

Indian Runner Duck Club



Winter 2020





CONTENTS **Page**

Secretary's Report	4
Queries	8
Cracked Feet	9
Queries on food	13
Silver Runners	15
Egg Production	23
Advertising	28

Cover – Trouts in first feathers at 10 weeks.

Young Black Runners.

Fawn & Whites and single blue dilution F&W on Anglesey

Photos: James Rigby

Chairman
Julian Burrell

Vice Chairman
James Rigby

Secretary / Treasurer
Dr Christine Ashton
Red House, Hope, Welshpool, Powys,
SY21 8JD Tel 01938 554011
Email: runnerdux@yahoo.co.uk

Editor
Chris Ashton

Committee Members

Mike Ashton
Judith Barnett
Graham Hicks
Antonia Hudson
Keith May
Mike Mayers
Rachel Mayers
Roy Pryce

Belgium
Bart Poulmans

Canada
Colin Davis

www.runnerduck.net

SECRETARY'S REPORT

What a gash year: Covid lockdowns for everyone and now avian flu! I think most breeders decided to limit the breeding of their stock, anticipating that the autumn shows might not go ahead. That really was the right decision. With avian flu rearing its head rather early in the UK this year too, I am sure that both Telford and Stafford Shows would have been cancelled anyway. The respective show secretaries made the right decision much earlier when the Covid19 virus got the humans instead.

Avian flu

The flu virus, in the past, has usually waited until late December or January before appearing in the UK. Earlier incidences crop up in Italy in the Po valley flyway, so the Italians have a great deal of expertise in developing vaccines and monitoring the virus. Flu also pops up early in France due to the large commercial duck and goose populations, and in Germany and the Netherlands because of the wetland wild-fowl reserves and intensive poultry industry.

There is no denying that the virus is resident in the wild bird population, where it can be asymptomatic. Mass die-offs due to avian flu were rare in the past until the example of the Lake Qinghai region of China from 2005 onwards where a large population of wild migratory birds was infected with highly pathogenic avian influenza (HPAI) virus (H5N1). Incidences of the deaths of around 10,000 birds were recorded. Subsequent to 2005, viruses from this clade were found in Mongolia, Russia, Europe, and Africa along the migratory flyways of birds. The authors concluded that this unique distribution of the same clade of HPAI virus (H5N1) through different migratory routes indicated that migratory birds might play a global role in virus dissemination. [Emerging infectious diseases March 2011 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3166005/>]

What this and a subsequent report did not say was that H5N1 was not widespread until 1996. It became a problem from that point because it circulated in the domestic fowl population of Hong Kong before spreading to China and increasing the probability of infections back to the wild bird population. The prevalence of avian flu today is basically a product of the expanded cheap chicken industry.

This website provides their own useful summary about the change in the virus, and what has happened more recently. <https://afluduary.blogspot.com/2018/11/who-migratory-birds-potential-spread-of.html>

“In 2015 - following North America's record HPAI H5 epizootic - we looked at a study which concluded that - while migratory waterfowl can briefly carry HPAI H5 - they were not a very good long-term reservoir for highly pathogenic avian flu viruses.

HPAI viruses, they posited, burned out fairly quickly in aquatic waterfowl populations - likely due to their immunity to LPAI viruses - and would therefore have to be reintroduced periodically.

That pattern appears to have changed recently when, in the fall of 2016, H5N8 returned to Europe after an 18-month absence and brought with it a number of genetic and behavioral changes attributed to a reassortment event that likely took place sometime in the spring of 2016. Among the changes noted in this reassorted HPAI H5N8 virus was enhanced virulence in wild birds, an expanded avian host range, and perhaps most notably, unusual environmental persistence into the summer.”

“Between mid-June and 1 October 2018, the Russian Federation reported 80 outbreaks of highly pathogenic avian influenza (HPAI) H5 virus and 1 outbreak of HPAI A(H5N2) virus among domestic poultry, to the World Organization for Animal Health (OIE). The Federal Service for Veterinary and Phytosanitary Surveillance of the Russian Federation has confirmed that the most recent outbreak was caused by a HPAI A(H5N8) virus. This virus is closely related to viruses that, in 2016–2017, caused the largest outbreak in poultry and wild birds ever recorded in the Region, resulting in millions of birds being culled and high economic losses. Migratory wild birds were identified as the likely vehicle bringing the virus to the Region.”

Defra's policy

Vaccination was developed and has been used in Italy as a means of disease control in conjunction with strict biosecurity measures. It has also been used against H5N1 in Hong Kong and China. In the EU, each country chooses its own policy, and most opt for 'stamping out' rather than vaccination. On clearance of the disease by culling affected

birds, a country then returns more quickly to free trade than one which opts for vaccination.

The current 2020 situation is very fluid, so news of any outbreaks can be looked up on the Defra flu links below. An Avian Influenza Prevention Zone (AIPZ) has been declared across the whole of England effective from 5pm on 11 November 2020. Declarations for an AIPZ in Scotland and Wales have also been made by the Scottish Government and Welsh Government.

All poultry keepers in England (whether they have commercial flocks or just a few birds in a backyard flock) are required by law to take a range of biosecurity precautions. The AIPZ means extra biosecurity measures must be done by all bird keepers (including game birds and pet birds) to protect them from the risk of avian influenza from wild birds.

Defra's Biosecurity advice

If you keep poultry or other captive birds, you must take action to reduce the risk of disease in your flock by following government advice on biosecurity. This is especially relevant if your birds are located in a Higher Risk Area (HRA). These areas are shown in blue on this map https://defra.maps.arcgis.com/apps/webappviewer/index.html?id=8cb1883eda5547c6b91b5d5e6aeba90d&fbclid=IwAR3SbV9fz10-lRcVT4I_zWeCkRfRiXhDb9rUW-hYHDrFuXHFjGRHSPoHJBoA

This applies just as much if you only have a few birds as pets, or if you have a large commercial flock. To ensure good biosecurity, all poultry keepers should:

- minimise movement in and out of bird enclosures
- clean footwear before and after visiting birds, using a Defra approved disinfectant at entrances and exits
- clean and disinfect vehicles and equipment that have come into contact with poultry
- keep areas where birds live clean and tidy, and regularly disinfect hard surfaces such as paths and walkways
- humanely control rats and mice
- place birds' food and water in fully enclosed areas protected from wild birds, and remove any spilled feed regularly [feeding whole grain wheat under water in a bucket is useful - it keeps other wild

birds off the food – as long as there are no mallards].

- avoid keeping ducks and geese with other poultry species, where possible [waterfowl can be asymptomatic carriers]
- keep birds separate from wildlife and wild waterfowl by putting suitable fencing around outdoor areas they access
- keep a close watch on birds for any signs of disease and report any very sick birds or unexplained deaths to your vet

See <https://www.gov.uk/guidance/avian-influenza-bird-flu>
<https://www.gov.uk/government/news/avian-influenza-bird-flu-national-prevention-zone-declared>

Finally, register your birds using this link below. It is not compulsory unless you have 50 birds (chickens, duck, geese etc.) or more. However, you will get direct Defra notifications if you are registered. <https://www.gov.uk/government/publications/poultry-including-game-birds-registration-rules-and-forms>

Producing birds in 2020

There seems to have been quite a demand for keeping birds at home, and especially for hatching eggs, during 2020. But as the year has gone on, people have found that keeping ducks is not a walk in the park. The birds really are not suited to a 'backyard' situation, and a small garden will quickly become a muddy mess as the winter rain sets in. Overstocking becomes a problem as does the issue of surplus drakes which can attack peoples' wellie boots, the dog and the kids as well, especially when tame drakes become sexually mature. So, if you can help people re-home unwanted birds, or cull surplus males, I'm sure it will be much appreciated. Demand has stayed high for females for the home-produced eggs but, before selling any, it's as well to check what sort of home they might be going too. Adding females to a pen of drakes does not work. I've refused some sales this year on that basis.

The lack of shows has meant that people have used the internet for online bird shows (by using photographs) but it's not the same as the real thing is it? On the other hand, maybe it beats getting up at 03.00 on a frosty morning, or even travelling to a show overnight. There are some lovely Facebook videos and photos which have appeared this year because people have had the time to take them, and smaller numbers of birds stay in good condition. I just hope that 2021 provides the opportunity for us all to mingle a bit more.

QUERIES

We had three pure bred Indian Runners (1 male, 2 females) for a year until one of the females was found dead in her pen without warning. She had lost a little bit of weight but her feathers were still glossy and she was eating and drinking normally. A few short weeks later, the other female who looked considerably older than the other female, also died. She had also lost a little bit of weight but nothing drastic. We have since replaced the 2 females with a pair of crossbreed Harlequins. Our pure-bred male is now losing weight and we are concerned we are overlooking a possible illness. Are you able to shed any light? Do Indian Runners lose weight and muscle mass in old age? It is the sudden decline that has been so alarming, having not kept these ducks previously.

Reply: Have the birds been wormed? How much do you feed them? Are there wild mallard around?

We feed them a large handful of duck-specific grain food twice a day, plus the grubs they eat from the grass. They are penned so not roaming freely. We move the coop measuring about 3 x 2m every fortnight to fresh grass They are in a stable at night. There are lots of mallard around but they seem to settle in the fields behind our garden, not within it. We do not worm the birds? We have been taking advice from the farmer next door who also keeps Runners.

Reply: I asked about wild mallard because they can carry duck viral enteritis and be immune to it themselves. Even if you don't see them on your ground in the daytime, mallards could visit early in the morning when you don't see them. But the penning system is probably keeping them safe from DVE. However, since the birds are penned in a small space, that also means that any bacteria/virus is easily transferred to another bird. Ducks are not normally kept in runs/coops, especially if they are moved only every 2 weeks. The area is insuffi-

cient to provide wild food - there won't be any.

Weigh the food you give them. They need a minimum of 120 g per day, and if they are in-lay or the weather is cold, it's 150g or even more.

If they do have parasitic worms these will also become concentrated in the small space you describe. There is advice on the page link below. A quick fix is to use Panacur 10% white liquid for dogs which can be bought at agricultural stores. Use 0.6 ml per bird dropped onto their food and stirred into the food, in the food container. Take care that the liquid stays on the grains and is not coating the sides of the container and getting lost.

Repeat that dose at 5-10 days. Panacur has a long shelf life and you can use it again over the next 12 months. There is a withdrawal time if the birds are laying eggs, so you might prefer to move to the medicated layers pellets with Flubenvet, then you can still eat the eggs. Right now I'd go for quick fix, especially if the birds feel thin. Pick them up to check them over. Also review the food. Birds in lay need layers pellets for the protein and calcium.

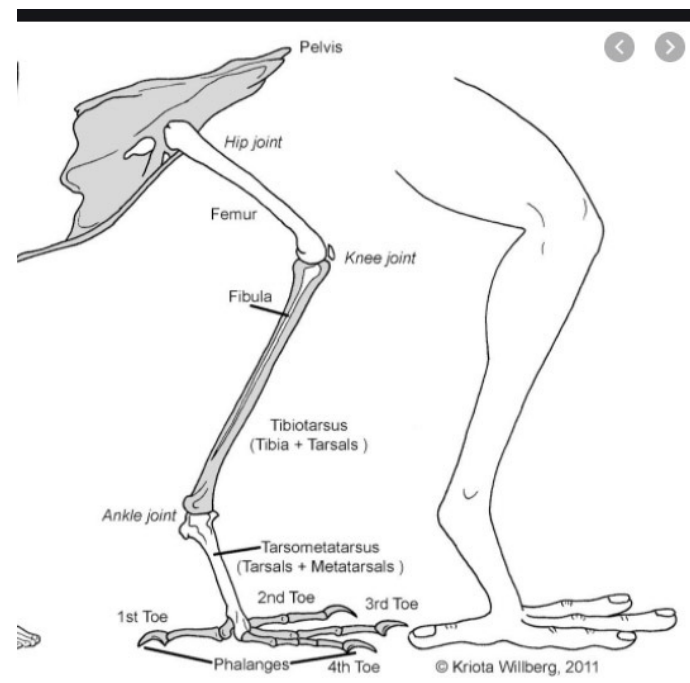
<https://www.runnerduck.net/worms.php>

SOME TIPS FOR TREATING CRACKED FEET

Runner ducks evolved in rice paddy fields and are not suited to hard ground. Their upright stance probably puts more stress on their toe joints than other types of duck, and certainly stresses the legs of the females if they are over-mated.

In contrast, Call Ducks rarely limp, probably because they like to spend nearly the whole day on water. The Abacot Rangers have good feet even though they forage a lot. It's the Runners who bash their legs, develop callouses under their toes and even get a swollen leg. It's

probably their lifestyle that causes it. They are always active foragers, and also their upright stance may also put more pressure on the soles of their feet.



The birds actually walk on their toes, and the ball at the back of their foot, which has the hind toe, is equivalent to the ball of our foot. Our heel is equivalent to their ankle joint (or hock).

If you examine the underside of their toes, each joint may reveal cracked or roughened skin. This can be caused by poor rearing conditions. Dirty litter will cause skin burns from the ammonia, and very dry litter will cause cracked skin as well. My white Runners in particular develop calloused skin at the toe joints, however much care is taken in their rearing, and the best way to fix that is to keep them 24/7 on muddy ground and water. However, we can't all do that so here are some other tips which are feasible.

Surfaces for Runners

Runners are best kept on grass surfaces, for the sake of their feet. Don't be tempted to keep them on concrete or coarse, angular gravel to reduce the mud in winter. Muddy conditions don't matter to them (unless the plumage gets dirty) but if it matters to you, it is possible to use well-rounded 10mm pea-gravel or platy, slate shingle. 20mm gravel may be safer if the birds attempt to eat the 10mm gravel. Dark bark chippings are also used but keep an eye out for toxic fungi that might start to grow.

Typical problems

The cracks on Runners' feet may allow pathogens to infect them and can result in a discrete infection, or one which spreads from a swollen toe, to a hot hock or swollen shank. Swelling can be the results of a bruise, but if it gets worse or does not resolve, an appropriate antibiotic might be needed to deal with a staphylococcus infection. It's best to avoid this, because of bacterial resistance to infections, by keeping the feet in good order.

Recommended treatment from various sources include the following:

Epsom Salts: We bathed her foot in Epsom salts for about 10 minutes a day for about 10 days. When she stopped limping I stopped the baths. I used a couple of tablespoons in an inch of warm water. We didn't wrap her foot as I didn't think that would help. We learned to remember to wait until she had emptied her bowel on a piece of kitchen roll before standing in the water or it was a bit stinky. The 'corn lump' is still there but not hurting.

Sudocrem: This is a baby barrier cream to soothe sore skin and treat nappy rash. "Sudocrem products are used by millions of healthcare professionals, mums and dads everywhere."

This has been recommended on Facebook pages. A water-repellent base forms a protective barrier, helping to stop any irritants (urine and faeces) coming into contact with the skin. It contains an emollient that

soothes sore or inflamed skin. It works as a mild local anaesthetic to help ease pain and irritation.

What are the ingredients? It contains Zinc Oxide Ph. Eur., Benzyl Alcohol B.P., Benzyl Benzoate B.P., Benzyl Cinnamate, Lanolin, Purified Water, Liquid Paraffin, Paraffin wax, Beeswax, Microcrystalline wax, Sodium Benzoate, Linayl Acetate, Propylene Glycol, Citric Acid, Butylated Hydroxyanisole, Sorbitan Sesquioleate, Lavender fragrance. It's certainly worth a try.

Leucillin antiseptic skin care also works. It's marketed as an anti-bacterial, anti-viral and anti-fungal solution, that kills up to 99.99999% of germs. "This reliable, innovative and affordable spray provides a powerful solution to combat a wide variety of pathogen. Leucillin contains the active ingredient hypochlorous (HOCl); this is a naturally occurring chemical the mammalian body produced by white blood cells. It is one of the most effective biocides known to man. Whilst being totally safe, it is 300 times more effective than bleach and it almost instant in its effect and bacteria do not develop immunity to it."

[https://www.leucillin.co.uk/about-leucillin#googtrans\(en|en\)](https://www.leucillin.co.uk/about-leucillin#googtrans(en|en))

It is just a clear liquid which needs to stay in contact with the skin for a couple of minutes so, when I used it with a Runner female, the foot was folded upwards, inside my palm, to hold the liquid there. Also, a wad of cotton wool was taped with - duct tape! - to make a shoe. It was a very effective treatment after persisting for a week with two treatments a day.

If you are short of time, I'd try Sudocrem first. Both items are quite cheap to buy in small quantities



MORE QUERIES ON FOOD

Should I feed peanuts to my ducks in winter for extra calories? This question was from Canada where it can get very cold.

Peanuts are fed to garden birds in winter but these species are generally nut and seed-eaters. Ducks do eat wild grass seeds and cultivated seeds such as wheat and maize (yellow corn). Their wild diet is also high in protein from insects and other invertebrates, and they also consume grass and roots. In contrast, the soya in manufactured pellets is not a natural duck food, and it also has to be 'cooked' to get rid of anti-nutrients. We don't feed them natural food!

However, I would not include peanuts in their diet. Whole nuts could cause choking, so some people [strangely] do seem to offer peanut paste. Wild mallard in the USA have been recorded as eating peanuts in shells, but I would not recommend that either. Peanuts can go mouldy and ducks are especially susceptible to the aflatoxins produced.

This exhaustive list of duck treats on backyardchickens.com does not recommend peanuts either. If you want a 'warming' food in severe winter temperatures, then feed them some yellow maize. Over the rest of the year, don't use yellow maize because it causes fatty liver, and is especially bad for laying birds.

The website <https://www.backyardchickens.com/threads/the-ultimate-list-of-duck-treats-and-supplements.242460/> provides an exhaustive list and comments of various types of foods for ducks. Before you experiment, do reflect on the fact that wild mallard exist on aquatic insect life, soil invertebrates, occasionally small vertebrates such as frogs, and grass. They survive mostly on vegetation (leaves and seeds) but are definitely omnivores and do like some animal protein.

Vegetables

Vegetables can be given to ducks every day. Typical vegetable treats can be those which you are likely to have in the fridge or garden, such as cucumber, broccoli, cauliflower trimmings and peas. Veggies with more carbs, like beans, carrots, corn etc, should be limited in order to maintain good health in your ducks. I've known some ducks to become demanding when it comes to veggies and will refuse to eat their feed, so a small treat every-day is best. Peas tend to be a favourite amongst all ducks and can be used to help "train" a duck. A bag of frozen peas left to thaw in the fridge makes a great easy treat you can throw to your ducks anytime.

Lettuce is suspect: Iceberg in particular is of low nutritional value and can be high nitrate which is bad for the birds. Anything from your garden should be fine.

Hazardous items

Do not experiment without checking up first. Just as dogs and cats can be poisoned with unsuitable food, ducks can be too. The main duck diet should be wheat and pellets. Human foods which include sugar should be avoided and plants of the **Solanaceae** family. The obvious one is nightshade, but there are also potatoes, tomatoes and aubergine (eggplant). Although ripe tomato fruit and cooked potato can be fed, never use eggplant.

Plants with oxalic acid such as rhubarb leaves are bad. Spinach is also high in oxalic acid and should be used sparingly, if at all. It hinders calcium absorption. Also on the black list are avocado, onions and chocolate. Don't even put avocado on the compost heap. Although bread is fed to waterfowl in the park (and there have been reports of wild swan and mallard getting hungry if the public does not feed them) it is not a normal food and is not good for them. If it's the main part of their diet, the birds won't last long.

COLOUR GENETICS

USING FAWN AND SILVER RUNNER GENES

Colour genetics in waterfowl only came into general use about 2000. The work of Jaap and FM Lancaster was used by both Ashton & Ashton 2002, and Holderread 2002. It was also incorporated into Colour Breeding in Domestic Ducks 2007 and into British Waterfowl Standards 2008.

Its use was presaged by Finn, who noted variations in duck colours in Regents Park. These colour mutations were a result of the imports of the Indian Runner, black ducks and the Pekin from the Far East. Even earlier than that, Dutch paintings depicted the expression of eastern genes in the ducks of Holland including the pied mutation (Runner gene), light phase and the characteristic Hook Bill from the Far East in a mallard restricted colour (in earlier IRDC Newsletters)

Cook of Orpington released and then combined these colour genes in his commercial flock from the 1880s, and other utility breeders such as Mrs Campbell went on to use them to make their own distinctive strains.

Commercial birds such as Khakis, Abacot Rangers, Magpies and Orpingtons were the result, produced in just a few decades around the turn of the century. The significance of these colours was recognised in the 1930s by Jaap, and further defined by FM Lancaster from 1964 onwards. Their work forms the basis of the understanding of the internationally standardized waterfowl colours today.

Further refinement of colours

Since Jaap and Lancaster's work, refinement of the breed characteristics in coloured ducks (i.e. other than white, black and mallard) has established that there are additional modifier genes which enhance the quality of colour in pure breeds. These characteristics are simply aesthetic, but they have been chosen because they are identifiable and achievable.

Some of the genetic characteristics of these additional elements chosen are inherent in the description of the colours. For example, exhibition Mallard colour in the Rouen, the European/American Mallard Runner and the Aus-

tralian Mallard Call differs from the wild mallard. The exhibition birds are more richly coloured, darker, and lack white feathers at the male stern. And why is there so much variation in the harlequin phase colour Silver?

These different 'shades' are hard to distinguish because unlike the phases (Li, Li, li^h [dark phase, light phase, harlequin phase]) there is no distinct pattern. Nor are these 'shades' as obvious as blue dilution which, in its homozygous form, becomes apricot. Rather like the 'buff' gene they are rather more intangible.

The significance of harlequin phase

Where these modifiers can be seen is in pure harlequin phase birds when the ground colour is very pale and has led to the birds being called 'silver'. This pure harlequin phase acts as a background to reveal other modifications of the main duck colours.

The Indian Runner has proved ideal to investigate this idea because traditional exhibition colour varieties such as Trout and Fawn are generally kept pure by long-term breeders, and one can therefore rely on the results of colour crosses i.e. the breeding stock is pure for colour. That cannot always be said of Call ducks where the colours are often mixed up, and certain standardized Runner colours such as Fawn don't exist. Too often people complain that colour breeding does not work - without realising that they did not actually know their starting point. If you are testing something out, it is essential to know that your basic ingredients are pure!

Enhancing the colour: the hood

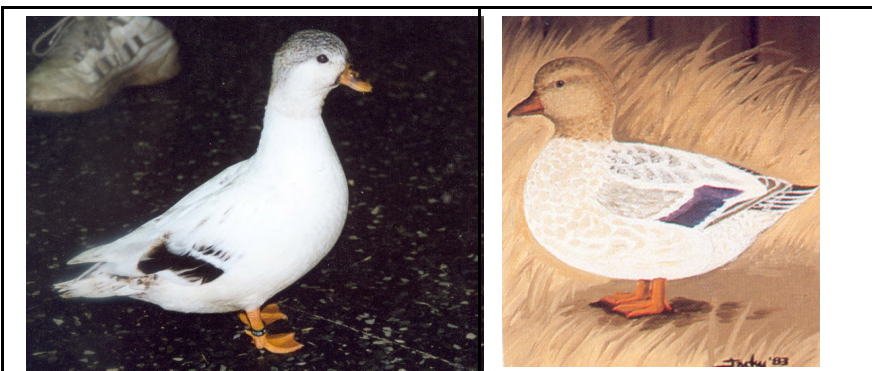
One feature which appeared early in Silver ducks is the obvious brown hood. In paler Silver Runners, this is often absent. It is a specific genetic characteristic, and it is enhanced when the birds are also mallard dusky (m^d) rather than mallard M⁺. Thus, crossing Silver (m^d, li^h) with Trout runners (M⁺, li), for example, will lose the even hood characteristic. Occasionally, one sees a bird with a brown hood and also white eye stripes shining thorough the brown, but this combination is rare.

The characteristic of the brown hood was chosen for the German Silberwildfarbig standard in the 1980s and is used for their Silver Calls. The UK/

Dutch/Belgian Silver/ American Snowy Call population also acquired this characteristic because people liked it as a feature of the harlequin colour expression. It is also in the UK Silver Call population but rejected in the UK Standard Silver Call by the CDC where the harlequin base colour alone is preferred, thus ignoring mallard (M⁺) and dusky (m^d) on a pale background.

Within the Runner population, this hood characteristic is found in Fawn Runners. By using a Fawn (see the previous Newsletter), the hood can then be seen in the F₂ generation of pure harlequin phase. The emergence of this hood has also happened before, when the Abacot Ranger was created. From 1917 and into the 1920s, the Hooded Abacot Rangers emerged from Runners crossed with khakis. And don't forget - the khakis themselves also emerged from Runner genes and could therefore carry the hood characteristic as well.

PHOTO
TO
FOLLOW



UK Silver Call – these sometimes show as faint hood suggesting that these birds are dusky. Colour in the speculum and bars is also reduced.

American Poultry Association Standard Snowy Call

What else do Fawn Runners hide?

Agreeing the standard colour of the Fawn Runner is not easy. Breeders and exhibitors will disagree on the intensity of the colour. But photographs of the birds from Indonesia still indicate Alfred Wallace's comment when he found them - the birds are 'rufous' i.e. they are red. These birds came to Britain dead, as 'skins', and were also imported live several times. They don't seem to have been a popular colour elsewhere in the world, and Fawn is only listed in the UK Standard despite it being the native Indonesian colour.

Fawns were promoted early on by the IRDC. Imported by Walton, who was IRDC secretary at the time, they were also kept by the next Secretary, Matthew Smith, throughout his life. Fawns have been the status symbol of the UK Runner. Their colour has been mulled over, selected and enhanced until it is a deep brown in the drakes, which are almost chocolate in colour [although the standard colour 'chocolate' is actually brown with black]. Yet genetically these Fawn birds are light phase duskiess, and a light phase dusky should have a white collar. The collar (and claret breast) only disappears in dark phase duskiess such as the Campbell. So, what is going on?

Having bred Fawns since the 1980s, I've always been aware that certain drakes would begin to show a very faint white collar. So, one always selects the Fawn males with the most intense brown colour because those drakes hide the undesirable white, collar ring.

In addition, the base colour of the females varies between a duller fawn/brown and a more interesting red/brown.

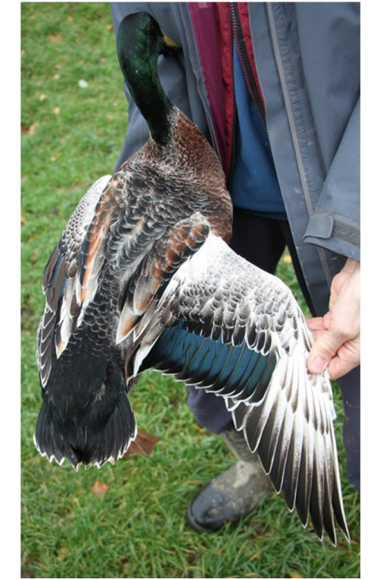
Having now crossed the Fawns with Silvers a couple of times for the health of the birds (and genetic diversity) the reason why the male neck ring in the Fawn could become subdued and hidden has now become apparent. The Fawn Runners could pass on more than dusky genes and brown hoods. They are also carrying colour intensifiers which can scarcely be seen in the Fawns themselves, but certainly show up in the paler harlequins.

In spring 2020 I chose the darkest duck of the 2019 pure Silver hatch to use with a 2016 parent Silver drake who has retained a green hood (and avoided the white flecking in the head which is prevalent the UK stock)



Exhibition Fawn duck with a distinct 'red' (rufous) tinge. She has also retained coloured smaller wing coverts which is more unusual in light phase Fawns and difficult to achieve. In the rufous types the flecking (darker pencilling) on the larger feathers tends to become less distinct, and the white bar is even reddish-brown coloured (as it is here). The pencilling on the larger body feathers is limited to a streak rather than the double chevron of dark phase Mallard Runners, probably because of the dilution effect of the brown and 'red' colours.

Silver parent female hatched 2019. This duck is almost 'sooty', a modification recognised by Dave Holderread in the USA stock. The rump feathers and scapulars are dark, as are the flights. The iridescence of the speculum is also affected in females which have a good brown hood. Instead of cobalt blue, it has a more greenish hue when birds are dusky with red/brown hood feathers and enhanced body feather colouring.



The darkest 2020 drake almost loses the typical harlequin collar (which is normally wide, white and a complete ring). In this case, the collar just persisted as flecking around the neck. He is pure harlequin phase and was yellow as a duckling. He still shows the typical harlequin phase wing bars with white rimming around the coverts. The speculum (mirror), like the female's, is subdued blue/green.



The 2020 pure harlequin drakes varied in collar width from 'normal' (drake at the centre) to subdued (on the left).

This intense red-claret colour of the feathers on the breast and flanks is also derived from the Fawn Runner crosses two generations before. In the Fawn Runner drake, the intense claret will subdue the tendency of light phase dusky drakes to have a collar. The intense colour will probably also add to the 'red' hue of the Fawn females.



Exhibition Silver female at Hannover 2009. She shows the red/brown hood and the typical green/blue bar. When the hood is acquired from Fawn grandparents, then the body feathers of the Silver females also tend to show a red hue.

The 2019 hatched parent females were also interesting over the year. In 2020 summer eclipse, all the females were significantly darker, and their feather markings (pencilling) became more pronounced. The darkest bird became almost brown, despite not carrying the brown gene – her speculum is green-blue. She does not have brown dilution, and she is not changing sex –which also darkens birds.

BETTER PHOTOS TO FOLLOW



These colour enhancers such as the red/brown hood, and the reddening of the feathers initially only amount to small changes in the overall shade of the bird. But long term-breeders of coloured ducks will recognise these differing shades of 'fawn', 'silver' and 'mallard' can be selected and enhanced. Even the 'apricot' colour can be enriched by a 'red' tinge, and the Welsh harlequin 'honey fawn' intensified. Brown dilution on its own will not do that

Where these colour genes have been taken to a further extreme is in the duck population of Australia where the Elizabeth and the Watervale are unique. They have deep, dark colours, probably on harlequin phase in the case of the Elizabeth. We hope to have more news of these in the next issue.

<https://koljash.webs.com/elizabeth>



DUCK EGG PRODUCTION : REARING HEALTHY LAYERS

In the natural environment, wild mallard ducks only lay 10 - 11 eggs per clutch, though they can re-clutch several times if there is nest disturbance. They can also lay 70 - 90 eggs per year (well-fed in captivity) if the eggs are consistently taken away from the nest.

The amount of daylight largely dictates the timing of the breeding behaviour. Ducks are photosensitive in the spring, when increasing daylight brings the females, generally one year old, into lay. Males are also affected by hours of daylight and temperature: wild mallard drakes typically produce sperm though February until May.

The length of the breeding season is limited. Both sexes are affected by the long hours of daylight at the June solstice, followed by decreasing hours of daylight. They then enter a 'refractory' period when they are not sexually responsive until further stimulation occurs next spring. This normally prevents wild breeding pairs from reproducing in summer, at a time when their offspring would be too immature to migrate in the autumn and survive the winter.

The birds are said to be photorefractory. The declining daylight hours of autumn generally prevent ovulation, though very mild weather can still result in egg-laying as a result of abundant food supply. Mallard females need the protein and minerals of invertebrates to reproduce, so this will stimulate them into breeding activity. Thus the effect of the photoperiod can be modified by nutrition.

Domesticated ducks which lay up to 150 eggs a year, and which are allowed to follow the normal laying and breeding cycle also tend to behave in a similar way, laying largely from February to June. But when ducks are genetically developed to lay 300 eggs instead, their behaviour is different:

Average clutch size is 10 - 11 eggs, but ducklings frequently crèche when hatchlings are abundant. They are almost self-sufficient at two weeks, but still very prone to predation.



'As a result of centuries of selection for laying performance, domestic breeds given either an increasing natural day length or step-up lighting during rearing no longer become fully photorefractive' (Cherry & Morris). For example, early spring-hatched Khakis lay from summer and autumn and may moult mid-winter instead. Mild spells over the winter season will also promote laying, even if total light hours are low. High-production ducks therefore need careful consideration of their growth-rate and diet now that they are so far removed from their natural mallard breeding cycle.

Amount of food during rearing

Experiments to test the effect of variation in feed in laying birds confirm what experienced duck breeders know. Early lay can be induced by feeding birds very well indeed, ad lib, but it is not desirable. Potential for growth remains until ovulation and at that point egg-laying takes priority, and capacity for further growth is reduced. Laying too early inhibits their growth. Experiments also show that reducing feed for growers to just 50% of ad lib intake prevents birds from laying at all, whereas reduction to 65% and 75% delays sexual maturity to 28 - 33 weeks.

Birds reared on ad lib feed lay earlier but can experience internal ovulation, where the egg yolk descends into the body cavity rather than the oviduct. This is thought to be responsible for inferior laying performance compared with birds fed a restricted diet. Cherry & Morris (2008 [1]) conclusively show that where growth is controlled by restricting feeding to 18 weeks, the ducks are significantly better layers after 30 weeks.

Thus ducklets are best kept fit, not fat, and so encouraged to lay around 24 - 26 weeks rather than earlier. Percentage of ad lib feed would have to be measured from what the particular strain of duck would eat at that stage of growth, given free choice. On a large scale, that could be in a separate, control group.

Food requirement can, however, be estimated from the behaviour of the birds. If your working conditions allow, it's best to feed growing ducks five times a day, reducing to four times over the period 5 - 16 week of age. They should clean up all their food each time over 10 - 15 minutes, and this will also avoid fouling of food by wild birds.

By measuring food consumed over a few days, the ad lib free-choice can be estimated. Don't forget that their demand varies, depending on their stage of growth, and if they are growing new feathers. Their food is not a fixed amount, and intake also varies with the weather; temperature and wind speed need to be taken into account, for example.

Food quality

At every stage, feed must be in-date (check the label on the bag) and stored correctly. Kept cool and dry, it should remain free from moulds and insect damage, and the vitamins will be retained.

After rearing on grower pellets, ducklets need to move on to a layers' ration with more calcium two weeks before point of lay. The earliest recorded lay is at 110 days (just under 16 weeks). A Fawn-&-white Runner of ours also laid at 17 weeks and so will commercial Pekins – though this early-lay is best avoided. Note that this early sexual maturity contrasts with a natural cycle of a year in the wild mallard.

The layer diet is important for ducks to build up calcium reserves in their medullary bone which acts as a reservoir to metabolise minerals for eggshell formation. This mineral-rich diet is not beneficial for drakes (which do not need the extra protein and calcium) and so is a good reason for rearing ducks and drakes separately.

Note that the ratio of calcium to phosphorus recommended for ducklings is 1.5:1. For Pekin ducks, recommended levels for starting ration proportions are (crumbs) 0.7% calcium / 0.5% phosphorus; and 0.6% calcium / 0.4% phosphorus in grower rations. Excess calcium causes problems for growers, affecting availability of other essential minerals. However, for laying birds the ratio changes. 2.75% calcium / 0.4% phosphorus is recommended, with even higher levels of calcium (3% or 3.25%) for high egg-lying strains such as the Khaki (Ref. 2).

Commercial egg-layers are not kept in a natural environment, and feed compounding companies employ nutritionists to balance and improve the rations. It is therefore essential that the correct formula is fed according to age. Both calcium and phosphorus are important minerals in bone and eggshell formation.

Free-choice grit must also be provided for the gizzard to grind down the food efficiently. This is essential when birds are fed whole grains and have grass in the diet. Oyster shell alone will not do the job; it is too soft and is soluble. Always provide mixed poultry grit which has the hard flint grit and well as soluble calcium in the limestone chips and shell particles. Birds then benefit from slow, continuous release of calcium.

Mixed poultry grit can be kept in heavy, free draining ceramic plant pot. These are ideal conditions for ducks, the stream also providing small insects and crustaceans.

**Amount of food during lay**

CS Roscoe, in the 1920s, found that to get an average of over 200 eggs per annum, each free-range, laying duck must have at least 155g (5½ oz.) of concentrated food every day throughout the year. If the food was reduced, so was the egg output. During cold weather, demand went up to 185g (6½ oz.). So it is

also worth housing ducks overnight not only to ensure the collection of the eggs (avoiding egg loss to magpies) but also because the warmer conditions reduce the food bill.

Very free-range birds, at a low stocking density, can find a lot of their own food in summer. But food should always be offered in the morning and evening; the evening feed is the main meal and brings the ducks home. Note that Roscoe's figures were for a particular weight of bird, probably Khakis: larger birds have bigger appetites (see below).

Effect of food on egg weight

Cherry & Morris (page 155) note that egg weight in their commercial birds increases from 75 to 95 grams over a period of 3 - 4 weeks. All breeds of duck start off with small eggs and increase the size over a period of time. Eggs are sometimes larger in their second year, whilst that phenomenon is more marked in geese.

Cherry & Morris found that birds which were maintained at 65% of ad lib mature live weight reduced their egg size by around 7g. Average daily feed was 210g (7.4 oz.) from birds maintained at 75% of ad lib mature live weight, compared with 175g (6.2 oz.) for maintenance at 65%. Note that these modern Cherry Valley ducks, actually designed as table birds, are bigger birds than the Khakis and Runners commonly kept in the 1920s.

References

1 Cherry, P. and Morris, T.R., Domestic Duck Production: Science and Practice (2008)

2 wildpro.twycrosszoo.org/s/00Chem/MineralsMetals/calcium.htm



Above – Sailor Boys at Red Wharf Bay, photo James Rigby.

*Right:
Working birds at Vergenoegd Wine Estate in South Africa. The birds eat the snails which shelter in the bunches of grapes in the heat (they aestivate). They ruin the wine pressing!*

<https://vergenoezd.co.za/activities/#all>

Photo and birds, John Faure

