

PRACTICAL BROILER HUSBANDRY

- David Rood

Before I start discussing broiler management I think that it would be worth spending a few minutes to refresh ourselves as to where the broiler originated and what type of animal we are dealing with. The broiler chicken is a product of continuing research and development carried out by geneticists on various breeds of meat type pure lines. Most breeders use the Cornish and the White Rock breeds as their main base lines, although others may be used in conjunction with these in order to pick up specific characteristics which are beneficial to the final product. These lines are crossed and recrossed, each time utilising the better traits of each line, such as weight for age, F.C.R., conformation, meat yield, etc. which are all accumulated within the final product, the broiler. In recent years additional lines, known as synthetic lines, have also been incorporated into breeding programmes. These synthetic lines allow us to be able to feather sex our broilers as at day old we should be interested in separate growing of the males and females. It should be noted also that some broiler strains are derived from breeding programmes where there has perhaps been more emphasis on egg production at the parent level, thereby resulting in a lighter broiler, while others derive from programmes where the emphasis is solely on weight. Few breeders have managed to produce a product that will give satisfactory parent performance linked to excellent broiler performance. We have, therefore, a product which has been produced through the mentioned procedures that is potentially capable of achieving high weights at low ages on reasonable amounts of feed. The product is highly sophisticated in its make-up and reacts quickly to environmental conditions which do not cater for its characteristics. It may be fast or slow feathering depending on your choice. It is the racing car of the poultry industry and, in order for it to perform at its peak potential, the service in the form of management that it requires also has to be of a high standard. Your broiler chick supplier **also** has to take into consideration what breed of broiler parents **he** will use in order to satisfy his customers with their requirements and yet not have to have more breeders on the ground than is absolutely necessary, as they are expensive. Many chick suppliers offer more than one breed to growers in order to maximise their own facilities as popularities of broiler strains tend to wax and wane periodically.

BEFORE YOU START

Before you, the grower, purchase your chicks, you should consider the following points:

1. Which strain of broiler will be the most profitable? (Your selling age will be your guide here)
2. What vaccination programme have the breeders undergone? (What levels of immunity have been passed down to the broiler chick?)
3. What is the breeder or hatchery disease control programme? (Are the chicks infected with M.G./M.S?)
4. What **quality** of chicks will be delivered? (Does the hatchery have a good reputation for its products)
5. Will the hatchery vaccinate day old chicks? (I.B / N.C.D.)
6. If the hatchery produces more than one strain, will you get the breed you specifically order? (Will strains be mixed to "make-up" customer's order?)
7. Does the hatchery supply any after sales service?

WHERE AND HOW?

Having decided that all the above criteria can be met satisfactory, we must now look at where and how we are going to grow our broilers in order to achieve the potential that has been developed by the geneticists. Broiler housing in this country consists of many variations regarding size, construction, type of heating, etc. The one point that does stay consistent is the need for good management. In order to have good management we have to have involvement in the day-to-day activities within the broiler house. Before we place our chicks have we **really thought** about how many we could or should be placing in our houses at day-old? For controlled environment housing with forced ventilation it is possible to remove from the house at end of the crop some 19,5 birds per square metre. In open sided housing with natural ventilation 14,0 birds per square metre would be a realistic figure. Add onto this our mortality, which should be a target of 4.5% and the number of day old chicks required per square metre for controlled environment becomes 20,5 and for natural ventilation we need 16,70 per square metre.

GOOD MANAGEMENT

Good management starts before the arrival of the chicks. Assuming we are starting with a clean house, we first have to prepare that house for the chicks. What do we want to see? If we have an open-sided house as most have, we must ensure that the side curtains are closed and that draughts are eliminated. We need a good depth (7 cm) of dry litter that should comply with the following requirements:

1. be light in weight;
2. have a medium size particle size;
3. be highly absorbent;
4. dry rapidly;
5. be soft and compressable;
6. have low thermal conductivity;
7. absorb a minimum of atmospheric moisture;
8. be inexpensive; and
9. be acceptable as fertilizer when sold.

Having spread our litter, we should now look at placing our feeder pans and drinkers around our brooders if we are using these or spreading them evenly around our brooding area if whole house heating is being used. How many drinkers are needed? Two per hundred chicks during the brooding period is considered adequate but if you have more than use them. Fonts are also practical during the brooding period in order to get all the chicks familiar with the source of water as soon as possible. Do not fill your drinkers or fonts until about 2 hours before the chicks arrive. The last thing they would want to drink is water that has been in the drinkers since the day before they arrived and heated up to room temperature! We want to stimulate water intake and the best way to do this is with cool fresh water. Now for the feed trays. Again, use as many as possible during the first ten days. Chicks tend to sleep on feed trays once the food has absorbed some of the room heat, therefore the less you have, the greater the competition for the food. Some people put egg trays or paper strips on the floor to create extra feeding space. The main point here is to break down the chick group size per feeding station. If you have a chore time type feeder, chain feeder or even just hoppers, ensure that these are set down on the shavings and have feed in them from the start. Do not make the mistake of overfilling the feed trays as a lot of food will be wasted and lost in the litter, because the chicks' natural reaction is to scratch in the feed pans looking for the choice pieces of food. It is all too easy to overfill the feed trays in the morning so that we do not have to worry about doing it again later in the day. I would recommend that you **underfill** the feed trays and top them up at lunch time and again early evening. A good manager would

also fill empty pans when he is doing his late night check. Use a good quality (22% protein) crumb which does not consist of too much dust for the first 12 days. Drinkers and/or fonts will also need to be cleaned several times per day.

HOUSE TEMPERATURE

What about house temperature? Is it warm enough? What temperature am I trying to achieve in order to produce the right conditions to stimulate maximum feeding activity? The answer should be 28°/29°C and this temperature should be maintained for the first five days. Check also that **all** of the lights are working and that there are no dead globes causing “dark” spots which will deter chicks from that area. When you think that the preparations are complete, just spend a few minutes going over everything to really ensure that you are satisfied. If things are wrong before the chicks arrive they will, in all probability, get worse as the flock progresses.

At last our chicks arrive at the farm. Look in some of the boxes before you unload them and inspect the chicks’ condition. Check the van temperature to see whether they have been chilled or overheated. If you feel that things are wrong, bring them to the driver’s attention. Make notes on the delivery advice slip that is returned to the hatchery and also telephone the hatchery to ensure that the message gets home. After all, it is your livelihood that is at stake here, so you need to be sure that you are starting off with a first class product. Having satisfied yourself that everything is all right, take **all** of the chicks into the house before placing any on the litter and then close the doors. It is amazing at the speed which chicks can run towards a large light source and this does make chick placing difficult. If you are using brooders, turn off all lights except the centre row before you start placing the chicks. This method will keep them near the source of heat until you finish. It may be that you are using lead lights under each brooder which will serve the same purpose. If you use whole house heating, the chicks will need to be placed evenly and quickly over the whole brooding area. Do not throw the chicks onto the litter from full height. This has actually happened on some farms. Lift them from the boxes in small groups and place them in the immediate vicinity of the feeders and drinkers. After the chicks have been placed, remove all boxes and people from the house and allow the chicks to settle down for an hour or so.

HOUSE RECORDS

Make sure that you pin a flock record card in each house, recording the following facts:

1. breed of chicks;
2. date of placement;
3. number of chicks started;
4. daily mortality/culls;
5. any vaccinations and when they were done;
6. types of feed used and at what ages the rations were changed;
7. daily and cumulative feed usage;
8. any medications that are used;
9. any post mortems that may have been done;
10. number of birds sold at end of crop; and
11. the percentage of unaccountable losses.

When you return to the house, just stand inside for a while and watch to see where the **chicks are** and what they are **doing**. If they are spread evenly over the whole brooding area you will know that most things are right and all you will need to do is check the drinkers to ensure that they are all working correctly. Should the chicks be huddled under the brooders or in large

groups in whole house heating it should be obvious that the temperature is too low or that there are draughts. Similarly, if the chicks are at the furthest extremity from the heat source, then the temperature is too high. Any irregularities should be rectified at this point, as the first 48 hours of the chicks' lives in the broiler house are probably the most critical in affecting the final product. Whenever you enter a house with stock in, just follow three simple but invaluable rules:

1. LOOK
2. LISTEN AND
3. SMELL.

If you do these three things as a matter of course, you will always be able to pick up anything that is amiss and correct it immediately. Never leave any faults to be rectified at a later time. **Do it when you see it.** It could cost you dearly if you don't.

After day 5 it will be necessary to start reducing house temperature. **Slowly.** The chicks will also be requiring more space at this time, especially if you are using surrounds around your brooders. As you increase the brooding area, make sure that the feed trays and fonts are also moved and spread evenly over the entire enlarged area. The number of feed trays and fonts can be gradually reduced from day 5 until all are removed by day 10 and the chicks are left with just the regular feeder system and the automatic drinkers. If you remove the feed trays and fonts too quickly you will cause some chicks to die unnecessarily due to starvation or dehydration as the sudden change will not give the slower starters enough time to discover what a feeder or an automatic drinker looks like. Also, between 5 and day 10 the small number of chicks will be noticeable, which I refer to as "bumble bees" that will never be anything other than a cull, even though, if left in the house, they will still consume as much food as the health birds. Remove and kill them as soon as you notice them before they cost you too much. My personal feeling is that if this type of bird is permitted to remain with the flock, it is likely to become the target for any virus that may appear on the scene and will then become the source of infection for the remainder of the flock. Similarly, with bacterial infections, it is the weak birds which will be infected first and the infection will then be passed to the remainder of the flock via their droppings.

DAY 5

From day 5 onwards, you will not only be reducing your house temperature, you will also be increasing your ventilation rates. There is a general tendency to do this too rapidly. Why should this be so? The usual answer is that by doing so we will increase the speed at which the feather cover grows. This is not quite true, especially if you are using broilers that have slow feathering genes in their make-up. It is true that some breeds of broilers feather faster than others, but by introducing too much ventilation too soon, you will stress the birds, especially the males, and this will induce E.Coli infections. Introduce your ventilation slowly. Smell the atmosphere in the house and look to see if the birds are starting to seem stressed before you open too much. Similarly, if **you** feel cool and can see birds huddling in groups, then you will need to close up a fraction until a good level of activity is achieved. With naturally ventilated housing that has side screens, make sure that they open from the top downwards and not from the bottom up. By opening from the top down cold air entering the house has time to mix with the rising warm air before reaching the birds. If side screens open from the bottom upwards, the cold air will simply fall over the low side walls directly onto the birds which could cause chilling problems which will only become apparent a few days later.

DAY 10

By day 10 you will have removed all your additional feed trays and fonts and will be using the regular feeding system and automatic drinkers. Do not leave your dirty feed trays and fonts in the store room. They must be cleaned and disinfected and stored away until they are next required.

Now that we are using the general equipment only and the chicks probably have the run of the entire house, life is becoming a little less hectic, but it doesn't mean that we can sit back and relax for there are still basic points to be watched even though it is not necessary to spend quite so much time in the house each day. As the birds are now growing rapidly the feeders and drinkers will need to be adjusted at regular intervals. Once a week is not enough. If they are not adjusted regularly during the first 28 days, you will find that the birds are paddling in the drinkers and that wet hard crusty areas are developing around them. These areas spread rapidly and can, if left, cause hock burns and breast blisters at later stages. Should you find that you do have such litter conditions developing, then remove the affected areas from the house and adjust the drinker height and water level, if necessary to prevent further spillages. It is not good practice to merely stir up the wet litter and hope that it will start "working" again, as the birds will simply trample it back into the same hard form in a short time. Drinkers will also need to be cleaned once a day in order to remove the slime which builds up due to the birds spilling pieces of food into the drinkers whilst drinking. After all, I wouldn't like to drink from my tea or coffee from dirty cups, so it would not really be fair to expect the birds to drink from dirty drinkers. We must remember here that water is extremely important for the birds, not only to help with the absorption of feed, but also to cool the blood in the body, thereby maintaining a satisfactory body heat. Similarly, if the feeders are too low, feed wastage will be high and costly. If using tube feeders, ensure that the pans are fitted correctly or else the feed will run out like sand. Some of the split feed will be eaten, but most will be lost in the litter.

PELLETS

At 12 days of age you should start introducing your feed in the form of pellets. However, do not wait until your crumbs have finished completely. Again, this will give the slower and smaller birds time to adjust. If you fail to do this it is possible that a small number of birds will again fail to adjust to the new situation presented to them and will become culls. Also ensure that the pellet is of good quality, is hard and that it will still be a pellet by the time it reaches the feed pan if you are using the chore time type feeder. It must also not be too large either in length or diameter. If too large a pellet is fed at too young an age, you will find that the birds flick them into the litter in order to get at any pellets that they consider are suitable to eat. If you find this hard to believe, try taking a given area around a feeder and sift through the litter, counting how many pellets you find. It can be quite frightening. The management of **any type** of feeder system has to be correct otherwise it will cost you dearly in wasted feed. It has been calculated by "experts" that tube feeders can be wasteful to the tune of 7% of feed used, chain feeders by 3% and chore time type feeder by only 1%. Do not overfill tube feeders, especially at weekends in order to save having to do it again. Considerable amounts of feed are wasted when they are filled to overflowing. How many people ever pick up any food that has been spoilt? With chain feeders, make sure that the feed level is not too deep or that the running time for each feed period is too long, otherwise there will be a build-up on the return side of the feed bin resulting in an overflow into the litter. Set your feeder clock to run several times per day for short durations. With chain feeders it is common practice to start with four feeds per day of such time duration to ensure complete circuitry of the house. The number of feed periods will increase with bird size until a programme of 8 x 1 hour feed periods are achieved by 28 days of age. As for chore time type feeders, one only needs to ensure that the feed pans are all set at the same level. A good point here is to have a

light situated low over the end control pan which will create feed stimulation at that point and will ensure that there is always feed throughout the entire length of the line.

Should you be fortunate enough to have controlled environment housing, it is usual to controlling light intensity within the house from about 14 days of age onwards so that the flock's activity level is kept to a minimum, thereby preventing excessive waste of energy and allowing better utilisation of the feed for producing bodyweight.

14 - 25 DAYS

During the period from 14-25 day it is often noticeable that there appears to be a crust forming on the litter in general. This is caused by the amount of faeces that have been passed from day old onwards and the fact that the litter temperature has not yet risen to a high enough level in order to allow bacterial activity to take place. From 25 days onwards the litter should start breaking down and eventually finish as small granules. From day 35 through to end of crop we should be looking for a house temperature ranging between 20° to 22°C. This has been found to be the most comfortable temperature range to promote best weight gains.

It is a good idea to weigh the flock once a week starting at 28 days. The target as hatched weight at this age should be 1 000 grammes per bird or better, 1 400 grammes at 35 days and 1.800 grammes at 42 days. It may be that you are using two different suppliers of feed and if you are, then regular weighings will soon show if there is any great difference between the two.

If you are in the position where you are actually processing you own birds, it is necessary also to remember that the removal time of the feed and water prior to slaughter is also important so as to ensure that unnecessary weight loss is prevented. In most cases, the feed is removed some eight hours before slaughter but the water supply should remain with the birds until just before they are removed from the house. Should you remove the water at the same time as the feed, the birds will not be able to digest the last intake of food and the result will be wasted food plus a nice mess at the abattoir when the crops break on extraction.

One point that I would like to touch on briefly is labour. Many people here today probably employ several Africans to do the day-to-day running of their broilers. Make sure that they understand not only **what** they are doing, but **why**. If people understand **why** they are doing what may be considered the most menial of tasks, such as cleaning drinkers, then their attitude to that job would be more positive, thereby easing your mind as to whether all the functions are being done properly or not. As the broiler strains of today and tomorrow become even more sophisticated and require even more delicate handling and as your operation become bigger, you will become more dependant on good staff so ensure that they know what and why they do certain things from the start.

Just to recap some of the points: the following targets are what we should be aiming for:

1. 19,5 birds per square meter at end of crop (C.E)
2. 14,0 birds per square meter at end of crop (N.V.)
3. 4,5% mortality to end of crop
4. 1 800 + grammes A/H weight at 42 days
5. 35 + kgs of meat per square meter at 42 days
6. The best price we can obtain for our product.

Finally, should any one be achieving or even bettering these figures, then you should consider yourself to be efficient and worthy of anybody's praise. However, if you are not attaining

these figures, have a close look at your operation to see if you can find any weak points. Call in someone to assist you. Whatever you do, please do not blame the chickens, for they have to perform in the environment and with the type of management you offer!