



Animal Welfare Approved Technical Advice Fact Sheet No. 6

Range Management in Poultry

Animal Welfare Approved has the most rigorous standards for farm animal welfare currently in use by any United States organization. Its standards have been developed in collaboration with scientists, veterinarians, researchers, and farmers across the globe to maximize practicable, high-welfare farm management.



The modern chickens we keep today originally descended from wild jungle fowl. The jungle fowl did not live in fields but in areas with plenty of undergrowth, meaning that they always had some form of cover. Without making the range more attractive to today's commercial birds many would not choose to go outside.

What are the benefits of increased use of the range?

We can achieve a number of key health and welfare benefits by increasing the use of the range area.

Some rations – particularly those that are 100% vegetarian – may have less than ideal levels of essential amino acids, such as methionine. To maintain health and productivity the birds need to supplement their rations – and often the range can provide what is missing.

At the moment farmers often feed a ration that is supposed to meet all of the birds' nutritional needs – and we assume that the birds get nothing from the range. However, in a world of ever-increasing feed and production costs, it makes clear financial sense to look at maximising what the birds can gain from the range in the first instance – and 'topping this up' with the concentrate part of the ration.

But here are other welfare benefits of encouraging greater range use. For example scientists believe that the more birds use the range, the lower the risk of feather pecking problems in the flock. For example, Nicol *et al* (2003) found that the risk of feather pecking is nine times less if at least 20% of laying hens went out simultaneously.

What can I do to increase the use of the range area?

A natural fear of predators means that birds can be fearful of using wide open spaces. So providing shelter can help to encourage a better use of the range.

Provide shelter

Natural features, such as trees or hedges, can provide excellent shelter for birds. Some more established farms have laid out strips of trees within the range area, spaced so that they can still crop the area when the birds have moved round the rotation.

Artificial structures can also provide excellent shelter for birds. These can be as basic as parking an old trailer or placing an old pig arc in the field, or you can create simple structures using old pallets – anything that the birds can get under and feel secure.

Temporary crops like corn, sunflower or kale can also help provide shelter for the birds, as well as providing an excellent source of feed (see below).

Discouraging predators by using decoys and electrified perimeter fences is also important to make the range safe for the birds.

Introduce birds to the range area as early as possible

Rodenburg *et al* (2004) showed that the earlier birds are introduced to the range the better they use the range in later life. If you have laying hens, consider rearing your own pullets so that you have control over when they are given access to range. If you have meat birds, brooding in the field can allow you to give the birds access to the outdoors while they are still under heat. Pullet or meat bird chicks can have access to a small outdoor area from a few days of age onwards (weather permitting) and this early exposure can significantly increase ranging activity in later life.

In order to provide early and safe access to the range, some farmers build a small 'playpen' next to the open doorway of the brooding house that can be covered with netting on the sides and the roof. This gives the birds access to the outdoors without letting them stray too far from the heat source inside, as well as protecting them from predators.

If your brooding area does not allow you to give your birds outdoor access you can at least provide some vegetation– or even some sods of earth and grass – for them to peck at. Anything that gets them accustomed to what they will experience when they do go outside will help.

Feed provision

If birds receive all their feed requirements in the form of a concentrate ration in the house they will have little motivation to go out on the range and forage. Birds which have access to a ranging area where they feel safe – and which includes different types of growing crops and invertebrate life – also tend to consume less feed, reducing costs.

Offering additional feed and water on the range can also help to encourage birds to go outside and venture further on the range. However, you should only feed on the range what your birds can clear up quickly – for example, by scattering mixed corn at a particular time of day, rather than having 24 hour access to a feeder. This will help minimize the risk of wild birds mixing with your birds. Biosecurity recommendations suggest that domestic birds should not mix with wild birds because of the risk of disease – an important consideration when providing on-range feed and water points.

Always give the birds time to adapt. Researchers have shown that intake of forage depends on the capacity of the bird's digestive tract, so a period of adaptation is required before you will see any benefit of increasing feed intake from the range.

Some studies show that reducing the protein in the ration can encourage birds to utilize the range more fully. You should only attempt this when the range has sufficient resources – such as insect life or growing crops – for the birds' nutritional needs or welfare problems could arise.

Using cover crops

Cover crops that are often used to encourage game birds will work equally well for chickens. Cover crop mixes are likely to contain a range of plants, such as sunflower and corn, quinoa or even kale. It is better to allow the cover crops time to fully establish before birds have access to range - or fence off part of the range area until the crop has grown higher than the chickens can reach so that they do not instantly destroy the plants.



Be aware that cover crops can provide shelter for predators as well as chickens. Cover crops on the range are most effective where you can exclude predators – for example, by planning inside electrified perimeter fences.

Using crops that can give feed value

Recent work by Horsted (2006) in Denmark has shown that chickens have a preference for certain crops. The study looked at different groups of chickens provided with different types of crops – those that directly provided feed through seeds or vegetative material and those that attracted insects.

Quinoa, chicory and sunflower are all plants that chickens like to eat. Mixes of peas, vetch and oats can also be beneficial. Buckwheat, phacelia and flax are all plants that can be grown to attract insects for the chickens to eat.

Remarkably, the researchers showed that when these crops are provided on the range they can supply up to 70% of the bird's lysine needs (lysine is one of the essential amino acids) and up to 25% of the calcium needs of laying hens.

Summary

Researchers have shown that better use of the range can help to avoid welfare issues, such as feather pecking and feather pulling. But the range can also provide extra nutritional benefit – and help to reduce feed costs.

One option is to look at developing a summer and winter ration. Provided the range is well managed, the summer feed could be a cheaper, more basic, and less nutrient-dense ration as the birds can top up from insects and worms on the range, while the winter feed could be a more complete ration.

Growing a game cover mix: a case study

An egg producing farm with a 2,000 bird house found that although their birds generally ranged quite well the area close to the house quickly became bare.

In order to encourage birds to range further – and to make better use of the overall range – a game cover strip was planted with a mix of maize and sunflower. The game mix was direct drilled into three separate places in the range area and fenced off using electrified netting.

In the first year seed was drilled in May and birds were given access to the growing crop in August when it was just above the height of the birds. The birds were keen to get into the cover crop and ranged out to do so. However, in this first year birds quickly stripped all the leaves off the plants and left only the stems which were too damaged to regenerate and therefore offer little cover.

In the second year, however, the birds were not given access to the cover strips until later in September when the plants were well above the reach of the birds. The birds still stripped the lower leaves, but the plants survived and seeded, providing the additional benefit of seed heads for the birds to peck at.

The farmer has seen an improvement in the ranging behaviour of the birds, which has also helped with the maintenance of vegetative material on the range. He has judged this as a success and will continue to plant seasonal cover strips. These offer flexibility as flocks move round the farm: they areas can be ploughed up if the land is reseeded or cropped behind the chickens.

Planting trees and shrubs for poultry: a case study

In 2003, the Food Animal Initiative in the UK carried out a project 'Poultry in Natural Environments' or PINE – see Stamp Dawkins *et al* (2003).

As part of the project the researchers examined the preferences of birds and found that they preferred trees and bushes to short grass. The researchers believed that this was because trees are multifunctional, providing shelter from wind and rain, shade from the sun, cover from predators, and areas of contrasting light.

In the project, tree plots were planted with commercial coniferous (Western Red Cedar, Douglas Fir, Corsican Pine) and broadleaf (Ash, Silver birch, Wild Cherry, Pendunculate Oak) tree varieties. Day old chicks were bought in and reared to 24 days old before transferring to the trial arks. Pop holes on the side of the arks allowed chickens access to the range in daylight hours after day 28. Chickens were grown for a commercial market to a target of approximately 5lbs (2.28kg) at 56 days.

The study involved a total of 112 flocks from January 2003 – September 2004, with a total of 108,827 chickens. A wide range of variables were measured including the percentage of chickens ranging at three times a day and when they were three different ages, as well as other behavioural and welfare measures. They also measured tree growth and survival, plant species richness and bare ground.

The results show that the system was commercially success and had great potential for high welfare production of free-range chicken. In the first years of the project there was little difference between chickens in plots with trees and those in plots without, but this can be explained by poor tree growth in the early stages. Tree growth and survival have subsequently been promising, particularly for the broad leaf species and the ranging behaviour of birds in the tree plots is good.

References

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