

Finch Medical Questions: Vets Viewpoint

Question 1:

I live quite a distance from an avian vet but it has been suggested that I can have basic screening tests done by sending faecal samples through the mail. What is the best way to do this?

Answer 1:

Firstly, it should be noted that not all avian vets are happy to do diagnostics in this manner so check with your chosen veterinarian before sending the sample. This is a personal choice. For me it means that I can help individuals in remote regions deal with some of their problems.

Secondly, check that your chosen veterinarian will actually be on staff on the day that you expect the sample will arrive. I have arrived back to work on a Monday after a weekend off to find a 4 days old sample in my inbox that is of little use other than fertilising the vegetable garden.

Thirdly, send an appropriate sample. This will depend on why you are sending the sample and what you think you are going to get from that sample.

Microscopic diagnostics of faecal samples have their limitations even when done fresh in the clinic. Faecal samples will not tell you if the bird is suffering a viral infection, has respiratory or feather disorders or if the bird is old, young, male or female. Information on bacterial infections is limited on fresh samples other than total quantities and special stains or cultures are required to make better use of this information. This is of limited use in a posted sample in many circumstances. So what can be diagnosed from a faecal sample? Most parasitic diseases and fungal disease of the gastrointestinal tract are readily identified by faecal examination. Some bacteria can be identified e.g. *Campylobacter*, but interpretation of its relevance can be difficult. As most finch diseases fall into the first two categories we are relatively comfortable in our reliance on this means of testing. Let the vet know if you have medicated the birds first as this may alter what it seen. Provide a clear history of what the bird was doing and why you are sending the sample. Sometimes I receive a bag of droppings with a phone number on it. Not much use to me. Other times I receive a thirteen page letter explaining every death since 1972 and a lovely story about how old the grandkids are now. Interesting, but vets rarely have enough time to sift through all of this for the reason you sent the droppings in the first place. Concise, clear and informative (well, I can dream can't I?).

The cost of testing will be determined by what tests are run and the individual clinic. A basic single test will cost \$10-15 with subsequent testing often done at a reduced rate. An aviary sample (20 or so droppings from a group of birds) may cost \$15-20. Extra testing such as special stains will usually incur an additional charge.

The sample itself does not need to be large. It amazes me at times that I often receive what appears to be every dropping the bird has done in the last 12 months when one or two would

suffice. We are lucky with finches that because of their small size, a matchstick heads worth of faeces is generally most of a whole dropping (in a large parrot this may be only 1/20th and therefore may not be a true representation of the rest of the dropping). About 2-3 matchstick heads worth of faeces (or 2-3 whole droppings for each bird being tested) is more than enough. If an aviary is being screened then 20 random droppings is usually the minimum. If collecting part of a dropping, try to leave behind the white part (the urates) as these are of little value diagnostically. Always collect the freshest dropping available. A 2 week old dropping scraped of a wall will yield far less useful information than a fresh steaming prize packaged immediately. The fresher the sample, the more likely you are to identify fragile organisms such as Flagellate protozoa as these die rapidly as the sample dries. The sample should be kept moist, not sopping wet as this usually ends up with the envelope getting wet and some poor mug has to scrape wet, faeces covered envelope paper out of the intricate workings of the mail sorting machine. This does not make them happy. One drop of water per dropping is adequate. Bottled water, sterile water or saline (such as contact lens solution , iv fluids or eye wash) are best. Tap water will suffice but remember it contains chemicals to kill pathogens before we drink it so it may well kill the sample pathogens before the vet gets to see them.

The sample should be placed in some impervious material so it arrives as fresh as you sent it and it does not leak out during transport. Cling wrap or aluminium foil are good, small clip lock bags are better (but push the air out first or they pop in the mail sorting machine (see above for the consequences of this)). Double wrap them if the sample is precious or if you are just cautious. Send them express post wherever possible. A sample is still good if correctly stored and prepared for about 48 hours. 24 hours after this the information is less reliable as bacterial and fungal organisms start to grow rapidly in their nice steamy little package. By 4 days, you can smell the envelope as it is carried in by the cranky postman.

Faecal testing is not a precise and exact art. It is a method of ruling out some diseases, ruling in other diseases but it does not always give a complete picture. It often amazes me what people expect from a faecal sample. A negative result is just as important in many cases as a positive result so if your vet says there are no parasites, no yeast, no significant bacterial changes then be happy. You have potentially ruled them off the list. Now you can focus your attention and money elsewhere. Also remember that diagnosing the disease is one thing but treating it is a whole different ball game. Many medications such as antiparasitic medications can be readily supplied on the basis of a faecal test result. Other medication may be limited in supply depending on the legislation in the state that the tests are being run. In some regions, antibiotics or antifungals may only be supplied to “bona fide” patients (i.e. you have physically examined the individual animal). This is designed to avoid medication overuse and reduce medication ending up in our food producing animals. Faecal testing may not qualify you as a “bona fide” client. In these circumstances, your avian vet may be able to liaise with a local veterinarian or a veterinarian within another state so that products may be supplied within the legal guidelines. After treatment, your vet will often recommend follow up faecal testing to confirm that the treatment has been successful.

Faecal testing is a reliable and important diagnostic tool if used within its boundaries and there are many happy aviculturist with happy live finches to vouch for that.

Question 2:

From a Vets viewpoint what things in a finch aviary are potentially threatening to a birds health, so that an adjustment could be made?

Answer 2:

There are many aspects of aviary design that can lead directly or indirectly to injury and illness in birds. Some of the most common "husbandry -related" disorders are as follows :

1. Curiosity not only killed the cat but it has been the downfall of many a finch. Any small gap is a potential death trap for an inquisitive finch. A common site is any small hole that may allow a bird to fit between the aviary wire and any shade cloth/plastic sheeting that may be covering it. The birds will see light through the gap and squeeze into it (usually from the floor level). Their natural response is then to flutter upwards to apparent freedom where they quickly exhaust themselves and ultimately many will die. Another site is when wire netting is attached over colourbond or corrugated metal sheeting. The small gaps in the sheeting profile are just small enough to attract a finch (maybe as a potential sheltered nest site) but not enough for the bird to turn and manoeuvre back out again. Also beware of open topped vertical pipes (e.g a piece of water pipe that you put green seeding grasses into.) The answer is simple. Close all small gaps. If you see a gap and think "no way , a finch can't be that stupid" then close that gap first as it will be the one that gets a finch jammed in it tomorrow.
2. Wire hooks have numerous uses around the aviary such as cuttlefish holders, perch supports and something to spike a piece of apple on for your softbills. Unfortunately they can often form a common death trap when birds inadvertently slip their legs rings over them. They then struggle and either beat themselves to death in their attempts to escape or twist around until their leg is fractured or twisted right off. I could argue for days over the pro and cons of legs rings but if you do choose to use them simply use wire that is 2-3 times the thickness of the birds leg or fold all end back onto themselves to form a broad loop.
3. Compost heaps sound like great ideas in theory – free live food, somewhere "natural" to pick around and don't the birds love them. All of these benefits do come at a real cost however. When a bird is picking through this smorgasbord it will inevitably at some stage pass faeces into the compost heap. If those faeces contain the eggs of certain common parasitic worms then that bird has just delivered the parasite eggs directly to the insect host that carries these parasites to their next victim. So, compost heaps act as reservoirs for parasite infections and are best avoided altogether.
4. Vermin and predators are a constant threat. A properly designed aviary will minimise their impact so always consider things such as rat walls around the aviary perimeter, electric fences around the roof line and 8 mm wire all over. I am yet to truly see a "vermin proof" aviary but every bit of effort helps.
5. Heavy Metal Poisoning (HMP) associated with the consumption of lead and/or zinc or their oxides are realistically far less common in finch aviaries than in parrot aviaries (or we simply overlook it as most birds die quite quickly). Anytime we replace an area of damaged wire, put up a new wall or start with a whole new aviary we should first treat the wire to "superoxidise" it so that the white powdery oxides are less likely to form on the wire surface. Finches are unlikely to be strong enough to pick off galvanising "dags" off the wire so scraping these off is less of a priority than in a parrot aviary. Aviary can be treated by wetting it down with undiluted white vinegar, leave it to sit for 10 minutes and then scrub it off vigorously with a stiff brush and some water. Repeat this at least 4-5 times. This will "reduce" the likelihood of HMP but cannot be guaranteed to make the aviary safe.
6. Water and food bowls are often the most common source of infection within an aviary and rightly so. They are visited by every bird in every aviary multiple times each day. They are walked in, defecated

in and bathed in and well as providing the sole source of feed and water. The type of container used will greatly influence the ability of that container to act as a reservoir of infection. Bowls made of porous materials (wood, terracotta, any plastic or unglazed ceramics) are highly likely to develop resident bacterial and/or yeast infections in their walls. Glass, glazed ceramics or stainless steel are much safer. Also avoid dishes with intricate ribs, patterns or odd shapes that make cleaning impossible.

7. Automated watering systems make life much simpler but can act as an important source of bacterial infection within an aviary, particularly if black poly pipe is used. If water is held with the pipes once the flow has stopped then bacteria can multiply rapidly in this fluid medium. If the water is also heated (because it is in a black pipe) then this will occur more rapidly. An easy answer (and an alternative to all copper piping) is to always have the inlet pipe higher than the outlet pipe. When water flow is stopped, gravity draws all water out of the pipes so that they remain "empty" when not in use.

These are all simple concepts but if overlooked can make a big difference to your aviary success rates.

Question 3:

Is there something that can be given to finches to calm them down a little when transporting them and is this recommended?

Answer 3:

Getting your birds from A to B safely and happily is always a priority. Nobody wants to purchase a bird only to have it's trip home cause it injury or kill it. There are no "calming" agents or sedatives that are recommended for this purpose but cage design will cater for most problems. Carry cages should be large enough for the bird being transported. For finches, at least 2 bird lengths x 2 bird lengths is a basic recommended size. The smaller the cage the poorer the ventilation so take this into account. Excessively large cages will allow birds to bash around and can result in greater injuries. Make feed and water bowls accessible. Finches often feed when stressed as a means of "diverting" their anxiety elsewhere. If they have to climb high in the cage to a small food bowl to do this then they probably won't bother and may go hungry. Covering the floor with seed is often a better idea. Water bowls should also be placed on the floor and should be wide and shallow rather than small and deep. The old technique of using cotton wool or sponge in the water bowl to prevent spillage is a good idea but make sure the water is still accessible and not hidden under the sponge/cotton wool. To calm the birds the best thing is to darken the cage. This can be done by covering the wire in shade cloth, light cheese cloth or muslin, fly wire (always the fibreglass type, not the aluminium as small birds can rip beak tips off if they get caught in the aluminium type wire) or a ventilated wooden door. If the bird species is particularly flighty e.g. weavers, a lightly padded cage roof may also be beneficial.

Putting the birds onto a Probiotic product (beneficial bacterial culture) a few days before and a few days after transport will also help to reduce stress associated with dehydration when the bowels normal inhabitants are thrown in turmoil with the stress of transportation.

Finally, just one note of warning. A aromatherapist friend of mine once thought that a liberal dose of a "calming" oil (I think it was lavender) would be helpful to the birds whilst travelling. Unfortunately all birds died as a result of respiratory failure on the way home as they were overcome by the aromatic fumes. The very efficient respiratory system of birds makes them

acutely sensitive to any vapours so DO NOT USE THEM IN CLOSE PROXIMITY TO ANY BIRD FOR ANY REASON.

Question 4:

I am currently living in a town house complex and have a family of Superb Wrens living around the complex. The care taker of the complex as removed a lot of weeds from the complex gardens allowing room to plant. I would like to plant some shrubs to accommodate for Wrens. I was wondering if you could tell me what kind of shrubs I could plant that would be best for the wrens.

Answer 4:

Whilst this is not technically a vet question it is certainly a topic close to my interests being both a wren breeder and an avid native gardener. The major thing to determine what plant species to choose is how much space is available. I will answer on the basis that I always like to see multiple small plants rather than a single large one so all of the species I will describe will be in the 1m x 1m to 1.5m x 1.5 m range. Locality will also determine plant selection. Where I live in SEQld many plant species are intolerant of our humidity or of the fungal pathogens in our soil so this will determine plant suitability. In our area, if a plant is unsuitable we graft it onto suitable rootstock and force it to like our climate. Many nurseries will sell grafted species and these may often be superior choices over “off the shelf” species. My selection will also be based on what I have seen wrens using in my gardens. Wrens use plants for two major reasons – shelter and feeding. A “wren” friendly plant that provides both is even better. I follow the basic rules of :

1. Big flowers attract larger birds. This discourages small birds to some degree
2. Fine foliage will limit the size of birds that can penetrate it.
3. Prickly foliage is great for birds but sooner or later somebody has to prune it.
4. Lots of flowers equals lots of insects.
5. Birds need to feed all year round so long flowering species are preferred

My choice is therefore going to be plants with lots of flowers, preferably small, flowering for many months (and particularly during the winter months when food is scarce) with fine but not so prickly foliage. Oh, and it has to look good too. The plants I will list are only those I grow in my own garden (if it is not on my list then I have probably avoided it for one reason or another).

So here we go. Check with your local nursery personal to see which ones are suitable for your area.

Grevilleas – *baueri*, “Austraflora Bon Accord”, *speciosa*, *sericea*, “Collaroy Plateau”, *endlicheriana*, “Molongolo”, “Allyn Radiance”, *humifusa*, *humilis*, *thelmanniana*, “Scarlet Sprite”, “Canberra Gem”, *aspera*, *florida*, *umbellulata*, *leptopoda*, *lanigera*, “Honeyeater Heaven”, “Shirley Howie”, *intricata*, “Evelyns Coronet”, *juniperina*, “Robyn Gordon”, “Superb”, *rosmarinifolia*, “Splendour”, “Peaches and Cream”, “Magic Lantern”.

- Callistemon “Rocky Rambler”
- Correa “Dusky Bells”
- Darwinia citriodora
- Eremophila “Yanna Road”
- Eremophila maculata
- Ricinocarpus pinifolis
- Hakea gibbosa
- Leptospermum “Pink Cascade”
- Melalaeuca thymifolia
- Pultanea villosa
- Cryptandra scortechinii
- Westringia “Jervis Gem”
- Westringia “Smokey”

I hope this helps.

Question 5:

I have read somewhere that mealworms that are fed on wheat bran contain a substance called phytic acid which the author stated could leach calcium from the birds that consume them. Is this really the case? Would feeding my mealworms on oat bran (as this author of that article suggests) lessen this effect?

Answer 5:

The information is partly correct and I will endeavour to explain why.

Phytic acid or cereal phytates are concentrated in the aleurone layer of the seed coat of all cereal grains. This is third outermost layer of the seed coat (2nd is the testa, 1st is the pericarp). These three layer are what makes up the product we know as bran once processed. Cereal phytates have the property of being able to immobilise dietary calcium and magnesium i.e the phytates bind to calcium and magnesium and form insoluble complexes that are not readily absorbed. Calcium is therefore not removed from the birds body BUT it is prevented from entering the birds body in the first place. When we consider that mealworms are very low in calcium in the first place it is safe to consider that virtually none of this will be available to the bird if the mealworm also has a gutful of phytate rich cereal bran when it is fed to your birds. Not all cereal grains have the same level of phytates in their aleurone. The highest levels are found in oats, followed by barley, rye, wheat and lastly millets. This means that oat bran is actually a far poorer choice than wheat bran. Incidentally, when a bird dehusks its seed, the aleurone, testa and pericarp are peeled off. In sprouted seed, the germination process results in up to 70% of phytates being deactivated.

In order to feed our mealworms (and maggot cultures) on a substrate that has reduced phytate levels is to therefore prudent to use a cereal based product not made from the seed coat. Two products are recommended. **Pollard** (or wheat fines) are processed from the endosperm (the starchy central part of wheat) and therefore have significantly reduced phytate level. The disadvantage of pollard is that many manufacturers produce it very fine which makes it (in my

hands) too “gluggy” for maggot substrate BUT excellent for mealworms as it is easier to sieve. In addition, on a personal note, I do not suffer from hayfever when working with pollard but I most certainly do with bran. Some manufacturers produce a coarse pollard which is excellent for both purposes. **Mill Run** is an alternative product which has a coarseness suitable for both maggots and mealworms. It is made up of coarser pollard with remnants of bran. I use it by preference as its texture is always ideal for maggots, it has about 6% more protein than bran (which is essential protein for use by the mealworms or maggots) and it doesn’t flare up my hayfever. I hope this helps.

Question 6:

Is there a connection between the term “going light” and “avian tuberculosis”? Is there a test for the latter?

Answer 6:

The answer is “Yes and No”.

“Going light” may occur with tuberculosis but is not specific to that disease.

“Going light” is a widely used term with very little relevance from a diagnostic point of view. Most birds are a food item for something else. The first bird within any flock to be eaten is the bird that appears the weakest. Birds therefore will mask their illness as long as they physically can by surviving entirely on the energy stored in their ample breast musculature. By the time we are vigilant enough to see a really ill bird, most of this muscle is already broken down (catabolised) and the bird now appears thin and is reduced in weight, hence the term “Going light”. Any disease or trauma that reduces a bird’s ability to go about its normal daily duties (e.g. infections, parasites, poor nutrition, reproductive problems) will result in the bird using these muscle reserves. A bird will lose weight as soon as the energy usage exceeds the energy intake. A bird can therefore appear “light” in as little as 48 hours.

Tuberculosis can cause “going light” but it is realistically a relatively uncommon disease in most countries.

Tuberculosis is a group of diseases caused by bacterial organisms in the family *Mycobacteria*. Within birds most infections are caused by *Mycobacterium avium*.

There are several different types of this species, some affect only birds, others infect birds and mammals including humans. Clinically, tuberculosis in passerine birds is seen mostly in canaries and Gouldian finches but can occur in any species. It may be more related to hygiene and closeness in these birds than their specific breeds. Sick birds show non specific gastrointestinal and respiratory signs and will often “go light” with chronic disease. Realistically there are probably 20 more common diseases that will also cause these exact same set of signs in the same birds. Diagnosis in the live bird is unreliable at best. Mycobacterial organisms are only identified by special stains called acid fast stains. Acid fast staining of faeces may detect *Mycobacteria* if they are present in the faecal sample but are just as likely to miss light infections. To properly

diagnose *Mycobacteria* infection requires acid fast staining of finely sectioned post mortem samples of liver, lung, spleen and intestines. Not all birds within a flock will be infected. *Mycobacteria* is a zoonotic disease in some cases (i.e. it may infect humans) and correct diagnosis is therefore important. The different species can be identified with other special laboratory techniques such as fluorescent staining. Humans with poor immune systems (e.g. the very young, very old, and immunosuppressed individuals (chemotherapy, HIV)) are most at risk.

Within birds, the disease cannot be treated and culling of infected stock is recommended.

Question 7:

It has always amazed me that when finches are diagnosed with worms by a vet that they seem to respond to treatment fairly rapidly. What is the actual time span for recovery and what helpful hints would you have for helping with full recovery? In severe cases would you recommend holding the bird back from breeding for 12 months or more?

Answer 7:

Most gastrointestinal worms are just nutritional free-loaders. They don't usually do a lot of physical damage to the bird. Mostly they just hang their heads by their mouthparts and sponge up the nutritional soup that they hang in. When we get rid of them with an effective parasiticide what we have done for the birds has been to rapidly improve their nutrition. Obviously there is a small amount of irritation that needs to be healed but otherwise the birds' other organ systems have not been overtly affected so it often recovers quite rapidly as long as it is not reinfected. The exception to this is from a finch perspective is *Acuaria* (the gizzard worm) and *Synhimantus* (the proventricular worm) which are both invasive and induce considerable pathological changes in their respective organs of preference. Although the worms may be killed, the damage may take a long time to be reversed or in many cases may be permanent. This is why a parrot finch with tapeworm will recover faster and be healthier than the same species of bird recovering from gizzard worm even though all worms may have been eradicated.

In terms of actual time that the bird should be rested I usually recommend three negative faecal results each 2 weeks apart and then until the droppings return to normal i.e. as little as 6 weeks for a simple tapeworm infection or potentially much longer for a gizzardworm infection. Helping the birds through this period with the use of probiotics to restore normal gut function (minimum 10 days), and good quality soft foods for easy digestion and higher protein for tissue repair. For heavy infections I suppose 3-6 months rest will do a world of good. For lighter infections, a few weeks may be all that is needed particularly in a flock situation. Many birds will however not miss a beat and will just get on with what they were doing before but with greater dietary efficiency.

Question 8:

I have heard that in cases where *Cochlosoma* is diagnosed there is a need to not only treat the free organisms in the gut but also to treat those burrowed into the walls of the intestines as well? Does this make them harder to fully remove?

Answer 8:

Cochlosoma is a species of single celled protozoan in the family called flagellates. This group also includes *Giardia*, *Hexamita* and *Trichomonas*. All of these organisms behave in similar ways. They are not necessarily burrowers as such. It would be safer to say they inhabit the surface of the gut rather intimately and the reaction of the gut engulfs them in thickened mucosal folds. Most of the successful treatments that we use such as Ronidazole and Metronidazole are systemic medications i.e although they are taken orally the drug is metabolised and spread throughout all of the bodies tissues. This means that “deep” parasites are equally as accessible as those within the gut lumen. What does change success rates is how much the intestinal wall has reacted to the parasite and it’s subsequent effect on digestion. Some areas of gut may permanently thicken (hypertrophy) in response to the parasite and these areas may remain permanently inefficient with regards to digestive ability.

Question 9:

I would like to prepare my Gouldians for the breeding season by making sure they don’t have air sac mite. What is the best way to do this?

Answer 9:

The air sac mite (*Sternostoma* sp.) is a common pathogen of Finches and canaries and has a predilection for Gouldian finches. Despite its name, it is actually far more common in the trachea (windpipe) and syrinx (voicebox) than in the air sacs. The mites lay eggs in these areas and the eggs are coughed up by affected birds which then usually wipe their beak along the perch to clear the mucous from their beak. Other birds may be infected if the beak wipe in the vicinity of this egg laden mucous or by direct oral contact (cocks feeding hens, parents feeding chicks). The mite survives poorly outside of the confines of the bird so environmental treatment is not necessary.

Treating the mites inside the birds involves two components, killing the mites and treating the secondary infections.

Killing air sac mites has for years been a barbaric act involving shaking birds in paper bags of carbaryl or fly spray or locking them in cages with pest strips. With modern medication, these methods are really no longer acceptable.

Treatment with products such as ivermectin can be successful but many different strength products exist on the market making dose rates variable. Depending on how they are mixed for avian use, many of them are rendered inactive by contact with water. None of these products are registered for avian use so any use of these products is at the owners’ risk. I personally use moxidectin as it has a wider safety margin and is in a form registered for bird use (Moxidectin or Moxidectin Plus (Australian Pigeon Company)). Treatment is recommended 2-4 weeks before pairing and usually again after the first and final round of eggs. Fledglings should be treated well before the moult starts.

Question 10:

Every now and then I have finches fledge with white wing feathers. What causes this?

Answer 10:

When I was a younger finch breeder I would often see finch chicks fledging with white flights, usually a mottled whiteness, not a clean crisp white as you would see in a pied bird. In all honesty I can't recall seeing a white flighted chick in my own collection over the past 10 years. What is the difference between what I do now and what I did then?

I think, in short, my nutrition has improved. I honestly don't think the work has been done to identify specifically what is lacking in finches with these white flight but research in poultry chicks usually points towards it being associated with a lack of certain amino acids in the diet. Lysine is often blamed but the essential amino acids methionine, cysteine, tyrosine and phenylalanine all play a role in melanin deposition and feather quality. I think the issue is more one of imbalance of amino acids than total deficiency. In many cases, it is not necessarily what is being fed BUT what the parent birds are eating and feeding to their young. I recall that I saw more of these problems in birds that ate little soft food and relied heavily on white ants such as cordons, ruddies and orange breasts. Back then however, a soft food was basically a bowl of dry "pseudo" egg and biscuit as that is all that was available. I think if you are seeing white flights you need to look at the overall picture of what you are feeding. What soft food, what is actually being eaten and what is being eaten by breeding birds are important things to note and modify.

Question 11:

As a finch breeder, need I be worried about "Bird Flu"?

Answer 11:

Of late, the media circus has again resulted in avian vets being bombarded with questions about "Bird Flu" (Avian Influenza). Every time a chook sneezes, I get a phone call at present. This is a large but fairly basic subject which I will address from the point of view of a finch breeder. Other species have their own slight risk assessment differences depending on their exposure likelihood.

"Bird Flu" refers to an infection by the strain of avian influenza called H5N1. The H and the N refer to protein differences on the surface of the virus. Other forms of avian influenza with different surface proteins have popped up in Australia but have been adequately dealt with by the authorities. H5N1 has not been found in Australia to date.

From a bird point of view, avian influenza is spread between birds via respiratory secretions, faecal secretions, contaminated water and by human clothing, boots and machinery. The principal carrier likely to bring the disease into Australia (apart from a human with dirty boots and clothing) is any form of free ranging waterfowl or waterbirds. As these are unlikely to actually be in contact with captive finches, the risk for that subgroup is very low. The only other

realistic source of infection for a finch aviary is the use of contaminated, untreated dam water that has been visited by wild waterfowl. So, the commonsense approach to avian influenza that should keep us all at low risk is to not use untreated dam water for sprinkling or water supply, not to house free range waterfowl or poultry (that share their water facilities with wild ducks) adjacent to our finch collections and notify your local avian vet if any significant mortalities are noted within your flock.

Question 12:

I have Gouldian fledglings developing very long beaks. What is a possible cause of this?

Answer 12:

Elongated beaks occur in birds of all ages with numerous causes.

Some of these include:

1. Nutritional causes – vitamin deficiency (and in some cases excess) may result in the development of abnormal keratin development (the material that makes up the hard part of the beak and nails). The most common culprit is Vitamin A which is generally in poor supply in seed based diets.
2. Physical damage – Anything that damages the beak tissue will result in the body attempting to repair this tissue. If the damage to the beak tissue is widespread, the body's attempt at repair may result in abnormal growth. Where this abnormal growth occurs depends on what part of the beak is damaged. If the damage occurs at the base of the beak (where it joins the skull), then the area where the beak tissue is initially formed may be damaged resulting in poor beak formation from the base to the tip. If the damage is done further up the beak, damage is limited to the area in front of the damaged area. The types of injuries that will cause these changes include leg rings trapped on the beak tip (in birds that have attempted to remove their leg rings) and injuries from hitting the wire.
3. Parasite damage – *Cnemidocoptes* mites (scaly face mites) burrowing into the beak tissue with stimulate an aggressive repair response by the beak tissue which may result in abnormal growth.
4. Metabolic disease – birds with liver disease have an inability to produce normal quality keratin. This results in beaks that are often brittle and excessively long.
5. Viral disease – Polyomavirus is a very common cause of elongated beaks, particularly in Gouldian finches. Polyomavirus is often endemic in Gouldian flocks. Elongated beaks form part of a complex of problems including dead in nest chicks (often days 4-10), high fledgling mortality and poor feathering. I am unsure if the beak abnormality is because of specific effects of the virus on the beak keratin or its associated liver damage and subsequent effects. Chicks that survive early infection go on to become carriers and these birds usually develop the beak and feather signs. If you are seeing any of these additional signs then investigating

polyomavirus is worthwhile. It involves sacrificing a bird for histopathology. I usually submit the whole body to the laboratory. They will look at sample of the liver, spleen and intestine for signs of viral organisms. If diagnosed, the basic recommendation is to cease breeding for at least 1 breeding season (preferably 2 seasons). This is because adults develop good immunity to this disease and the virus is only able to persist whilst young birds exist in the population (as carriers). No young birds for 1-2 years usually allows immunity to develop in the breeding flock (as long as new carrier birds are not introduced).

Question 13:

I would like to improve the colour of my red siskins using my soft food mix but I don't want to affect the plumage of my other birds. How can I do this?

Answer 13:

Traditionally, colour enhancement is done using products that supply the pigment required in its pure form. **Canthaxanthin** is the predominant product used for enhancing red colouration. It comes as a liquid or powder. As it is already metabolically the final product (the body does not need to modify it any further), two problems occur. The first is that birds that do not need red colour enhancement have no ability to excrete the product and end up incorporating it into their feathers whether they need it or not. This turns yellow birds into orange birds. The second problem is that it is possible to overdose these products and cause liver damage.

My preference is to use a product that is a precursor product. This means that the product, once consumed, must be metabolized into its final stage and will only do so if the metabolic pathways needed are already in existence. An ideal product for this is Spirulina. Spirulina is a concentrated extract from a marine algae. It contains a number of important precursors () for red and yellow pigment. This means that we can feed this product in a mixed collection and only enhance the colours that the bird naturally requires (i.e. red birds use the red precursors, yellow birds use the yellow precursors). Some species of green birds that "grey" in captivity will also benefit from its use (e.g. silvereyes, fruit pigeons) . I use it both in my soft food, nectar and, in those birds that eat minimal soft food, onto the live food. Spirulina comes as a superfine green powder. Dusted onto mealworms or maggots is a simple way of presenting it. This works well for species like weavers and potentially birds like chats and robins. I use it in soft food at a rate of about 0.5 - 1% of the mix. I use the 500 mg capsules at a rate of 1 x 500 mg capsule per 100 grams of soft food. You can also purchase it as a powder. These are readily available from any health food shop. Birds that I use it for include scarlet honeyeaters , silvereyes, siskins, grenadier weavers, figbirds, saffrons and it will even allow improvement of birds like orange breasts and ruddies. Basically it allows any species to reach its predetermined colour potential without unnaturally colouring them.

Question 14:

I notice many wormers are recommended administered in the birds drinking water. We are told that each one should be left in the water for various amounts of time, some 2 days others 5. I have also heard that the birds only need one good drink of the wormer to be effective. Why is

there are difference? And what is the truth about how much of this wormer, diluted in water, a bird needs to take in before it is effective?

Answer 14:

In water medication is a commonly used method of medication in flock birds where catching is impractical or individual dosing is difficult. The various regimes for how we use these drugs is based on several factors including:

1. The mode of action of the drug – How the drug chemically interacts within the body of the bird to exert its action on the target species i.e the parasite.
2. The toxicity of the drug – How the drug chemically interacts with the non target species i.e the bird
3. The stability of the drug – How the drug interacts with the solvent in which it is placed, the environment around it and the presence of organic matter.
4. The palatability of the drug – How likely it is that the bird will actually consume the medication and how much can we expect the bird to drink.
5. The reversibility of the mode of action of the drug – How long must the parasite be in contact with the drug for it to exert its action successfully

I will address each of these separately:

1. Mode of action – Most parasiticides (drugs that kill parasites) interact with the parasite either by immobilising it, destroying part of its life cycle , denying it an important metabolic pathway or by simply having a toxic effect on its life function. Every drug is different. Even within a broad family of drugs, improvements/modification in chemical structure may make them act in different ways. These may act differently in different species depending on their specific metabolic pathways. Many of the drugs that we use were designed for different purposes in different classes of animals e.g ivermectin is used for biting louse control in cattle. Many of the drugs we use are used as an off label product and therefore there mode of action in birds may not be well known or studied at all as there is no commercial registration for that purpose. Many modes of actions are still unclear for many drugs that have been in use for decades. Depending on the modes of action the parasite may be killed/damaged/paralysed with a single hit or it may need multiple or sustained damage to do its job. Below are listed some common drugs and their proposed modes of action.

Question 15:

I've been keeping birds for over 30 years. I recently discovered a zebra finch in a small holding cage had developed paralysis in both legs. It can fly about but cannot use it's legs at all and after attempting to perch must simply land in it's seed dish and rest on it's belly. I have experienced this condition many years ago in superb parrots and rainbow lorikeets but never a finch. Is it unusual in finches and what may cause it? Is there any treatment you would suggest for a finch with this condition?

Answer 15:

The condition you describe is somewhat unusual but I have seen it before in finches. The condition you have seen previously in Superb Parrots and Rainbow lorikeets is similar in appearance but is caused by completely different mechanisms (nerve or muscle damage). In Finches, the possibilities are as follows (in order of likelihood):

1. Spinal injury associated with calcium deficiency (metabolic bone disease) resulting in a weakened spinal column that ultimately collapses. This can be exacerbated by attempted egg laying in hens.
2. Trauma resulting in spinal injury.
3. Ischiatic nerve entrapment. The ischiatic nerves are the nerves that supply the legs. They are positioned between the spine and the kidneys. Anything that may potentially cause the kidneys to swell (infection, cancer, trauma e.g. egg binding) may potentially entrap and crush these nerves resulting in paralysis (but this is much more likely in psittacines)

Treatment options are limited to anti inflammatories (but these may make things worse if swollen kidneys are involved). If the treatment is started greater than 48 hours after the initial paralysis, chances of recovery are greatly reduced.

Question 16:

I am having failures in nest rearing with my Cordons which I am certain is because I don't feed live food. I have avoided live food because I have heard that insects carry worm parasites. Is there a safe compromise?

Answer 16:

You are quite right in both respects but have been misled with your concerns re parasites and live food. It is not uncommon at all for African waxbills to happily attempt to nest but then toss the young out due to insufficient live food ? This may be due to insufficient quantity or due to incorrect type of livefood.

With regards to the parasite issue, you would need to fulfil the following criteria for this concern to be realized:

1. The parasite egg must be passed out in the birds faeces.
2. The birds faeces must be consumed by an appropriate insect host.
3. The parasite must develop within that host insect
4. The bird must eat that insect without damaging the parasite within.
5. The parasite must successfully develop into an adult.

In terms of our commonly used live foods, it is pretty obvious that these criteria are hard to meet (e.g. not many people would place their mealworm colonies where birds can defaecate into them and termites are unlikely to actively consume bird faeces). It is however, not impossible.

Problems can occur in the following circumstances:

1. Compost heaps, where faeces and insect mix freely and parasites can thrive.

2. Fruit fly/vinegar fly cultures. If wire lids or no lids are used, faeces can be consumed along with the fruit pulp. Containers with solid lids and perforated sides will allow use of fruit flies without faecal contamination.
3. In-aviary mealworm colonies. Every now and then I visit an aviary that is quite proud of how many escaped mealworms have set up residence in the husk pile under the feed station. It should be obvious by now that this is not very smart.

If you wish to maintain and ultimately breed species such as cordons I would recommend that you source a good commercial source of maggots or mealworms or breed them yourself.