



Backyard Poultry Mini Series

**Session One: Husbandry, Basic Techniques,
Preventative Medicine and Legislation**

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BACKYARD POULTRY. SESSION 1

Chickens (*Gallus domesticus*) have coexisted with people for centuries and they have recently reemerged as a companion animal. All chicken breeds have originated from the Red Jungle Fowl (*Gallus gallus*) from Asia, while most domestic ducks have originated from the mallard (*Anas platyrhynchos*); geese from the greylag goose (*Anser anser*); and turkeys from the American turkey (*Meleagris gallopavo*). The south-American Muscovy duck (*Cairina moschata*) has also originated a line of domestic ducks. People keep backyard poultry as companion animals in gardens and other open spaces, and fresh eggs may also be used for human consumption. There is an increasing demand for veterinary care toward these species, and veterinary surgeons should be aware of basic husbandry and techniques, as well as diseases and related legislation. While we will focus this miniseries on chickens, we will also discuss ducks, geese, swans and turkeys. Ducks may even be easier to keep than chickens and are more resistant to diseases.



All domestic varieties of chicken have originated from the wild Red Jungle Fowl, that lives in Asia. Note the spurs on the male on the left side of the image. Those spurs can cause damage in hens, other males or even people. Spurs are commonly trimmed or file every 2 to 3 years.



The wild American Turkey has originated all domestic breeds of turkeys



The wild Greylag Goose have originated all domestic breeds of geese

Breeds: there are hundreds of different breeds of chickens and we will not develop this area further. Most animals seen in the UK for veterinary care are re-homed ex-battery hens, generally crosses from the Rhode Island Red breed; these are docile hens weighing up to 3.5 Kg (8 lb.) and laying an average of 5 large, brown eggs per week, although number of eggs decreases and size of eggs increases as the animal ages. As a general rule, these hens are supposed to go to slaughter at about 78 weeks of age, but some of them are re-homed and used as backyard chickens. Occasionally, younger animals of little use for the farmer (having some defect, laying fewer eggs) can also be re-homed. Most hens kept as backyard poultry are not broody, which means that they will not try to incubate the eggs. Reproductive disorders are commonly encountered in these animals, although they are also predisposed to heart problems and other conditions.

Housing should be easy to clean and provide shelter, protection against predators and ventilation. Ventilation improves both chicken and owner health, but can compromise temperature control during the winter. Chicken enclosures are also known as coops. Concrete floor is cleaner but tougher on the chicken's feet and aesthetically unpleasant. Soil floor is difficult to clean and may facilitate internal parasitism. Wood shavings, straw, hay, newspaper and sand can be used as substrate. Chickens can suffer from both frostbite and heat stress and they do better at temperatures of 50-75F (10-24°C). Additional light is not required for backyard poultry, and it is well known that very bright lights may lead to aggression and bird pecking. Droppings should be cleaned out and litter should be changed on a regular basis. Food and water should be provided daily, and feeders and drinkers should be vermin-proof and cleaned out on a regular basis. Chickens have a predilection for red colour and feathers and drinkers are usually that colour.



Housing for chickens providing shelter, protection against predators, good ventilation, food and water. Contact with wild birds is also restricted.



Waterfowl should always be provided with a pool (left). Lack of a pool combined with concrete floor can cause severe pododermatitis.

Biosecurity measures will depend on the size and purpose of the flock, being more important in large groups or when the flock has some commercial use. As most cases of backyard poultry seen by the veterinary surgeon do not have a commercial use, it should be enough purchasing birds from reliable sources, avoiding visitors that have been in other farms (or institute the use of shoe covers or foot baths), use quarantine when acquiring new birds (2-4 weeks), isolate and properly diagnose sick birds, and clean and disinfect the poultry house, particularly between batches of birds.

Legislation in the UK states that backyard poultry includes chickens, turkeys, ducks, geese, partridges, quail, pheasants, pigeons when reared for meat, guinea fowl, ostriches, emus, rheas and cassowaries. It is not recommended for the general practitioner to work with giant birds without previous experience, as they can be very dangerous, particularly ostriches and cassowaries.

Registration with the Animal and Plant Health Agency (APHA) is mandatory when more than 50 individuals of backyard poultry are kept in a premise, even if they are from different species. For less than 50 animals, registration is not mandatory but it is recommended. If the flock is used for commercial purposes (selling eggs, meat or animals) then additional laws apply.

Facilities with 50 or more individuals of poultry, even from different species or even stocked only for part of the year, should be registered at the Animal and Plant Health Agency. Registration for facilities with less than 50 animals is not mandatory but recommended in order to receive disease outbreaks alerts.



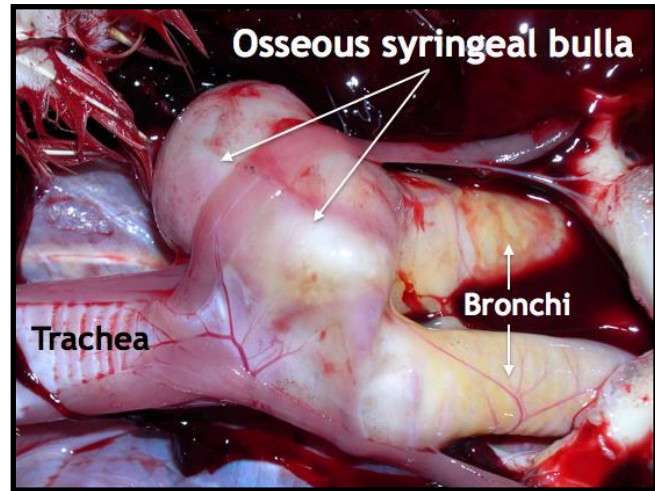
Medication: poultry are still considered production animals and they need to be treated with licensed drugs, particularly if eggs or meat are consumed. When a drug is not licensed for a particular species, the prescription cascade applies. For drugs that are not licensed we should respect minimum withdrawal periods of 28 days for meat and 7 days for eggs. Licensed drugs depend on each country; in the UK there are about 22 drugs licensed for poultry, but only 7 with specific withdrawal periods for eggs and 6 of them with a withdrawal period of 0 days for eggs. In other words, if we don't want to tell the owner to dispose of the eggs during and after the treatment, we will treat coccidiosis with amprolium, internal parasites with flubendazole, bacterial enteritis with neomycin and any kind of bacterial infection with either colistin, tiamulin or tylosine. We should never use drugs that are banned in food-producing animals, such as metronidazole, ronidazole, dimetridazole, colchicine, chloramphenicol or nitrofurans.

Vaccination may not be necessary in most cases, due to low numbers of birds in a flock and acquisition through farms that have already vaccinated their birds. Some vaccines should be applied when the chick is just a few days old (eg, Marek's), which complicates vaccination in backyard poultry. However, vaccination may be considered depending on the diseases affecting a particular area or a particular flock. Most vaccines have a 0 egg withdrawal period, but the vaccine for *Salmonella* has a withdrawal time of 21 days for eggs.

Zoonoses: from all the possible zoonoses that can be acquired from backyard poultry, *Salmonella* is the most important one. There are millions of annual cases in western countries, most of them from ingestion of contaminated food, but some also from direct exposure to backyard poultry. Prevention is made by implementing good hygiene practices (eg, wash hands with soap and water after touching poultry, do not grow vegetables in a garden with free poultry, do not wash water and food dishes in the same sink used to wash people's dishes, etc.). Hypersensitivity pneumonitis is not a zoonosis, but an allergic disease caused by the reaction of human lung to feather dander, droppings or mouldy hay; it is more important when working with a high density of birds in a closed environment.

Nutrition: nutritional requirements and deficiencies are well described for commercial poultry. Deficiencies can occur when good commercial diets are not offered or when good commercial diets are diluted with other grains. Deficiencies occur more commonly in birds with higher demands, such as growing poults or laying females. Overall signs of a deficient diet are poor feathering, poor growth and poor performance. Feeding should meet the requirements of a particular life stage (eg, do not feed a diet for laying females to growing chicks. Poultry require 1.5-3.5 parts water for every 1 part feed consumed.

Excess of protein can cause “angelwing” in growing waterfowl (left) and rickets in any species of poultry (right). “Angelwing” is produced by rotation of the carpal joint due to excessive growth rate. Rickets can also be caused by lack of calcium, phosphorus, sodium, vitamin D or ultraviolet light.



Normal behaviour: chickens establish a social hierarchy and disrupting this by removing or adding animals can result in some fights until the hierarchy is re-established. Moulting lasts 6 weeks and egg laying will stop during this period. Poultry don't like sudden changes. Hens are attracted to red, hence the colour of many drinkers and feeders (fresh blood can lead to cannibalism). Cockerels are not necessary for laying hens. Some behavioural problems seen in chickens are broodiness and cannibalism/pecking. Broodiness is prevented by removing eggs daily; in case a hen goes “broody”, it should be separated from the flock for a short period of time to break the hormone cycle. Cannibalism is caused by overcrowding, very bright light, previous injury or prolapse, nutritional deficiencies, and not enough feeders, drinkers, nest boxes, etc. The underlying cause should be corrected, environmental enrichment should be provided to increase foraging time and affected birds should be removed or wounds should be covered with an “anti-pick” compound.

Physical exam should pay special attention to assessing demeanour, palpation of the crop and abdomen, cloacal palpation, feet examination and search for ectoparasites. Body temperature of chickens is 105-107F (40.5-41.5C), respiratory rate is 30 to 60 breaths per minute and heart rate ranges from 180 to 450 beats per minute.

Anatomy: there are some particular characteristics that should be known in order to optimise the medical practice with backyard poultry. Male waterfowl possess a penis/phallus and have well developed osseous syringeal bulla. The trachea may be coiled in some species of swans. Male chickens and other species of the order Galliformes possess spurs that can be dangerous and should be filed/trimmed every 2-3 years. Turkeys and peacocks have a pseudocalcaneous bone caudal to the tibiotarsal-tarsometatarsal joint.



Notifiable diseases: the suspicion of highly pathogenic avian influenza (HPAI) or Newcastle disease should be notified to the authorities (in the UK, the nearest Animal and Plant Health Agency). Failing to do so is an offence. Both diseases have been detected in backyard flocks. Low pathogenic avian influenza (LPAI) is not a notifiable disease. The clinical signs of both HPAI and Newcastle disease are somewhat similar and include respiratory problems, neurological signs and increased mortality.