how do you justify the price?

A. There is nothing wrong with using yoghurt in the pigeon's diet so long as the fancier appreciates what benefits he will obtain. Live yoghurt contains high numbers of bacteria – principally the lactic acid bacteria such as Lactobacillus, Pediococcus and Lactococcus. Normally there will be a single species of bacterium present in yoghurt and their advantages for the bird are the same as those offered by probiotics. Flight Path is a competitive exclusion (CE) product – an entirely different concept to a probiotic. Perhaps I should outline the historical development of probiotics and competitive exclusion products for your readers? Probiotics have long been used as a means of preventing disease in both man and other animals. The use of probiotics to prevent human disease dates back to the beginning of the 20th century. A Russian scientist Dr Elie Metchnikoff concluded that the reason why the residents of Bulgaria were blessed with long life was their consumption of large amounts of fermented dairy products (The Prolongation of Life, Metchnikoff, 1908). He believed that the bacteria in yoghurt helped to fight disease-causing (pathogenic) bacteria and so extended the normal life span of the Bulgarians! Today, yoghurts and probiotic drinks are used by many people to help counteract such problems as acute gastritis, gastrointestinal infections, constipation, ulcerative colitis, food allergies, antibiotic-induced disorders and cardiovascular diseases. Indeed, probiotics are also sold to feed to animals including pigeons. The evidence of beneficial effects for these probiotic products is primarily circumstantial. However, recent research work carried out at Dundee University by Dr S Macfarlane's group indicates that probiotics based on Bifidobacterium can help to counteract the non-infectious bowel disease called ulcerative colitis. A much more significant role for probiotics is the prevention of colorectal cancer. Professor Ian Rowland's group at Ulster University has shown that lactic acid bacteria such as those found in live yoghurts and probiotics - help to reduce the presence of cancer-producing compounds in the gut and suppress the formation of tumours. So really what the fancier is getting from yoghurts and probiotics is a means of helping to prevent non-infectious bowel disease and tumours in the pigeon's gut. Competitive exclusion is a different concept. CE was discovered and popularised by the Finnish scientist Professor Esko Nurmi in the 1970s. He noticed that chickens fed the minced gut contents of mature, free-range hens were more resistant to infection with Salmonella than were untreated birds. He found that the untreated chickens were susceptible to Salmonella because they had an immature gut flora. He proposed that the reason the Salmonella bacteria were able to establish themselves in the guts of these untreated birds was because not all of the ecological niches – the living spaces for the bacteria – were occupied. Conversely, in the treated birds, the mature gut flora of the hens had been established in all of the available niches and the Salmonella bacteria were unable to colonise the gut. His theory has been refined more recently and several components are thought to be involved in the phenomenon of CE: Direct attack – beneficial bacteria produce bacteriocins and organic acids that can damage the pathogenic bacteria. Nutrient competition – beneficial bacteria can out-compete pathogenic bacteria for the nutrients available in the gut. Receptor competition – beneficial bacteria can prevent pathogenic bacteria attaching to the wall of the gut. Immune stimulation – beneficial bacteria stimulate the immune system of the gut. The flora also helps with gut metabolism: Nutrient release – beneficial bacteria release nutrients from complex foods and make them available for absorption. Vitamins – beneficial bacteria make vitamins (e.g. vitamin A), which can be absorbed by the gut. So, unlike probiotics, CE products help to prevent infectious gut diseases such as Salmonella (paratyphoid). Flight Path is based on the CE concept and contains the entire natural avian gut flora. We have shown that Flight Path will help to prevent gut infections in many different species of birds from ostriches to quails, literally.

Q. Probiotics have been used for years by fanciers – should they stop using them?

A. All I am saying is that probiotics might not be delivering what the fancier wants. If they are looking for long term prevention of the sort of problems I mentioned earlier – fine, they should continue using them. We know that Flight Path offers them a new option – to help prevent infectious disease. We have tested the four mainstream probiotics against Flight Path in a live animal model of the avian gut. We challenged the birds with Salmonella and found that three of the probiotics gave zero protection. The other probiotic, which contained a garlic extract, protected 16% of the birds. Flight Path protected 95% of the birds against the challenge. I feel that this is something the fancier should factor into his or her purchase-making process.

Q. Can the product be used to treat an existing gut infection problem?

A. No I am afraid it cannot. Flight Path is used to prevent disease not to treat disease. Any existing infection must first be treated with an antibiotic such as Baytril® to kill the pathogenic bacteria present. Flight Path can be used once the course of antibiotics has been completed and will help prevent the infection re-occurring.

Q. If this product is so important after using such as Baytril®, it must mean that Baytril is harmful to pigeons. Is this the case?

A Baytril is not harmful to pigeons at the recommended dose and when used according to veterinary instruction. Baytril is a powerful broad-spectrum antibiotic. It is intended to be used to treat infectious diseases caused by pathogenic bacteria – not to prevent them. The current trend for fanciers to use Baytril on a regular basis to prevent infections occurring is a reckless misuse of a licenced drug and we cannot condone it. Baytril should only be used to cure an identified disease problem and can only be used legally in the UK under the supervision of a veterinary surgeon. I have spoken to fanciers who use Baytril virtually continuously (albeit with reference to their vet). They tell me if they stop treating with Baytril, paratyphoid comes back. I can understand their position – they are terrified they will lose birds if they stop treatment. However, what they are doing is counter-productive. Their long term use of Baytril will virtually sterilise the gut – there will be no gut flora left to protect the gut surface. So as soon as Baytril is stopped, the Salmonella bacteria get back into the gut and can easily re-establish themselves. What these fanciers should do is treat with Flight Path to give the birds back the normal gut flora before the salmonella bacteria have a chance to re-establish themselves. Any fanciers with this dilemma are free to contact me and we will advise them on case by case basis.

Q. Are you saying the product only works for paratyphoid infections?

A. Flight Path has been shown to have several effects. It protects against Salmonella infections – this was the original reason it was developed. However, we have shown in more recent studies that it helps prevent gut colonisation by pathogenic Escherichia coli bacteria. Also, work in the USA by Dr Charles Hofacre's group in the University of Georgia (Athens) has shown that it helps prevent necrotic enteritis in poultry. In addition to this we have been told by many poultry producers that the product helps stop wet litter problems and has a beneficial effect on feed conversion, although we have carried out no clinical studies to confirm this. Fanciers using the product have remarked that droppings appeared drier and better formed after using Flight Path but again we have no confirmation of this through scientific studies.

Q. What advantages does this product give a pigeon over the pigeon which does not have the product?

A. Young birds have an immature gut flora and so are not as well protected as adult birds. Flight Path can establish this adult gut flora very early - if the parent birds are given. Flight Path in their water they will feed it to the young birds and give them the protective flora. This will help to prevent diseases occurring in the young birds. Racing pigeons are exposed to infection every time they are basketed with other pigeons. Pigeons given Flight Path on a regular basis will be better protected against these infections and more able to resist them. Some low level infections picked up from other birds in the basket or during training will be difficult to detect as the returning pigeons will appear normal but their performance may be affected. Flight Path helps to prevent these infections from establishing themselves in the first place.

Q. So the pigeons are immediately protected once they have been given the product?

A. No. The flora takes some time to grow and develop. Once the pigeons have been dosed it takes less than 24 hours to establish the complete normal protective gut flora. However, this is much quicker than a vaccine which can take a week or more to give maximum protection.

Q. Is it harmful to administer this product at the same time as any other product?

A. It is not harmful to the birds to administer Flight Path with any other product we know of. However, to get the best from Flight Path it should be used in the absence of any antibacterial treatments such as antibiotics, disinfectants (e.g. iodine, chlorine, virkon), garlic etc. We recommend Flight Path is given via the drinking water. This water must be free from other treatments and disinfectants – ideally fresh tap water left overnight to get rid of the chlorine present. Many of the fanciers who use the product withdraw water from the birds the night before using the product, feed the birds in the morning then introduce the drinkers containing the prepared product. The birds must get the full dose within 6 hours as the product degrades after this time.

Q. Does this product subject to change by chemical reaction via contact with substances like air, moisture, droppings etc.?

A. Flight Path is a freeze dried powder containing numerous bacteria, many of which are anaerobic – that is they are killed by the oxygen present in air. We pack the product in a high gas-barrier

aluminium and plastic laminate film to ensure oxygen is kept away from the product. The film also prevents moisture getting to the product and causing the bacteria to degrade and die. The product has an 18-month shelf life when sealed inside the sachets but once water is added the bacteria will only survive for a matter of hours. Bird droppings – well it would not be a good idea to allow the product to be contaminated with droppings – they may contain salmonella or other harmful bacteria but there are no other constituents of droppings that would have an adverse effect.

Q. Why is it not produced in smaller(cheaper) sized Qtys.?

A. We chose the 50 dose sachet based on feedback from fanciers we canvassed prior to the launch of the product in January of this year. When we meet with fanciers or talk with them on the phone, some say the number of doses is too small some say it is too large – we hope it is a good compromise size. If we get sufficient requests for a smaller dose size and there is a market for them - we would be very happy to produce them. We supply Flight Path in boxes of 6 or 12 sachets. This is because we recommend treatment every month to ensure that the gut flora is re-established following disturbances. The product should be used as part of a regular programme – there is no point in using Flight Path once or twice a year – it would not be able to protect the birds.

Q. Why can it be sold without licence when your other products can't and yet it is still so expensive?

A. Flight Path is derived from a product called Aviguard, which was developed for the poultry market. Aviguard is sold throughout Europe, South America and Asia and its licensing requirements vary from country to country – for example it is registered as a veterinary drug in Portugal and a feed additive in others. In the UK it is available without prescription – this does not mean it is not effective and has not been thoroughly tested. In excess of two hundred scientific and clinical studies have been carried out by us to ensure that the product works and is safe. The product is manufactured in a state-of-the-art facility according to drug-standard methodology. Building this standard of quality into a product incurs costs that have to be recovered and this is reflected in the prices we charge. However, we don't think Flight Path is expensive for what it does. If bought as a 12 sachet pack – which is cheaper per sachet than the 6 sachet pack – it works out at 2p per bird per week. Not a lot considering the protection afforded.

Summary. There are several Probiotics on the market and it is up to the individual what you use, the above is based on the questions that I put to Dr Reynolds.