



# Chook Book





# Supporting lifestyles

Feeding and managing chooks to ensure they are healthy and productive is fundamental for lifestyle blocks, whether their eggs are for you, your family or wider community.

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# Introduction

It is thought that wild fowl were first domesticated for their eggs in Egypt, nearly 5,000 years ago. Today, many people have their own home flocks – and why not?

**Raising chickens makes a great hobby that anyone in the family can enjoy.**

The rise of lifestyle blocks has led to more backyard egg production and a few farm fresh eggs complete a great breakfast on many tables each morning.

With a few simple principles, it is possible to enjoy good production, ample enough to supply the family or wider community if your ambitions are to keep more birds.

This booklet provides some tips for the home and semi-commercial producer alike. We trust you will find it a useful resource and we wish you the best of luck with your hens.

## **NRM – lifestyle growth factor**

For more than 100 years NRM has been helping Kiwis feed rural New Zealand farms, big and small and offers a range of feeds designed to support the animals on your property.

With a range of high quality feeds for your flock, NRM has the right feed to help nourish your lifestyle.



**If you require further information or advice, please feel free to visit [www.nrm.co.nz](http://www.nrm.co.nz) for access to our online nutritionists.**

## Commonly used terms

**Hen:** a mature female chicken which has commenced lay.

**Cock/rooster:** a mature male chicken.

**Chick:** a young chicken, generally under 6 weeks of age.

**Pullet:** a young female chicken which has not yet commenced lay and which is typically between 6 and 18 weeks of age.

**Cockerel:** a young male chicken.

**Broiler:** a meat type chicken.

**Layer:** egg laying type chicken.

## System options

The most popular reason for keeping chickens is for their eggs. Chicken eggs are one of the most complete and versatile foods available, containing a wide range of essential amino acids, minerals and vitamins. One of the benefits of keeping chickens is having access to fresh, home grown eggs. Good layers can produce an egg a day, so keeping even a few chickens can keep your kitchen well stocked up with eggs.

Chicks can be hatched from fertilised eggs on your property if preferred, however most people buy in day old chicks, or pullets just prior to the onset of lay.

It is possible to rear chickens at home for meat production. Chicken is an extremely popular meat all over the world. It is prized for being a healthy meat choice due to its low fat, high protein content. Most heritage chicken breeds are relatively dual purpose and can be kept for eggs, with excess hens and cocks slaughtered for the table. Commercial meat bird breeds can be ready for slaughter in as little as 6 weeks following hatching, however slower growing heritage type breeds will take longer.

When rearing heritage breeds for meat production it is worth remembering that male chickens grow more rapidly and are more efficient at converting feed to body tissue, although the slower growing hens will still provide a good quality carcass if you allow them sufficient time to grow. When rearing commercial meat breeds male birds will grow faster than females, although the difference is not as obvious as with heritage breeds.

Check local authority regulations before acquiring poultry – some areas may limit the number of laying hens or the keeping of a cockerel.





**Nourish**

# The egg – nature’s incredible food

Eggs are one of nature’s most complete foods, containing many proteins, vitamins and minerals.

Nutrient	One Egg (53g)
Energy (kJ)	274
Protein (g)	5.9
Fat, Total (g)	4.6
Saturated Fat (g)	1.4
Carbohydrates, Total (g)	0.1
Carbohydrates, Sugars (g)	0.1
Sodium (mg)	61

Eggs are a natural, healthy source of vitamin A, vitamin B6, vitamin B12, vitamin D, calcium, folate, potassium, iron, thiamin, riboflavin, phosphorus and zinc.

## The egg is made up of five main sections

- **The shell** is almost pure calcium carbonate and quite porous, with around 8,000 minute holes, through which gases and water vapour can pass.
- **The shell membrane** acts as a barrier against bacteria.
- **The albumen (egg white)** includes two thick strands, the chalazae, which hold the yolk in the centre of the egg. The albumen is a valuable source of high quality protein.
- **The yolk** is made up largely of fats and provides a rich source of energy.
- **The germinal disc** is a tiny spot on the centre yolks surface, from which the chick develops in a fertilised egg for hatching.

## The egg shell

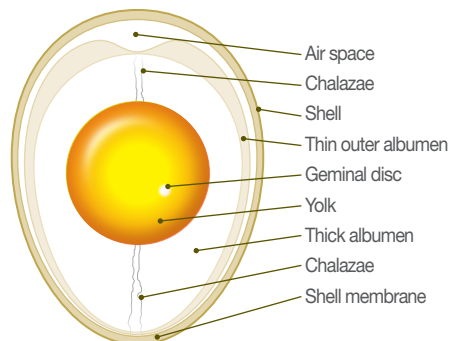
Keeping egg shells clean and free from dirt is important if you want to maintain egg quality as bacteria present on the surface of the egg can enter the egg through the small pores in the shell. Any cracks or breaks in the shell allow easier access by bacteria.

## Blood stains on the shell

The incidence of blood stains on the egg shell occurs more frequently with young birds. However, it is quite usual with any age bird when a double yolker is laid. Double yolkers occur when two ova are inadvertently released together, instead of 24 hours apart.

The shell is stained when small blood vessels that line the oviduct rupture when an egg passes through, though subsequent eggs are generally free from stains.

Note: Blood stained eggs could also indicate cannibalism in the flock and it is especially important to investigate and check each bird for possible injury around its vent.



# The egg – nature’s incredible food

## Shell colour

There is no relationship between the colour of the shell and the quality of the egg, its flavour or its “cookability”. Generally white hens lay white eggs and brown hens lay brown eggs.

## Yolk colour – golden-yellow?

Many people believe that eggs with golden-yellow yolks are better for you because they are richer in vitamins. Some even say they taste better.

The yolk colour is due to orange-yellow pigments derived from plants and grains eaten by the hen. If the hen has eaten grass, maize, carrots or pumpkin the yolk will be darker. Generally the nutritional value between different coloured yolks is minor.

## Blood spots

Blood spots vary from small spots on the surface to heavy contamination throughout the yolk, sometimes the blood can be diffused through the albumen or white of the egg.

Blood spots occur when blood vessels rupture in the ovary or oviduct. The incidence differs between age and breed of birds, but is affected by a number of factors including the level of vitamin A and vitamin K in the diet, fungal toxins, lighting or frights.

## Meat spots

Meat spots are usually brown in colour and range from 0.5mm to 3mm in diameter. Most meat spots are pieces of tissue from body organs but some can be partially broken down blood spots.

## Freshness

As an egg deteriorates in quality, its flavour becomes noticeably bland, the white won’t beat up into a stable foam, while cakes and custards won’t be quite as firm as they should be.

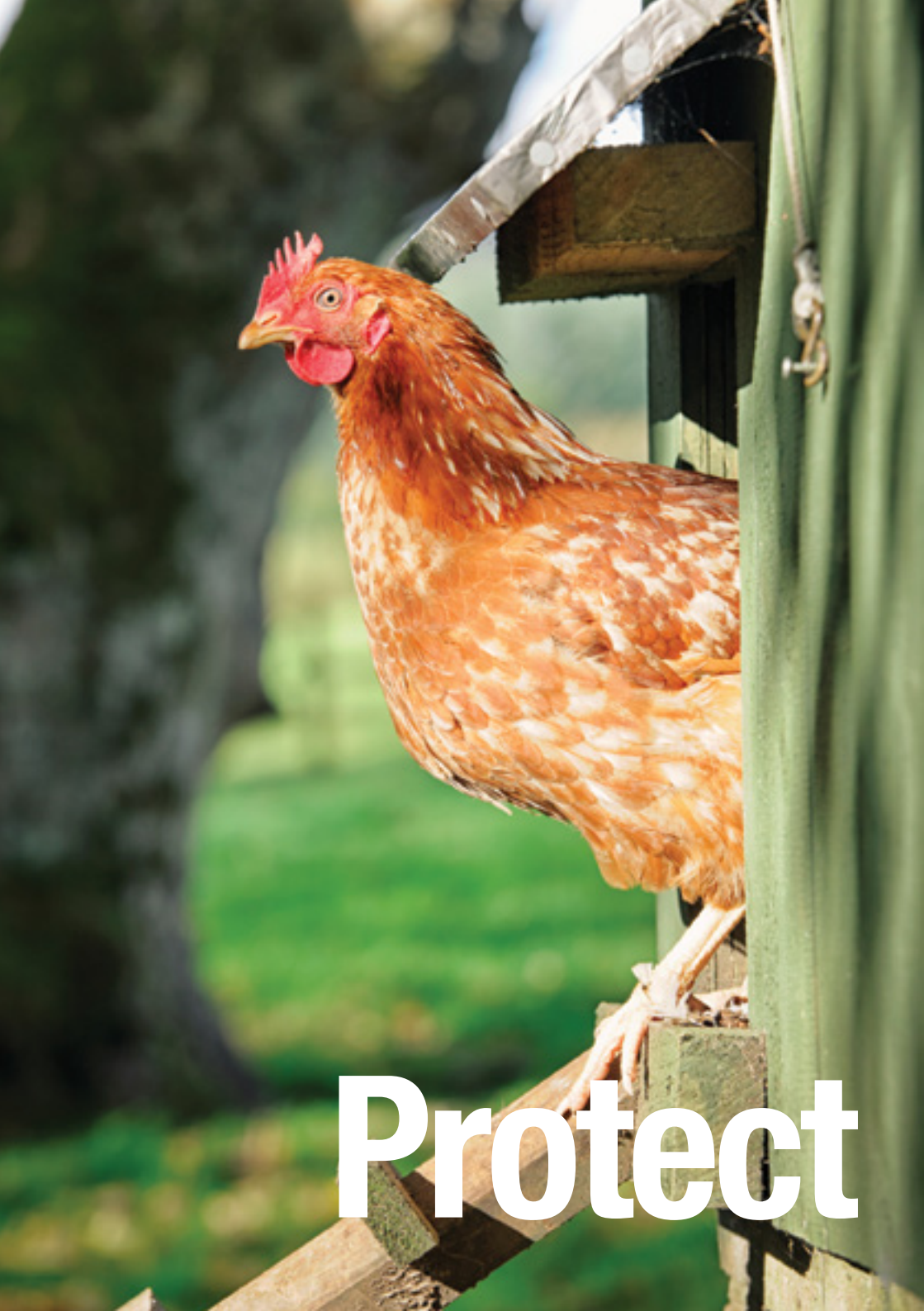
A rough guide to establishing an egg’s freshness is to place it in a bowl of cold water. A fresh egg will sink to the bottom and lie on its side while an older egg will rise and float. This is due to the air space within the egg increasing as it ages.

## Should eggs be refrigerated?

Yes, they should! Eggs will rapidly deteriorate in quality when kept at warm room temperature. As a guide, as much freshness is lost in three days at room temperature as in three weeks in the refrigerator. At normal refrigerator temperature, it is quite possible for an egg to maintain its quality for four weeks or more.







**Protect**

# Poultry housing for laying hens

It is extremely important that poultry housing provides shade and shelter to protect hens against rain, direct sunlight and inclement weather, while protecting them against predators. While the housing should be well ventilated to prevent ammonia build up, it should also be free of draughts.

Space in housing is important. As a rule of thumb every 10 average sized free ranging birds requires a coop space of at least one square metre, however larger or smaller breeds may have different requirements. If birds are permanently housed with no access to outdoor areas they will require more space per bird, so seven birds per one square metre of coop space (at least) is required.

## Perches

Hens have a natural tendency to perch. Without perches they will perch on anything available including nests, feeders and if not too high, the top of the fence. At night and without perches, the birds will crowd into a corner of the henhouse and soon a hard cake of manure will form. If the hens' claws and feathers get dirty and caked with droppings, the dirt will be transferred to the nest and subsequently to any eggs. By providing perches for roosting, you eliminate crowding, your hens will be less "flighty" and your eggs will be much cleaner.

## Nests

Nests need to be clean, comfortable and fairly dark to ensure seclusion from the rest of the henhouse. The amount of nesting space per flock is again dependant on the flock size. As a rule, provide one nest box (30cm wide x 35cm deep x 32cm high) per maximum of five birds.

Nesting material can be straw, wood shavings or bracken (which tends to repel parasites from infecting the nest) and should be at least 100mm deep.

Shallow nests cause fighting and encourages feather pecking and cannibalisation.

It is important that the nest be kept clean, so as not to soil the eggs.

Never let hens sleep in the nests at night as most bird's droppings are passed at this time, resulting in the nests becoming caked with manure. To prevent this from happening, initially it may be necessary to close off the nest in the evenings before they roost and then reopen them when they are asleep for the night. After a week or two the birds will have formed their own roosting habits and not seek the nests at night.

Eggs should be collected twice a day to ensure freshness, cleaner eggs and to minimise the opportunity for egg eating. More frequent collection of eggs is recommended when hens first come into lay.

**For more information visit MPI's Layer Hen Code of Welfare at [www.mpi.govt.nz](http://www.mpi.govt.nz)**





**Wellbeing**

# Choosing your hens

**One of the first decisions you will have to make is what breed of birds you want.**

You are likely to come across the terms “heavy breed” and “light breed”. Light breeds are well suited for egg production. Heavy breeds tend to grow “heavy” at a young age and are ideal for meat production.

Some good light breeds to try and include are Ancona, Leghorns, Minorca and Hyline Browns. Some of the more popular heavy breeds are Dorkings, Orpingtons, Sussex, Rhode Island Reds, Plymouth Rocks and Wyandotte.

Do your research to find out the best breed for your property and your needs. Many breeds are available to purchase as 1 day old chicks and you may even be able to get them couriered right to your door!

## What to buy

We recommend you purchase your replacement flock from reputable sources.

Often the classified section of rural newspapers will have advertisements for poultry detailing available breeds and prices.

For best results, purchase day old chicks in April, which come into lay in September and lay right through to the following November or purchase point-of-lay pullets in September.

## Chicken lifecycle

- Birth – 6 weeks = chick
- 6 weeks – 18/20 weeks = pullet
- 18/20 weeks onwards = layer

## Day old chicks

Day old chicks need to be kept in a box where the temperature is gradually reduced from 35°C at first to 33-35°C over 7 days. After 4 weeks they will be able to cope with temperatures around 25 to 27°C. A 60 watt light bulb suspended over the box should be enough to keep the box warm. Allow enough room for the chicks to be able to move away from, or closer to the heat source so they can find their ideal temperature. Providing adequate water and the correct food is important. Put your day old chicks onto a high protein starter ration in a crumble form like NRM Chick Starter (see page 29).

## Point-of-lay

Point-of-lay pullets are about 16 weeks of age and are just at the point-of-laying, which usually starts at 18-20 weeks of age.



# Choosing your hens

## Layers

Once a bird has laid her first egg, she is no longer a pullet and is considered a layer.

The age at which she starts to lay eggs will be determined by a combination of breed, body weight and the amount of light which she was exposed to during rearing. It takes a hen 24-26 hours to produce an egg. Most eggs are laid in the morning.

Once hens have started to lay, they will produce a series of eggs, called a clutch, followed by a rest period and then another series of eggs. The number of eggs in a clutch will vary from breed to breed and also from hen to hen. Typically as hens age, clutch length decreases and so production begins to taper off.

At 30 weeks of age, a production level of 85-90% can be expected in well reared birds from a commercial breed. This means that on any day roughly 85-90% of hens will produce an egg.

Production levels of 100% are difficult to achieve as this would mean none of the hens are having a rest day.

Ideally hens should be reared to start laying in spring as this is the natural time for egg production.

Hens which start to lay in September will produce eggs for about 9 months, with production decreasing as winter approaches and hens respond to shorter day lengths. It is possible to manipulate day length by providing artificial lighting for your birds, thus maintaining egg production through the winter.

Heritage breeds will be more sensitive to the change in day length and will typically produce fewer eggs over winter compared to commercial breeds.

## Productivity of your flock

Layers in their second laying season produce 70-75% of the eggs they laid in their first year. For those with backyard flocks it is fine to run a mixed age flock but older birds will produce less eggs than younger ones. If you want maximum productivity you would have to replace the whole flock yearly but generally in backyard flocks this is not done. Older birds will also lay larger eggs with thinner shells.

# Health guidelines

## Maintaining a productive and healthy flock

Before introducing your new birds to the hen house, thoroughly clean the house removing any old litter and other organic matter. Once the house is clean, sanitise with Virkon® S. Cover the floor of the house with fresh litter such as wood shavings or straw, making sure it's deep enough to be comfortable for the hens.

Any equipment present in the shed should be removed and thoroughly cleaned, then sanitised with Virkon®S before being put back into the shed.

Spread lime or spray hydrated lime onto any open ground to help reduce the incidence of pathogens.

## Dampness

Control dampness by eliminating its source. Leaking water dispensers or ground depressions that accumulate rainwater are usual causes of dampness. Sand or small gravel is a good ground material for feeding and watering areas, as it drains freely and does not form boggy patches, ideal spots for parasite eggs to develop. Remove any damp litter or ground and replace it with clean, dry material.

## Parasites

Hens that are well looked after, properly fed and housed and in good body condition are usually at lower risk of getting infectious diseases. However,

there are a number of parasites which can occur in free-range hens, that can readily result in a drop in egg production, ill health or weight loss and spread throughout the flock. Both internal (roundworms, tapeworms, coccidia) and external parasites (mites and lice) can be an issue.

External parasite infestation causes irritation and stress to your birds which can result in feather loss, a severe drop in egg production, weight loss, ill health and even anaemia. Ensure that some sheltered space is available with light sandy soil so your hens can enjoy their own “dust bath”. This natural remedy is a means of external parasite control but other treatment options may need to be followed, to ensure prevention of significant flock health and welfare problems.

Red mite and lice are the most common external parasites and treatment options are available such as Smite powder or Vetmax Louse powder.

Internal parasite control is very important in a flock. Young birds are more susceptible to worms than adults (although adult birds are still at risk). It is advised to treat your chickens with a wormer twice a year. A suitable wormer is Aviverm, which comes in a packaging size perfect for backyard flocks. You can treat the whole flock biannually but outside of this, consider treating birds that are generally not doing well (i.e. low egg production or signs of ill-health).

# Health guidelines

## Coccidiosis

Coccidiosis is a parasitic infection commonly affecting young chicks that leads to gut damage and in severe cases can cause death. In most cases a subclinical infection will mean birds do not get as much out of feed and growth rates are affected. Such flocks may have uneven weight gain and be underweight at point of lay, meaning production can be affected. Beyond 6 weeks of age, hens will have generally developed immunity to coccidiosis, however it can still affect adult birds at times. Wet bedding is one of the predisposing factors, so keep bedding dry and clean to help control the disease.

NRM Chick Starter Crumble includes a coccidiostat which is good protection for chicks when they are at their most vulnerable to coccidiosis. Note: A feed with a coccidiostat should not be given to laying hens, if they are laying eggs for human consumption. This is due to potential residues in the eggs.

If adult birds are suspected to have coccidiosis, (symptoms include diarrhoea which can become bloody in severe cases) treat the flock with Coxiprol. Coxiprol can be delivered via drinking water but it does have an egg withholding period so make sure you check the label before using.

A healthy bird should be bright, alert and energetic, without any discharge around the eyes or rear end. They should have firm droppings, not watery, bloodied or visibly containing worms. They should be moving freely on both legs, feathers bright and clean (unless moulting), eating food, generally active and interactive with others.

An unwell hen may show signs of being listless, drooping wings, fluffed up feathers with a dull and unkempt appearance. There may be reduced physical activity or appetite, difficulty breathing and they may be quieter than usual or sit separate from others. Taking action is best and get a diagnosis as soon as possible. Most likely you will need to isolate the bird away from others in a warm, draught-free dry environment with fresh food and water, so you can monitor it and then decide to either manage the unwell bird yourself or call the vet. Unwell birds can deteriorate quite quickly, so don't delay attending to a sick bird, crucial from a health and welfare perspective.

# Common vices

## Egg eating

Egg eating, which occurs when a hen pecks open an egg and eats it, is a common vice of laying hens.

Once this habit starts it is difficult to break and will result in serious egg losses. To prevent egg eating, provide plenty of litter in nests, remove broken eggs promptly and collect eggs twice a day. If egg eating becomes regular, place decoy eggs (such as plastic nest eggs or empty natural eggs filled with mustards and peppers) in accessible places for offending hen/s to eat. Hens will eventually tire of attempting to peck and break plastic eggs.

## Feather pecking and cannibalism

Like many vices developed by poultry, feather pecking can develop as a result of overcrowding, idleness and poor conditions. Once it starts, it is difficult to stop and if neglected, can develop into cannibalism.

A good way of preventing feather pecking is to ensure good housing with little stress, while also providing interest to keep birds occupied. Providing a small amount of grain such as NRM Feed Wheat or NRM Mixed Grain scattered over the hens paddock during the evening will give them something to scratch for. Always be careful not to offer more grain than the hens can pick up as this can become a source of feed for rodents and other pests.

Other options to keep the flock entertained include pecking stones or poultry peckers. These give a place to peck rather than other birds and are great to introduce if you're experiencing feather pecking.

## Treating broken skin

Treat broken skin from feather pecking with an anti-bacterial wound spray. Taking steps to prevent cannibalism by ensuring that birds are not under undue stress is important if you want to maintain a healthy happy flock.

## Broodiness

This is a natural, maternal instinct that can cause decreased egg production. Broody hens do not lay eggs but occupy nests for extended periods of time, preventing others from laying. Even during the night broody hens tend to remain on the nest rather than roosting with other hens on the perch. Other signs of broodiness include the ruffling of feathers, aggressiveness when approached on the nest and making a characteristic clucking noise. Broody hens should be removed to separate wire coops. They should be cured after 3-4 days after which they can be returned to the flock. Keep a close watch for the next few days, as they may lapse back into being broody. Repeat the above isolation treatment if they do.

# Troubleshooting

Below are common production issues that are experienced by free range flocks and some ways to remedy them.

## Not laying well

Check:

- Water intake – ensure that hens have sufficient water and it is fresh and clean. Water intake will affect feed intake and therefore egg production.
- Hen weight – overweight or thin hens can stop producing eggs, or have a delay in production at point of lay. Ensure pullets are fed the correct feed, so they are at the right weight at point of lay and make sure that layers have a quality layer feed while they are laying, so they do not become thin or too fat.
- Feed type and intake – giving a poor quality feed that is low in energy and protein or that contains unbalanced amino acids can lead to hens going off the lay. Always provide a good quality layer feed and ensure that hens do not run out.
- Stress level of hens – stressing hens with loud noises, close proximity to dogs, rats and mice or overcrowding in the poultry house can cause them to go off the lay.
- Parasites – lice, mites or worms can stress hens and consume significant amounts of nutrients, meaning hens don't get the nutrients they need and stop laying. Check for these parasites and treat accordingly.

- Weather – extreme cold weather can stress birds. Provide a balanced feed that is higher in nutrients energy in particular under cold conditions and ensure that hens have suitable housing to keep them warm. Hot weather can also cause birds to reduce feed intake.
- Time of the year – if hens are in a moult or day length is decreasing, birds will lay less. As day length starts to increase, egg production will pick back up.

## Thin shells and cracked eggs

Check:

- Feed intake – Are birds getting sufficient access to feed to consume enough to meet their requirements?
- A laying bird should eat about 130 grams a day of layer feed. Ensure scraps and alternative feeds are not overfed. A balanced layer feed should be the main part of the diet.
- Environmental temperatures – high temperatures can reduce feed intake, so that the flock does not get their daily requirements of calcium and phosphorus for shell formation. Birds that are panting are less able to form good quality egg shells. Ensure that birds have access to cool water and shade. It is important that they are kept below 25°C and are not heat stressed.



# Troubleshooting

- Disease status of the flock – diseases such as infectious bronchitis (IB) and egg drop syndrome (EDS) can affect shell formation and cause eggs to be laid with thin shells that are more prone to cracking, or with no shell at all. IB can also cause reduction in egg production, watery albumens and pale shells. EDS can cause a dramatic drop in egg production and it takes some time for affected birds to recover. Neither disease is a threat to human health but your supplier of day-old chicks or veterinarian may be able to aid with diagnosis and limiting the negative effects on egg production.
- Egg size – the hen will deposit the same amount of shell for a small egg as a large egg. This means that there is less shell to go around a larger egg and thin shells can result. Older birds will naturally lay larger eggs and have thinner shelled eggs, so an older flock with large, thin-shelled eggs may need to be replaced. Overfat hens also tend to produce larger eggs with thin shells.
- Handling – take care when collecting that eggs are not handled roughly.
- Calcium and phosphorus levels in feed – ensure feed contains enough calcium, phosphorus and vitamin D to meet the daily nutritional requirements of the laying hen. In particular, the calcium and phosphorus should be in the correct ratio for proper absorption.  
NRM layer feeds are perfectly balanced to support optimum egg shell quality.

## Pale yolks

Check:

- Internal parasites – worms can cause a reduction in yolk colour, so ensure that the flock is de-wormed before they start laying and regularly thereafter.
- Feed intake – ensure that birds are eating sufficient quantities of high quality layer feed and limit intake of forage/green feed. Forage is high in fibre, so will reduce feed intake if fed in large quantities.
- Carotenoid levels in the diet – ensure that hens are receiving some green feed (but not too much as above point) and that there is yolk colourant in the layer feed. Low levels of carotenoids will cause pale yolks.



# Nutrition

# Feeding layer birds

**Feed is the single most important factor to successfully keeping a flock of laying birds.**

The quality of your hen's feed will affect their egg production, egg size, shell quality and overall health. Whilst layers will survive and lay some eggs on almost any type of feed, their diet must be properly balanced for maximum production, health and wellbeing.

A high quality feed will provide your hens with the energy, protein (amino acids) minerals and vitamins essential for health and production.

Hens are well known for their ability to consume as much feed as possible in order to meet their specific nutrient requirements and so providing a balanced supply of essential nutrients is not only key to ensuring optimum production of quality eggs but also important from an economic point of view.

Grains such as wheat contain high levels of energy but are low in protein and important amino acids that are needed for egg production and size. So feeding grain alone will typically lead to fat hens which produce few eggs. Flock production on unbalanced feeds will be limited and birds may stop laying altogether if poor quality feed is fed for a long time.

Chickens are part of the "aves" or "bird" family, which are classed as monogastric animals (meaning they only have one stomach compartment, unlike ruminants, which have four). Birds have a few special digestive features that make them different from other monogastric animals, such as

pigs and humans. One is a compartment called a crop, an expandable storage compartment located at the base of the chicken's neck where consumed feed can remain for up to 12 hours. Ever heard the saying as rare as hen's teeth? Well chickens in fact have no teeth whatsoever.

Instead they have a specialised compartment called a gizzard, which is a muscular part of the stomach that uses grit (small, hard particles of pebbles or sand) to grind consumed feed into smaller, more digestible particles.

Chickens should be fed using proper poultry feeders. This will help ensure that hens do not spill and waste feed. Ensure that the feeder is big enough for the flock and there is enough feed for the flock every day. The average consumption of the free range flock is around 130g per bird, so for a 15 bird flock the total requirement would be around 2kg of feed per day. There are also some great free-access feeders, such as the Grandpa Feeders or Feed-o-Matics which keep out wild birds and vermin.

## Protein

Hen eggs contain a large proportion of high quality proteins. These are not readily produced by the hens themselves, but obtained from the "building blocks" of protein amino acids, contained in the hen's various feed sources.

NRM poultry feeds are formulated to ensure that these critical amino acids are present at the appropriate levels and right ratios.

# Feeding layer birds

## Vitamins and minerals

Studies have shown that the correct level of vitamins and minerals play a part in helping to lower stress, disease and assist maximum production in poultry. Because the grains, protein meals and other ingredients used in feeds often lack sufficient levels of vitamins and minerals, NRM poultry feeds are supplemented to promote the correct balance required for good health and resistance to disease.

By using NRM poultry feeds, you ensure the eggs your hens produce not only look good but are richer in vitamins, particularly the protective vitamins – A and E.

## Shell grit

Significant quantities of calcium in the layer bird's diet will ensure quality eggshell production. NRM feeds meet this requirement due to the addition of calcium sources in our poultry feeds. If birds have access to feed other than NRM Peck'n'Lay or NRM Chook Tucker, provide ad-lib access to oyster shell grit to ensure good shell quality. Grit should be supplied separately – do not sprinkle on top of feed.

## Green feeds

Green feeds are generally a rich source of vitamins and also contain pigments, which give the egg yolks a rich, golden-yellow colour. Greens such as lucerne, leaves of silverbeet and lettuces are all excellent sources of vitamins and pigments.

However, green feeds are high in moisture and fibre and if fed in excess

can limit the intake of the energy and protein required for egg production. When feeding green feeds ensure that these are offered in moderation.

## Scraps

Although hens usually enjoy picking over supplementary scraps, the nutritional value of vegetable peels, fruit scraps and stale bread is usually fairly low. If scraps are fed in place of a properly balanced ration, egg production will suffer. A good tip is to feed them in the evening as then we know the birds have been eating their balanced layer feed in the day and the scraps will be a treat on top.

## Water

Plenty of cool, clean water must always be available – this is essential for maximum egg production. If water is restricted, even for a short time, the hen's comb will turn a blue-black colour and she may cease to lay and stop eating. In hot weather, lack of water for even a few hours can be fatal.

Actual consumption depends on the size of the bird, level of egg production, season and type of drinker used. The following may be used as a guide:

### Water Consumption Guide

Age (weeks)	Litres/day (ten birds)
1	0.2
5	1.0
15	2.3
20	2.6
25	4.0
30	5.0







# Feeding through the life cycle

It is important to feed chickens the right feed at the right time of their life to insure optimum health, wellbeing and productivity. See below for a plan detailing what feed should be fed at each stage of a laying bird's life.

## Chicks

**Laying hen chicks:** Feed NRM Chick Starter Crumble (see page 29) from day old.

**Meat chicks:** Feed NRM Gamebird Crumble (see page 33) from day old.

Feed should be fed 'ad lib' (i.e. there should always be fresh feed available for them). Intake will be small at first but as they grow their daily feed intake will increase. NRM Chick Starter Crumble contains a coccidiostat which helps to prevent coccidiosis (a parasitic infection) which is a common problem in young birds who have not yet build up immunity against the parasite. Do not feed NRM Chick Starter Crumble to laying hens as eggs produced from laying birds that have been consuming a feed containing a coccidiostat are not safe for human consumption due to residues in the egg (there is a 14 day withholding period).

## Pullets

Young laying hens older than 6 weeks of age are classified as pullets. If chicks are growing well and have been meeting growth targets they can be switched from NRM Chick Starter Crumble to NRM

Pullet Grower Pellets (see pages 29 and 30) at 6 to 8 weeks of age. Birds which are underweight can be kept on NRM Chick Starter Crumble for a few more weeks if required. The nutrient profile of NRM Pullet Grower ensures that pullets grow efficiently without becoming over fat.

The benefit of the NRM Pullet Grower, is that it also does not contain a coccidiostat. If pullets start laying eggs a little earlier than anticipated, as long as they have been on NRM Pullet Grower for a minimum of 14 days, their eggs are safe for human consumption.

## Layers

Chickens will start to lay eggs at about 18-20 weeks of age depending on breed (heritage type breeds tend to take a little longer to start laying). At first egg, birds can be switched over from NRM Pullet Grower to NRM Peck'n'Lay (see pages 30 and 31) or NRM Chook Tucker (see page 32). A feed designed for a laying bird is quite different from that of a feed designed for a growing bird. One major difference is the level of macro and micro minerals in the feed (e.g. calcium) as the requirement for these nutrients increases significantly when a bird starts to lay.

NRM Peck'n'Lay and NRM Chook Tucker are both complete feeds so they can make up 100% of a laying birds diet if required. However free ranging birds may get some nutrients out of their environment and we all know how much they love kitchen scraps. Just don't feed too many high fibre, low energy scraps too often as this can fill the birds up and

displace some of their layer feed which is important for maintaining productivity.

## Laying chickens going through a moult period

With the approach of winter and decreasing day length, laying hens will often undergo a moult. This is a normal process for chickens which generally moult once a year. During this period, egg production will decrease and may even stop, as hen's partition nutrients to feather regeneration, rather than egg production.

While hens generally grow new feathers over about eight weeks, egg production doesn't typically start again until day length has increased to 12+ hours. Artificial lighting can be used to avoid this moulting period. During the moult hens should be provided with a good quality, well balanced feed that does not contain high levels of calcium.

Providing a well-balanced source of quality proteins during this period is essential and NRM Pullet Grower (see page 30) is ideal for hens which are going through a moult. As soon as hens start to lay again, feed a high quality laying hen feed with good levels of calcium to support shell quality.



# Feeding through the life cycle

## FEED FAQs

### **Can I feed NRM Chick Starter Crumble to my pullets?**

Yes you can, although the balance of protein and energy in the chick starter feed is not as optimum for birds at this stage as NRM Pullet Grower and there is risk of growing over fat birds. If feeding NRM Chick Starter Crumble to pullets, be aware that if bird's start to produce eggs while they are still on the chick starter feed, their eggs will need to be discarded for 14 days, starting from the day they are transitioned over to a layer feed and this is due to the coccidiostat in the starter feed.

### **Can I feed NRM Peck'n'Lay or NRM Chook Tucker to my non laying chicks and/or pullets?**

No, the level of calcium in the NRM Peck'n'Lay and NRM Chook Tucker feeds is too high for non-laying birds and prolonged feeding of a feed designed for laying birds to non-laying birds can cause animal health issues.

### **Is there a yolk colourant in the NRM Peck'n'Lay and NRM Chook Tucker?**

Yes, there is a yolk colourant in both products. The level of carotenoids in the diet is what makes yolks yellow so adding carotene to the feed can help to support golden egg yolks. A natural yolk colourant based on extracts from marigold and paprika is included in NRM Peck'n'Lay and NRM Chook Tucker.

### **Do NRM Peck'n'Lay and NRM Chook Tucker have enough calcium in it for my laying birds or do I need to feed oyster shell grit too?**

There is enough calcium in NRM Peck'n'Lay or NRM Chook Tucker to satisfy a laying bird's calcium requirement and maintain good egg shell quality. If birds have access to feed other than NRM Peck'n'Lay or NRM Chook Tucker, provide ad-lib access to oyster shell grit to ensure good shell quality. Grit should be supplied separately – do not sprinkle on top of feed.

### **Can I feed just grains (i.e. whole wheat) to my chickens?**

It is safe to feed just grains to chickens however a laying bird fed just grains will have severely depressed egg production. This is because grains on their own are low in important nutrients for egg laying such as protein and calcium.

In fully formulated chicken feeds such as NRM Peck'n'Lay and NRM Chook Tucker, high quality protein sources are added into the feed on top of the grains to increase the protein level and ensure birds are supplied enough protein to support optimum egg production.

Minerals such as calcium along with other micro and macro minerals are also added to the feed to help satisfy the demanding nutrient requirements of egg production. Similarly to this, the nutrient requirements of growing chicks/pullets will not be met by grain alone.

It is advised not to feed a diet of only whole grain to laying birds and do not mix whole grain into a layer feed.









# Poultry Feed Range



# NRM Chick Starter

A complete feed for young chickens providing nutrients essential for lean growth and skeletal development

NRM Chick Starter Crumble is a balanced feed designed to promote early bone, frame and feather development, rapid muscle deposition and a high health status in young chickens. Contains a proven coccidiostat to help protect young chicks against coccidiosis until they build up natural immunity.

## FEEDING RECOMMENDATIONS

Feed NRM Chick Starter Crumble to appetite from one day old for up to eight weeks. Clean and replenish feed containers regularly to prevent the accumulation of stale or contaminated feed.

Always ensure birds have access to clean, fresh water. Not recommended for gamebirds, ducklings and other waterfowl.



**BALANCED  
AMINO ACIDS**



**CALCIUM &  
PHOSPHORUS**



**CONTAINS  
ESSENTIAL OILS**

## TYPICAL ANALYSIS

Nutrient	As Fed Basis	Dry Matter Basis
Dry Matter %	88	100
Crude Protein %	19	21.5
Available Lysine g/kg	9.5	

Variations in nutritional values may occur due to natural variability in feed ingredients. Our FeedSafe NZ certified sites have well developed systems to minimise any variation from the typical levels shown.

## INGREDIENTS SELECTED FROM

Grain and grain by-products, plant proteins, vegetable oils, animal fats, enzymes, amino acids, limestone, mono or dicalcium phosphate, salt, sodium bicarbonate, vitamins, trace minerals, organic acids and plant extracts, and coccidiostat (Bovatec® 20CC).

## STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight.

Do not feed pellets which have become wet and moulded.

## WARNING STATEMENTS

**KEEP OUT OF THE REACH OF CHILDREN  
FOR ANIMAL TREATMENT ONLY  
READ THE LABEL BEFORE USE**

**NRM Chick Starter Crumble with 450g  
Bovatec® 20CC/tonne.**

**ACTIVE INGREDIENT:** Lasalocid sodium 90mg per kilogram.

**CONTAINS:** 450g Bovatec® 20CC per tonne, which is registered pursuant to the ACVM Act 1997, No. A009679. See [www.foodsafety.govt.nz](http://www.foodsafety.govt.nz) for registration conditions.

**DIRECTIONS FOR USE:** This product must not be used for growth promotion in ruminants intended for human consumption. By law the user must take due care, obtaining expert advice if necessary to avoid unnecessary pain and distress when using the product other than as directed on the label.

**INDICATIONS:** Delivers 90mg Lasalocid sodium per kg as 450g Bovatec® 20CC/tonne, as an aid in the prevention of coccidiosis caused by *Eimeria* species in broiler chickens, replacement layer and breeder pullets on deep litter or range.

**DOSE RATE:** As an aid in the control of coccidiosis, feed continuously NRM Chick Starter Crumble fresh daily to appetite

as the only ration. Discontinue use 14 DAYS before egg laying commences.

**CONTRAINDICATIONS:** Care must be exercised when feeding concurrently with other antimicrobials. Do not feed with other ionophores, e.g., monensin capsules, liquid, or pre-mix. Do not exceed recommended dose rates. Not to be used for single dose treatment.

**CAUTION:** Do not allow dogs, horses (or other equids), alpacas (or other camelids) access to feeds containing Bovatec® 20CC, as ingestion by these species may be fatal.

**WITHHOLDING PERIODS:** It is an offence for users of this product to cause residues exceeding the relevant MRL in the Food Notice: Maximum Residue Levels for Agricultural Compounds.

**Poultry:**

- Meat: Nil
- Eggs: Eggs from treated birds must not be sold for human consumption for 14 days following the last treatment.

**DISPOSAL:** Avoid any contamination of any water supply with this feed or packaging.

**DO NOT FEED TO ANIMALS OTHER THAN THOSE STIPULATED ON THIS LABEL**

# NRM Pullet Grower

A balanced feed designed for growing pullets or mature birds not in lay

NRM Pullet Grower is a complete feed formulated to provide a balanced source of nutrients for young pullets. NRM Pullet Grower can also be fed to mature birds not in lay to provide a balanced source of nutrients without the risk of excessive weight gain. Plant extracts and organic acids are included to support gut health and bird well being.



## FEEDING RECOMMENDATIONS

Layer pullets

Feed to appetite from 6 to 8 weeks of age until point of lay.

Mature birds not in lay

Feed to appetite.

Specialist feeds are recommended for broiler, waterfowl and game birds.

Always ensure birds have access to clean, fresh water.



BALANCED  
AMINO ACIDS



CALCIUM &  
PHOSPHORUS



CONTAINS  
ESSENTIAL OILS

## TYPICAL ANALYSIS

Nutrient	As Fed Basis	Dry Matter Basis
Dry Matter %	88	100
Crude Protein %	16.5	18.7
Available Lysine g/kg	7.2	

Variations in nutritional values may occur due to natural variability in feed ingredients. Our FeedSafe NZ certified sites have well developed systems to minimise any variation from the typical levels shown.

## INGREDIENTS SELECTED FROM

Grain and grain by-products, plant proteins, vegetable oils, enzymes, amino acids, limestone, mono or di-calcium phosphate, salt, sodium bicarbonate, vitamins and trace minerals, organic acids and plant extracts.

## STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight.

Do not feed pellets which have become wet and moulded.

**DO NOT FEED TO ANIMALS OTHER  
THAN THOSE STIPULATED ON THIS  
LABEL**

# NRM Peck'n'Lay

A premium feed designed to support egg production in laying hens

NRM Peck'n'Lay® is a complete balanced feed specifically formulated to support egg production in laying hens. Peck'n'Lay® contains natural pigments and a balanced supply of calcium and phosphorous to support the production of quality eggs with strong shells and rich golden yolks. Essential oils and organic acids have been added to aid in protecting against gut pathogens.

## FEEDING RECOMMENDATIONS

Introduce Peck'n'Lay® from approximately 1 week before the onset of lay, typically around 16-18 weeks of age.

Allow unrestricted access to NRM Peck'n'Lay®. Hens can be expected to consume around 125 – 130g (approximately 1 cup or a good handful) per hen per day. Suitable for feeding to laying farmyard ducks.

If birds are given access to feeds other than Peck'n'Lay® provide NRM Oyster Shell Grit in a separate container to appetite, to ensure good shell quality. A lower calcium feed such as NRM Pullet Grower is recommended for birds not laying eggs (e.g. birds in moult or pullets)

Always ensure birds have access to fresh, clean water.



**SUPPORTS SHELL QUALITY**



**FOR GOLDEN YOLKS**



**CONTAINS ESSENTIAL OILS**

## TYPICAL ANALYSIS

Nutrient	As Fed Basis	Dry Matter Basis
Dry Matter %	88	100
Crude Protein %	16.5	18.8
Available Lysine g/kg	6.7	7.5
Calcium %	3.8	4.4

Variations in nutritional values may occur due to natural variability in feed ingredients. Our FeedSafe NZ certified sites have well developed systems to minimise any variation from the typical levels shown.

## INGREDIENTS SELECTED FROM

Grain and grain by-products, plant proteins, vegetable oils, animal fats, enzymes, amino acids, limestone, mono or di-calcium phosphate, salt, sodium bicarbonate, vitamins and trace minerals, organic acids and plant extracts and natural pigments.

## STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight.

Remove pallet wrap when in final location to prevent sweating. Do not feed pellets which have become wet and moulded.

**DO NOT FEED TO ANIMALS OTHER THAN THOSE STIPULATED ON THIS LABEL**

# NRM Chook Tucker Textured feed

## A delicious textured feed for laying hens

A wholesome complete feed suitable for all laying hens. With the goodness of quality grain, kibbled maize and nutritionally rich pellets, NRM Chook Tucker is formulated to provide your hens with a balanced diet containing the protein, energy and calcium they need for good health and great eggs.

Contains natural pigments to support rich golden yolks, and a prebiotic and probiotic blend to aid in protecting against gut pathogens.



### FEEDING RECOMMENDATIONS

Suitable for all breeds when in lay from about 16 weeks of age (point of lay). Feed to appetite – approximately 1 cup (or a good handful, or 125-130g) per hen per day.

Textured molassed form which chickens love but not suitable for some gravity fed feeders.

Better suited to pellet only feeds.

For best results, provide access to NRM Oyster Shell Grit to ensure good shell quality. Grit should be supplied separately, not sprinkled on top of feed.

Suitable for feeding to laying farmyard ducks.

Ensure hens have access to clean, fresh water at all times.



### TYPICAL ANALYSIS

Nutrient	As Fed Basis	Dry Matter Basis
Dry Matter %	85	100
Crude Protein %	15	17.5
Calcium %	3.8	4.4

Variations in nutritional values may occur due to natural variability in feed ingredients. Our FeedSafe NZ certified sites have well developed systems to minimise any variation from the typical levels shown.

### INGREDIENTS SELECTED FROM

Grain and grain by-products, plant proteins, molasses, vegetable oils, animal fats, enzymes, amino acids, limestone, oyster grit, mono or dicalcium phosphate, salt, sodium bicarbonate, vitamins and trace minerals, mould inhibitor, probiotics, prebiotics and natural pigments.

### STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight.

Do not feed if product has become wet and moulded.

**DO NOT FEED TO ANIMALS OTHER THAN THOSE STIPULATED ON THIS LABEL**

# NRM Gamebird Crumble

A versatile, high protein feed suitable for poultry and gamebird species.

## FEEDING RECOMMENDATIONS

### Growing meat chickens, turkeys and waterfowl

Feed NRM Gamebird Crumble to full appetite from day one until target weight achieved.

### Mature turkeys, ducks and geese

Feed to appetite, with access to NRM Oyster Shell Grit or limestone grit and cracked or rolled grain.

### Growing pheasant and quail

Blend 1kg of meat and bone meal with 4kg of NRM Gamebird Crumble and feed to full appetite from day old to 6 weeks of age. From 6 weeks, blend 1kg of meat and bone meal and 9kg of NRM Gamebird Crumble and feed to appetite.

### Mature pheasant and quail

Feed to appetite with access to NRM Oyster Shell Grit or limestone grit.

Always ensure birds have access to clean, fresh water.



## TYPICAL ANALYSIS

Nutrient	As Fed Basis	Dry Matter Basis
Dry Matter %	88	100
Crude Protein %	20	22.7
Available Lysine g/kg	10.3	

## INGREDIENTS SELECTED FROM

Grain and grain by-products, plant proteins, vegetable oils, animal fats, enzymes, amino acids, limestone, mono or di-calcium phosphate, salt, sodium bicarbonate, vitamins and trace minerals, organic acids and plant extracts.

Variations in nutritional values may occur due to natural variability in feed ingredients. Our FeedSafe NZ certified sites have well developed systems to minimise any variation from the typical levels shown.

## WARNING

For turkeys, seek veterinary advice on the inclusion of an anti-blackhead medication in water.



**CONTAINS  
ESSENTIAL OILS**



**NUTRIENT DENSE**



**VERSATILE**

## STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight. Do not feed pellets which have become wet and moulded.

**DO NOT FEED TO ANIMALS OTHER THAN THOSE STIPULATED ON THIS LABEL**



# Oyster Shell Grit

Natural form of calcium carbonate which can help support egg shell quality and bone development in young birds.

Oyster shells are a natural form of calcium carbonate which can help support egg shell quality and bone development in young birds.

A co-product of oysters harvested for food, they have been cleaned and processed into smaller pieces that can help the break-down of forages and whole grains in the bird's gizzard. Ideally offer separately in a container, replacing if fouled by birds or vermin.

## INGREDIENTS

Oyster shell

## STORAGE

Store in a cool, dry and vermin free environment out of direct sunlight.

**FOR FEEDING TO BIRDS ONLY -  
NOT FOR HUMAN CONSUMPTION.**



Product available: Course and fine grade



**AIDS  
DIGESTION**



**CALCIUM  
RICH**



**NATURAL  
CO-PRODUCT**

# Virkon®S – Ultimate Disease Protection

## The premium broad spectrum disinfectant

A highly convenient, fast-acting, one-stop disinfection package for surfaces, equipment, vehicles, aerial disinfection and water delivery systems. Virkon®S has been tested and proven effective against all known viral families and kills bacteria, fungi and mycoplasma.

Virkon®S is so effective and rapid-acting, that it is the international disinfectant of choice for controlling exotic disease outbreaks.

- Cleans and disinfects in one operation.
- Most proven livestock disinfectant in the world.
- Safe to humans and animals – can be sprayed whilst animals still housed.
- Fast acting.
- Non-tainting, non-bleaching.
- MPI approved for exotic diseases, DEFRA UK disinfectant of choice in foot and mouth disease outbreaks.
- Available in 50g sachets and 1kg, 2.5kg and 5kg containers.

### Safe

Unlike most disinfectants, Virkon®S does not use glutaraldehyde, which is chemically related to formaldehyde and shares the same dangers. Virkon®S can be misted in the presence of animals.

Virkon®S is formulated to degrade naturally in the environment.



### Usage guide

**Before replacing your flock:** Clean all surfaces and disinfect with Virkon®S – including perches, nest boxes, feed containers and water systems. This will prevent transfer of infectious diseases to new birds.

**Regular disinfection:** Regularly use a knapsack or fogger to apply a fine mist around the henhouse. This will ensure disinfection of hard-to-reach areas such as corners and grating.

**Feed equipment:** Feed troughs, water equipment etc. should be frequently scrubbed and sprayed with Virkon®S.



Nobody is closer to your animals than you – and nobody understands their unique nutritional needs more than our qualified NRM nutritionists. It's their expertise that make our range of feeds some of the most scientifically advanced in the market. Plus having nationwide access to their in-depth knowledge will support your understanding of animal nutrition to improve the productivity and profitability of your farming operation.



MARKETED AND DISTRIBUTED BY NRM  
We guarantee the quality of our products.  
For more product information and animal care advice please check out [www.nrm.co.nz](http://www.nrm.co.nz)

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