

# Market Broiler Pens

Their care and management  
for 4-H and FFA members.

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## Introduction

Broiler projects are popular with 4-H and FFA members and are an integral part of many youth livestock shows. The broiler project involves raising chicks from one day of age to market weight. Broilers are meat-type chickens that are usually six to eight weeks old when ready for processing. Broiler projects are suitable for youth of all ages, from beginners to those with many years of experience. Broiler projects are especially favored by many families because they require less time, space, and money than many other projects - - while providing an economical source of quality, nutritious meat for the dinner table.

Competitors will start with 25 to 50 day-old, straight-run (mixture of males and females as hatched) broiler chicks and raise them to about 6 or 7 weeks of age. Out of this group of chicks, they will choose their best, most uniform three or five birds to enter as a market pen at the fair.

Many broiler project shows require entrants to make advance orders to purchase chicks through a single, predetermined central source. All chicks are then shipped on the same day to all participants. Because all the chicks come from the same hatchery and are from the same breeder farm, they will have similar genetics. Being hatched and then shipped on a single date, a predetermined, consistent feeding period is provided. This ensures that the difference in the broilers at the time of the show is based chiefly on the young exhibitor's decisions and effort on how to manage and grow the chickens.

The primary objective of producing broilers is to optimize growth for maximum meat production. Because the chicks are from the same genetic source and of the same age, differences in the weight and conformation of the show broilers are due to the management practices of the competitor. A successful entry requires good management skills such as providing and maintaining the proper environment, feeding high quality feed, and controlling disease. Exhibitors also learn what selection criteria are necessary when choosing their uniform market pen of birds.

## Considerations

Before raising broilers for a project, one should ask themselves several questions. Is the necessary housing and equipment available? Do zoning regulations permit raising poultry at your location? Are the facilities strategically located to prevent noise, odor, and fly nuisance for your family or your neighbors?

It is a challenge that demands commitment to willingly and consistently provide the daily care necessary over several weeks. Broilers require punctual daily feeding and care throughout their lives. It is virtually impossible to have broilers "catch up" once they have fallen behind in growth (weight) and fleshing. Raising broilers re-quires an extra commitment of time, patience, dedication, and concern for the birds involved. If one cannot put forth the effort required, one should probably not begin the project.

Will family members be able to dress the chickens, or, is there a processing facility nearby? Or, are there friends and neighbors interested in buying the "home grown" broilers? Plan the family vacation to avoid any conflicts when it's time to show and butcher. Is there ample freezer space for cold storage? Or, how many will your family actually consume? Broilers usually average a gain in weight of one pound per week until processed at 4 to 7 pounds. Broilers will yield a dressed carcass weight of 70 to 75 per cent of their live weight.

Raising winning broiler pens involves three general steps:

- 1) Providing the chicks with an environment conducive for growth and development,
- 2) Properly feeding a diet which adequately supplies all of the broiler's nutritional needs,
- 3) Successfully choosing the most uniform three or five bird pen with the best potential to win.

## Chicks

Normally, the selection of chicks is arranged for by the sponsor of the broiler projects. If not, a commercial, specially-bred, meat-type broiler chick can be ordered for mail delivery direct from a reputable hatchery that is NPIP Pullorum-Typhoid clean. One must decide whether to buy straight-run (mixture of sexes), all pullets (females), or all cockerels (males). Some prefer pullets because they mature sooner, carry more flesh over the back, and have a more rounded, plumper appearance to the breast, thighs, and legs. But, they do not grow as fast nor get as large as cockerels at the same age -- being one half to one pound lighter at market. Also, if one has had problems with Marek's disease, one can have the chicks vaccinated at the hatchery for this disease for a nominal charge of a few cents per chick. It will diminish the mortality from this disease, as well as reduce the number of "poor doing" broilers.

The commercial broiler is usually a very fast growing hybrid of a Cornish/White Rock type cross. They are designed to produce meat efficiently with superb conformation for maximum meat yield, rapid growth, and excellent feed conversion. Such special matings produce birds with broad breasts and big, meaty thighs with a minimum of leg problems due to rapid growth. They should be fast-feathering -- the early feather coverage helps protect the body which leads to less carcass damage. Combined with white plumage, this also makes for easy dressing. And, finally, when the desired yellow skin is present, a very attractive dressed carcass can be prepared for the consumer.

## Housing

The broilers require some type of housing to provide protection from predators and to create an environment to promote growth. The broilers require a clean, dry area that can be well ventilated. The site selected for the broiler pen should be high, and, if possible, the floor of the pen should be above ground level enough to prevent possible flooding. Housing for the broilers should be separate from housing used for other types of poultry at the same time. It should be sturdy enough to prevent predators from reaching the birds. Predators can be devastating to chickens. Cats, dogs, raccoons, skunks, and mink are some of the worst offenders. Make sure the housing area is tight against animals of all kinds.

However, the facilities and space for broilers do not need to be expensive or elaborate. Some members grow their chicks in a corner of a garage, barn, shed or other outbuildings using temporary pens made from simple panels. Because broiler chicks grow so fast and gain so much weight in a short period of time, it is not necessary to make pen panels more than 2 or 3 feet tall as long as the pen remains

protected from predators. One-inch chicken wire or welded wire on wooden or PCV pipe frames works well, and facilitates fresh air flow.

Openings on three sides of the building or pen will provide plenty of fresh air for the broilers as they get larger. Plastic or plywood sheeting, or even cardboard, can be used to close sides during brooding or in cold weather and wind. The roof should be sufficient to effectively protect against blowing rain, and direct sunlight.

Clean and disinfect the broiler pen, feeders, and waterers at least two weeks before the chicks arrive. Remove all dirt and old litter from the facility. Sweep the floor, walls, and ceiling. Wash the pen out thoroughly using a pressure sprayer, a lot of soap and water, and "elbow grease." Repair the windows, screens, and ventilators to prevent drafts and keep out predators. Then spray a commercial disinfectant approved for use in poultry houses, and allow to dry.

Floor space and type can have an impact on performance. Raising broilers on wire or in batteries will not produce winning birds. Concrete floors are most commonly used. Plan to provide a minimum of two square feet per broiler after four weeks of age, or at least a ten by ten foot square area for fifty chicks. Even more space may be needed in hot, humid weather for broilers carried to heavier weights. Facilities should provide ample space, plenty of ventilation, proper temperature, and adequate protection from the elements and predators. Planning and preparing adequate facilities before the arrival of the chicks allows the chicks to adapt to their new environment with a minimum amount of stress.

## Bedding

Broiler chicks need some form of bedding or litter to help keep them warm and to absorb moisture, especially on concrete floors. Ideal litter is something that's absorbent and fluffy to prevent the birds from injuring themselves. The quality and type of litter utilized in the growing pen can have a tremendous impact on performance. A good litter should stay dry, provide a cushion for the feet and breast of the birds, and not encourage the birds to eat it. Bedding material should also not be a source of disease. Litter that is wet, moldy, or dusty can lead to respiratory problems and even death. Once birds become sick because of moldy litter, they cannot be cured.

Kiln dried pine shavings are the best material. Dried peat moss, cane fiber, ground or crushed corn cobs, peanut hulls, or rice hulls may also be used. Ground hay or shredded newspapers make poor litter because it is not as absorbent and rapidly becomes packed and caked. Chopped straw, sand, or even dirt will work, but are not nearly as good as the others. Coarse sawdust has been used, but it is too small and the chicks may eat it instead of their feed. Avoid cedar chips or treated wood chips, they may be toxic. Litter must be free of sharp objects such as sticks or stones.

The floor of the broiler pen should be covered with a layer of litter at least 3 to 4 inches deep. Litter management is an important part of this project. Slippery litter can contribute to slipped tendons and spraddled legs, which render birds useless. Hard flooring and poor feathering, combined with inadequate depth of litter, can result in ulceration of breast skin along the keel, creating breast blisters (fluid filled lesions). Wet litter can cause ammonia production, increase coccidiosis outbreaks, enhance disease transmission between birds, and cause foot sores. Wet litter can also increase the relative humidity which, in turn, can increase heat stress. If litter gets packed and caked, it could cause breast buttons to form on

the birds. The buttons are lesions in the same location as breast blisters, but have a hard crust on the surface and a core of dead skin. They are probably chemical burns due to pro-longed contact of poorly feathered skin with wet litter containing ammonia or toxins. Caked litter also results in dirtier birds, and feather coat becomes progressively worse with poor litter.

Experience shows that the percentage of breast buttons and breast blisters, as well as related problems, can be reduced with top notch litter management, loose soft litter, bird activity, and a well feathered breast. The caked litter should be removed every day. The rest of the litter should be turned or stirred up with a fork or rake at least once or twice a day. Add new litter by top dressing as needed and change litter if necessary as the birds grow. If the litter becomes packed due to excessive water spillage or poor ventilation practices, it should be immediately loosened and/or re-moved. Good moisture levels for litter are 20 to 35 percent. A good rule of thumb to determine when litter is becoming too wet and should be changed is to squeeze a random handful of litter material. If the material sticks together it is too wet. Good air movement across the bedding material can help minimize the moisture content and ammonia odors.

## Brooding

The "brooding process" is the nursery period for the baby chick. This is a very critical time in the life of the growing broiler. Not only its survival, but its' present and future production performance depend upon various factors affecting growth during this period.

For the first few days the chicks will need some supplemental heat to keep them comfortable during the brooding period. If you have a large pen, construct a brooder guard (confinement ring) made of stiff material that will keep the chicks herded in the area of the feed, water, and heat source, and also serve as a draft shield. Brooder guards are typically made out of cardboard or stiff plastic that is fastened together in the form of a circle and stands 12 to 18 inches high. One must avoid corners into which new chicks can crowd, pile up, and smother. For 50 chicks, a brooder guard about 5 feet in diameter is adequate, but be sure the circle is large enough to allow the chicks to get away from the heat if they want to. For 100 chicks, make the ring 7 to 8 feet across. After a few days, the guard can be removed allowing the chicks to roam the entire pen.

The first seven days are the most critical for properly heating and caring for broiler chicks. If chicks are chilled, they won't grow properly and may become stunted. If chicks are too warm, they can become dehydrated. This may lead to death or delay-ed growth. Thus, it is important to begin operating the heat source at least 24 to 48 hours before the chicks arrive. During that period, the heat source should be set to warm the brooding area to 90 to 95 F as well as to preheat the litter adequately. Use a thermometer to check the pen temperature at the floor level. After the first week, re-duce the brooding temperature gradually by five degrees each week until the broilers are about four weeks old. During the heat of summer, after the first 48 hours, begin to reduce the brooding temperature by 1 degree each day down to 75 degrees at 3 weeks of age.

The best time to raise broilers is from April to October. The heat requirements and weather present fewer problems. If you are growing birds for the state fair you probably won't need too much heat since the chicks will be brooded during the sum-mer. Electric heat lamps with aluminum reflectors and shields are excellent short- term heat sources for day-old chicks. Two 125-watt infrared bulbs are

recommended depending on the temperature. Always use two lamps in case one burns out. Normally one 125-watt bulb is needed for each 25 chicks. Start by hanging heat lamps about 18 inches above the surface of the litter. Be sure they are installed properly and secured so that they cannot fall onto the litter and start a fire. Place the feeders close enough to the heat lamp that the chicks can easily reach them. Place waterers far enough from the lamps to prevent any splashing water from cracking the hot bulbs. All wiring needs to be adequate for the size of bulbs used.

A light with a red finish can be used to dull the light, and helps to reduce picking. Baby chicks will often pick each other if they are too hot, too crowded, without fresh air, or in too bright a light. Simply change the brooding temperature by adjusting the height of the heat lamp above the litter. Raising the lamps 3 inches will usually drop the temperature about 5 degrees. The temperature should be monitored with a thermometer at chick level and by observing the chicks' response to the heat source. Cold chicks will huddle together under the heat source; hot chicks will move out to the outer limits of the brooder guard and pant in an effort to cool themselves; and comfortable chicks will be uniformly scattered or spread out, moving about freely to eat and drink, with many around the perimeter of the heat zone. Such observation of behavior can be used as a guide to adjust the brooding temperature when using lamps. If most of the chicks are bunched up to one side, there is probably a draft in the area.

A common mistake is providing too much heat to the chicks. Rapidly growing broiler chicks will need heat only for a few days and then will probably require increased ventilation to keep the temperature down. High temperatures retard feathering. After the broilers are four weeks old and fully feathered, heat is seldom required. Open the house and allow plenty of fresh air to circulate. The ideal growing temperature is 60 to 75 degrees after the broilers pass 4 weeks of age. During the colder months, keep the south side of the house open during the day after the birds reach 4 weeks of age unless the temperature falls below 40 degrees. Many young project members tend to keep their birds much too warm. This will affect feathering, growth, flock uniformity, fleshing, and finish. While good facilities and feed which meets the nutritional needs of the bird are crucial for rapid growth, poor management (chick care) can undermine all the previous efforts. Because they grow faster, Cornish-cross chicks often overheat more quickly. Checking the chicks, particularly at times of the day when the temperature is changing, and making appropriate adjustments are the only ways a proper environment can be maintained.

The good flock manager will become familiar with the chicks by watching and listening before disturbing the birds. Contented chicks are often active and chirp softly and peacefully; while cold, uncomfortable, or sick chicks vocalize loudly with an incessant shrill peep, huddle together, and act listless. Do not tire new chicks since excessive handling and stirring will cause them to be more susceptible to stress related disorders. Chicks require more frequent and longer rest periods than older broilers. A good rule of thumb is to allow new chicks a minimum of two consecutive hours of undisturbed time four times a day followed by eight to ten hours, or more, of undisturbed night time rest during the first week.

Modern strains of broilers are almost a biological phenomena because of their ability to achieve such rapid growth with excellent feed conversion. However, genetic selection has sacrificed normal early feathering and hardiness in the pursuit for rapid meat development. This means that broilers remain more vulnerable to temperature extremes for a longer period of time. In addition, these rapidly growing birds have very high nutritional requirements, and there is little flexibility to overcome poor diets or extremes in temperature and ventilation, even for short periods. Thus, it is essential that broilers have everything they need in the way of environment and nutrients so that maximum performance can be achieved.

Chickens have a sense of whether the temperature in their environment is hot, cold, or just right. When the chicks sense that the temperature is just right, they are said to be in the middle of their “thermoneutral zone.” In the thermoneutral zone chicks expend a minimal amount of energy keeping warm or cooling off. If the temperature is higher than their thermoneutral zone, chicks expend energy keeping cool and can be heat stressed. If the temperature is lower than their thermoneutral zone, chicks expend energy maintaining their body temperature. Research shows that broilers perform best when kept at a temperature that is on the low end of their thermoneutral zone. Lower, but not cold, temperatures will stimulate feather growth, appetite, and body growth. Rapid feathering and rapid growth are closely correlated and are desirable in growing broilers, and, also help to reduce feather picking and cannibalism.

A minimum of energy should be used by the broiler to keep either warm or cool. Providing chicks with an environment in their thermoneutral zone means that the energy they might have used adjusting their body temperature will now be available for and used for growth and development of meat. Since newly hatched chicks have not fully developed their body-temperature regulating mechanisms, a brooder must supply enough supplemental heat to maintain optimal body temperature. As chickens age they develop the ability to regulate their internal temperature and, therefore, require less supplemental heat. For efficient control of brooder heat, the room temperature should be about 10 degrees lower than the brooder temperature. When possible, give chicks access to additional space which is up to 10 degrees lower in temperature. This gives chicks a chance to pick their own environment.

## Ventilation

Good ventilation to provide fresh air is critical. The rapid growth rate of the modern broiler creates relatively high oxygen demands. Broilers are very intolerant of stuffy, stale environments. Ventilation in the brooder house must be adequate to remove moisture, allowing the litter to dry, and to remove carbon dioxide expired by the birds and ammonia from the droppings. While day-old chicks should be protected from drafts, it is still important to supply them with a source of fresh, clean air. The optimal relative humidity is 50 to 60 per cent. Extremely high or low humidity should be avoided. Low humidity can lead to a dry, dusty environment. Ventilation must be limited in cold weather since it also removes heat; whereas in warm weather heat removal may be desirable. Early detection and correction of “cool nights” or “hot stuffy afternoons” prevents heat or cold stress in chicks which leads to poor performance.

High temperatures combined with high relative humidity are particularly detrimental in broilers over 3 weeks of age. Since chickens do not sweat, they must rely on their respiratory system for evaporative cooling. If the humidity is high, the air is nearly saturated with moisture, and birds become unable to lose their heat laden moisture. Poor air movement in small poultry houses during hot, humid weather can result in excessive broiler mortality, especially when the broilers are approaching market weight. When temperatures in the nineties combine with high humidity, broilers reduce or cease feed consumption, increase water intake, sprawl across the floor, pant, and act listless. Prolonged exposure to these conditions results in a reduction in growth which may never be compensated for or overcome by the broiler. Heat stress can even occur in new chicks, but, generally the larger, heavier birds are most susceptible.

Moisture and the effects of heat stress can generally be reduced by increasing the ventilation rate (airflow) in the pen. A box fan (or inexpensive window fan) blowing air directly across birds can be as effective as any elaborate system. As with temperature, the proper ventilation rates can be determined by chick behavior. Watch for signs of crowding around the air flow, indicating too little air flow or too hot a pen.

If there is too much ventilation, chickens will move away from the air flow. Rate adjustments should be changed in small increments to allow birds to adjust and for conditions to stabilize. The air flow should be adjusted until all birds are uniformly spread across the pen, and some are eating and drinking.

## Lighting

Broilers perform best if given as many hours of light as possible with a combination of natural and artificial lighting for 24 hours daily. The lighting increases body weight gain and improves feathering, especially during the summer months. If you are using heat lamps, they will supply all the light you need. Once the heat lamps are removed, provide another source of light. Use a 75-watt bulb on "dark" days. Have a small light - - 15 to 40 watts per 200 square feet of pen space - - for night use to offer a restful setting, yet keep chicks from piling. One or two bulbs hung 6 feet above the broilers should be adequate. Some use an inexpensive electrical timing control to turn off the lights for 10 to 15 minute periods once or twice each evening. The darkness is a safety factor. In the event of a power failure, chicks will be accustomed to the lights going out during the night and should not panic and pile on each other.

## Feed and Water

Raising broilers for competition demands utilization of the most nutritious feed available so that the broilers can attain their greatest potential. Feed must supply balanced and adequate levels of protein, energy, calcium, phosphorous, vitamins, salt, and trace minerals essential for muscle, skeletal, and immune system development. As the broiler matures, the growth rate begins to slow. Therefore, the protein needs begin to drop while energy needs increase because now the bird must not only grow, but it must also maintain the tissue it has already developed. Since growth occurs rapidly, a continuous supply of clean and fresh feed and water is essential.

Check with your local feed dealer at least two weeks before your chicks arrive to be sure that the type of feed required will be available, or can be ordered if necessary. Always use the freshest feed possible. Do not purchase more feed than will be consumed within one or two weeks, as the feed will lose some of the nutritional value, become stale, and lose its palatability.

Feed is usually the most expensive production cost with broilers. While a complete feed is the most expensive, such commercial feeds contain an adequate balance of nutrients indispensable for maximizing growth. It is absolutely essential that broilers receive a quality starter feed containing at least 20 to 23 percent protein. Lower protein feeds will simply not do the job if the broilers are to achieve optimal growth.

If broilers are to be exhibited in a show without a maximum weight limit (ceiling), chicks can be started on a high protein (27 to 30 percent) turkey or game bird starter to stimulate additional growth. Feed the higher protein feed for a week or two, then switch to the broiler starter for a two or three week period. After 4 weeks they may be fed an 18 to 20 percent grower feed.

A coccidiostat should be included as a medication in the feed to control and prevent coccidiosis, a disease of young chickens - - particularly those grown on litter. A common one is amprolium fed continuously at .0125 percent. Be sure to follow label recommendations if using medicated feeds. Some coccidiostats must be removed from the feed several days prior to butchering, while other coccidiostats do

not need to be removed. Check the feed tag or label in order to make sure the proper withdrawal time, if necessary, is adhered to. While certain water soluble medications can be used, the use of medicated feeds minimize the day to day preparation necessary to maintain drug activity and usually results in more precise dosage levels.

A growth enhancer, such as antibiotics or probiotics, in the feed also helps birds attain their best performance by facilitating nutrient absorption and preventing the development of disease causing microbes in the digestive tract. BMD 18 ( Bacitracin Methylene Disalicylate) fed at an 18 grams per ton level is commonly fed to broilers for growth promotion and improved feed efficiency. Live, naturally occurring micro-organisms such as Lactobacillus and Streptococcus faecium are also often supplemented through inclusion of dried extracted fermentation solubles in the feed. The use of steroids is prohibited by law, and, in addition, research has shown no benefits from steroid use in modern broilers.

Broilers must have sufficient feed and water space to grow to their utmost potential, and the amount of required feeder and waterer space increases as the broilers get bigger. Initially, arrangement of feeders and waterers should be done at least a day before the chicks arrive. The light and heat of the brooding area will attract chicks to the feed and water. In a proper brooder setup small, 1 to 2 foot long shallow trough feeders should be positioned like spokes of a wheel radiating out lengthwise from the edge of the heat lamp shields toward the brooder confinement ring. Thus, the chicks can feed where they are comfortable along the feeder and are not prevented by the feeders from moving toward the heat if they become chilled. If feeders are placed in an arc parallel to the edge of the confinement ring, the chicks on the outer side of the feeder away from the heat may pile together when they become cold and will be blocked by the feeder from moving toward the heat at the center of the ring. There needs to be enough feeder space for all chicks to eat at one time. For the first 2 weeks allow at least 2 linear inches of feeder space per broiler chick. Fifty chicks will need at least four 1-foot long feeder trays.

The waterers should be placed one between each feeder at the edge of the heat zone. Four 1-quart jars work well the first week if cleaned and refilled each morning and evening. Chicks need 1-inch of waterer space apiece. After that, use four 1-gallon waters for the next 3 weeks. Since supplemental heat is necessary for at least the first week for broiler chicks, placing feeders and waterers near but not directly under the heat is important. Both feed and water can become too hot for the chicks to eat and drink. If feed or water is warm when touched with your wrist, then it is too warm for the chicks to eat.

Shortly before arrival of the chicks a 3 or 4 foot square piece of light colored cotton cloth (such as from an old bed sheet) may be placed over the litter under the heat lamps. One end of each feed trough can be used to help hold it in place. This will prevent the chicks from eating the litter, reduce the possibility of the chicks from becoming spraddle-legged, and provide for easy access of feed sprinkled on top of the material. Do not use newspaper, as it is too slick and the chicks will struggle to stand up and will slip and slide as they try to move about on it resulting in spraddle-legged chicks.

Fill the waterers with lukewarm water to which you've added 2 or 3 tablespoons or up to 1/4 cup of sugar per gallon (for the first day only). This offers quick energy to the new chick after the stresses of shipping. Discard the leftover water after 12 hours and scrub and refill with clean, fresh water to avoid bacterial and algae growth - - particularly after using a sugar solution. The first couple days the water in the waterers should be at room temperature. Chicks start better if disinfectants or other chemicals are not added to the water. It's easier on their digestive system. So, do not medicate through the water at this time.

If the chicks have been shipped by U.S. Parcel Post, examine them to be sure they arrived in good condition. If the shipment was insured and the chicks arrived in poor condition have a postal employee inspect the shipment. Take the box of newly arrived chicks direct to the brooding area. To help get the chicks off to a good start, individually remove each chick one at a time from the shipping box, dip the chick's beak into the prepared water, and carefully place it on the cloth under the heat lamp. Chicks will normally be thirsty when they arrive. A taste of water right away stimulates them to find more water. Most baby chick loss is caused by the failure of chicks to drink right away. In fact, let the chicks drink for at least one hour before offering them feed. To help them find water on their own, try putting a few shiny marbles in the trough of the waterer to attract their attention. Never let them run out of water. Broilers must have access to fresh, clean water at all times. Feed consumption is directly related to water consumption.

After an hour, or so, fill the shallow feeder trays heaping full with the medicated starter feed. Also scatter some feed on the cloth under the heat lamps allowing the chicks to walk on the feed, thus locating it and starting to eat sooner. Chicks may need special help to locate the feed. Since young chicks do not have the natural instinct to peck at noticeable items on the ground, a contrasting color or texture in the feed or even the feeder can help them first locate and taste the feed. Finely cracked yellow corn or chopped hard-boiled egg yolks sprinkled on top of the starter feed may encourage them to start eating feed right away and get the chicks off to a good start. Make sure you use troughs low enough so the chicks can see and reach the feed easily. Those first sips of water and taste of feed are a stimulus to continue to drink and eat. Chicks should be carefully watched for the first hour or two to be sure they are finding the water and beginning to eat. Feeders during the first 3 days should continue to be filled to the top.

"Starve outs" can be easily identified during the first 3 days as those chicks that stand around and show no interest in eating or drinking. They usually begin to display signs of dehydration: thin spindly legs, hunched-up appearance, and general listlessness. Time must be spent to pick up these chicks and redip their beaks in water. Once the chicks begin to drink they will usually eat, but they will not eat until they have learned to drink.

Once in a while the stress of shipping causes the chick's first droppings to stick to its bottom behind its legs. Poultrymen refer to this as the rear end "pasting up". It is important to remove this daily. Pull off gently, or better yet, use a cloth and warm water to soften and wash it off. As the chick begins to drink and eat, assimilate its food and water, and begins to grow, it will disappear in a few days.

Full feed the broiler chicks around the clock for the first 5 days. Use plain fresh water for the first 2 days. High quality broiler starters have all the essential nutrients available that are needed by the rapidly growing chick. An adequate level of vitamins is normally present in the diet to prevent leg weakness. However, many growers feel adequate vitamin intake can be ensured and leg problems minimized by adding water soluble vitamins, electrolytes, and biotin available in special "broiler" or "biotin stress" packs to the water at the manufacturer's recommended level for the third through the fifth days. The biotin helps prevent slipped tendons and cracked pads. If per chance a chick does become spraddle-legged, fasten a soft cord to one leg at the ankle, and then to the ankle of the other leg. Leave a space between the legs as it normally should be. The chick will be able to walk with this support. Usually after a few days the cord can be removed.

Do not add vitamins and electrolytes past this period. Continued high levels can create health problems. The addition of medications to the water and feed for the sake of simply giving the birds medication is not recommended. Sulfa drugs used indiscriminately can lead to kidney damage. Over use

of antibiotics can lead to vitamins being chemically tied up or the antibiotic being ineffective if needed later for a specific treatment. If chicks actually are sick, terramycin is usually used at recommended dosages as suggested on the package. If service work such as debeaking becomes necessary, then vitamins and electrolytes can again be used in the water for 3 days. The proper use of vitamins and electrolytes in the water when actually needed will help prevent leg weakness and other problems in broilers.

Starting the third day, sprinkle chick grit on the feed daily as you fill the feed troughs as if you were salting your food. Be sure to use the proper sized small chick grit, and avoid putting on too much at any one time as the chicks may fill up on it instead of the feed. This improves feed efficiency and reduces total feed cost because the gizzard uses grit to grind and prepare the feed for easier digestion. After a week, or so, the grit can be put in a separate container for free choice consumption.

When growth rate exceeds the genetic potential of the broiler, leg weaknesses and ascites may occur. The muscle mass develops faster than the legs, lungs, and heart. Thus, the slower growing bones of the legs are not always capable of supporting the rapidly accumulating body flesh. Likewise, lung and heart size in proportion to body weight also decreases as the broiler grows. The broiler's high metabolic oxygen requirements increase pressure and creates strains in the pulmonary and circulatory systems. These stresses lead to ascites, or accumulation of fluids in the body cavity and heart attacks -- often called "sudden death" or "flip overs", which occur in 2 to 15 or 20 per cent of the birds in some broiler strains. Occasionally, you will find these "sudden death" birds lying on their back. That is a sure indication that the broiler has succumbed to a heart attack due to their rapid growth.

Ascites -- "flip over" or "sudden death" -- can be prevented or minimized by reducing the broiler's oxygen requirements. Reducing feed and slowing growth lowers the metabolic oxygen requirement. Slowing a broiler's growth at the beginning so that heart and lung size matches muscle (meat) development is very essential. Care to prevent chilling is also necessary. Environmental temperature, humidity, and air movement should be controlled to prevent excessive loss of body heat.

Therefore, after full feeding the chick for the first 5 days, one must restrict them to slow down the growth rate. The evening of the fifth day at about 7:00 P.M. remove all feeders and feed from the chicks (leave the waterers with water, though). The next morning fill the feeders, place in the pen, and let the chicks eat all the feed they want all day long. That evening, again remove all feeders and feed, and replace the next morning. In very hot conditions, the procedure could be reversed so the birds are resting during the heat of the day and eating during the cooler nights. Irregardless, they must be completely out of feed for 10 to 12 consecutive hours. Repeat this same procedure every day from then on to the day before slaughter. Actually, this will not noticeably slow their growth, but it will significantly reduce the "sudden death" or "flip over" syndrome.

The large commercial broiler growers address the ascites, feed, and light issue with more sophisticated programs. First, they leave feed and water in front of them at all times, and since time is limited, they use only the best feed. They consistently ship thousands of broilers weighing 5 to 5 1/2 pounds in 7 weeks (42 days) with less than a 3 per cent death loss. Days 1 to 3, they bright light the birds 24 hours a day. Days 4 to 15, they dim lights for 12 hours and darken for 12 hours. Days 16 to 22, they dim lights for 16 hours and darken for 8 hours. From day 23 to market, they dim lights 23 hours and darken 1 hour. "Bright light" is just enough light to comfortably read with, and "dim lights" is just enough light to read by straining your eyes.

Never attempt to accomplish the same effects by feeding grain only rations or by drastically lower protein feeds. That can cause severe and permanent leg and joint problems. So, do not try to cut corners by diluting down the rations with grain during the first 4 weeks. Doing so will dramatically slow growth, may stunt the chicks, and will cost you dollars in the long run.

A practical way to decrease leg weakness, and death due to leg problems, is to place the waterers and feeders on opposite sides of the pen after the chicks are 1 or 2 weeks old. The greater distance between feed and water leads to an increased level of physical activity. Neither weight gain nor feed efficiency are negatively affected. However, the increased walking activity apparently activates the bone building processes of the tibia -- dramatically curtailing leg problems.

It will probably take 15 to 20 pounds of feed to carry the broilers from day-old to 49 to 56 days of age. That figures out to 2.0 to 2.25 pounds of feed per pound of gain. That is excellent feed efficiency. However, feed wastage must be controlled to attain these efficiencies. Feeders must have feed in them at all times during the day if maximum growth is to be realized. To control and prevent feed wastage, feed troughs should only be filled 1/2 to 2/3 full so birds are less likely to scatter feed into the litter. Also, raise the feeders up off of the floor as broilers grow to prevent litter, feathers, and defecation from getting into the feeders. The edge of the feeder trough should be kept at a height that is nearly level with the broilers' back when they are standing upright.

Be sure that all chicks have adequate feeder space so that of them can eat at the same time. Use smaller feeders for the younger chicks, but replace them with larger ones as the broilers grow. Chicks will need at least 4 linear inches of feeder space from 2 through 4 weeks of age. From then on until the end of the project allow 6 inches of feeder space per bird. Dry feed should be available at all times during the day. If the exhibitor allows the feeders to become empty, the broilers may grow at a slower rate, or even start picking each other.

After the first week or two, consider using a hanging tube feeder. Tube feeders are recommended because they hold an ample supply of feed, can be easily adjusted for height as broilers grow, and are less likely to cause bruises than are horizontal trough feeders on the pen floor. From 2 to 4 weeks of age, at least one tube-type feeder per 25 broilers is required. After 4 weeks, one tube feeder is needed for every 12 to 15 birds. Not only must trough height be adjusted as needed, but adjustments must be made to control the level of the feed in the trough.

Broilers must have access to clean fresh water at all times. Under normal conditions chickens drink 2 pounds or 1 quart of water for every 1 pound of feed eaten. Therefore, adequate waterers are necessary to optimize growth. You will need to provide at least 1 linear inch of waterer space per broiler chick. For 50 chicks, four 1-quart waterers can be used to start with for the first week. Then switch to four 1-gallon waterers. More waterers, or larger waterers, are needed for broilers over 4 weeks of age or in hot weather. Waterers need to be emptied, rinsed, and refilled with fresh water twice a day. Water spillage should be minimized, since wet litter around the waterer can favor the proliferation and transmission of disease organisms. Like feeders, waterers should be raised as birds grow. The lip of the waterer should be just slightly below the height of the broiler's shoulders and back when it's standing up-right.

Some exhibitors add 2 tablespoons of apple cider vinegar per 1 gallon of water (which is free of any antibiotics or other medications) once a week. They contend that the vinegar mildly acidifies the gut of

the bird, lowering the pH, and thereby stabilizes the gut flora, and helps improve absorption of Ca, P, and K. Some claim it also improves feather quality and produces a tastier, lean meat.

It is important to remember that feed intake will affect the growth rate tremendously. So any method that will increase feed intake will probably increase the growth rate of the broilers. The key to successful market broiler project rearing is frequently stimulating the birds to eat. Birds that are rarely stimulated to eat will typically gorge, filling their crops to the maximum when feed is available, then just sit there. Yet, maximum growth occurs when birds are trained to eat a series of "small meals". Training chicks to be "meal eaters" should start at day one and be consistent throughout the rest of the life of the broilers. Training can be as simple as shaking the feed or pouring a scoop of feed into the feed trough.

Broilers respond to attention. Work around the pen, walk among the chicks, add a little feed in the feeders, and stir the litter a few times each day. This disturbs them and makes them move around the feeders and waterers. Since they are creatures of habit, frequently stirring the chicks in a calm quiet manner can also train the chicks to eat several times a day. This will provide exercise and increase feed consumption and growth. At first the chicks may be frightened, but if training is continued in a calm and consistent manner, they quickly learn that the activity means fresh food. Feeding the best chicks available so that all of their nutritional needs are met, encouraging the chicks to eat often, and providing the broilers with an environment conducive for growth enhances maximum market pen gain.

Since eating and digesting feed can generate heat within your broilers, avoid stimulating chicks to consume feed when temperatures become excessive or when birds show signs of heat stress. Any time you see the birds with their beaks open and breathing heavily or panting, suspect that they are too hot. Research shows that what broilers do eat during heat stress periods is poorly utilized for growth and development. Keeping the birds from becoming overheated will stimulate them to eat more feed. During extreme heat, increase air ventilation flow and encourage broilers to eat during the cooler evening and early morning hours.

Commercial broiler feeds are designed to produce the most meat in an economical manner. Since the goal of raising broilers for competition is to maximize the performance of the very best birds, and combine that performance with a very attractive eye appealing body conformation, commercial diets may not always be the best choice - - especially toward the end of the finishing period. Market pen judges look for a uniform layer of finish (fat) in and immediately under the skin, especially deposits between the feather tracks on the side of the breast and along the wings. Increasing the energy in proportion to the protein in a ration markedly increases fat deposition. To improve the lustre of the feathers, achieve a uniform layer of finish (fat), and yet maintain growth, various supplemental feeds are often used.

Some participants develop their own special formulas for feeding broilers. During the last 2 weeks before the show, you may want to use a supplemental feed to stimulate feed intake and increase growth. Small amounts of broiler feed simply moistened with water or milk and cooking oil and fed several times during the day will stimulate older birds to eat more and increase gain. This practice can be particularly helpful in hot weather with broilers over 4 weeks of age. It has been observed that broilers prefer feeds with higher moisture levels, but this additional moisture can also lead to mold and spoilage. Do not put out more moistened feed than the broilers can consume in 10 to 15 minutes. Then remove it from the pen. Be certain all birds can eat at the same time. Fresh supplemental feed should be prepared at each feeding and any leftovers discarded. You could give the leftover feed to other birds if you have any, but do not save the moistened feed for a later feeding.

A similar proven supplemental feeding program for the last 10 days to 2 weeks before the show entails “pulling” or raising the dry feed feeders at about 5 or 6 in the late afternoon each day. At this time, mix 12 to 16 ounces of corn oil with 10 to 15 pounds of good cracked yellow corn (corn chops) in a 5-gallon bucket. Stir until all the corn oil is absorbed, then add 1/2 gallon of whole milk, stir again, and let soak for a couple hours. At 7 or 8 in the evening, stir once more and pour into long, raised troughs, topdress with about 1/2 pound of hulled sunflower seed (“hearts”), sprinkle a handful of grit on top of each troughful, then place in the pen. It takes four 3-foot long troughs to feed 50 large broilers. The corn oil, sunflower seed, and yellow corn all significantly raise the energy level of the feed - - contributing to improved finish or fat deposition. Milk is rich in protein and minerals - - helping to maintain the soundness of the broiler and contributing to the lustre and gloss of the plumage. It is fed only at night to curtail heat stress. The regular dry feed ration is full fed as usual during the day. Maintain a source of fresh, clean water at all times.

Another supplemental feeding option is to prepare a “cooked corn” mixture. One formula uses 1 1/4 pounds corn gluten meal, 3 3/4 pounds yellow corn meal, and 5 pounds of regular broiler feed. These ingredients are combined in a large boiler with 3/4 to 1 gallon of whole milk. The mixture is brought to a boil and 3 sticks (12 ounces) of melted margarine are added. The mixture is cooked and stirred for 3 to 5 minutes, then cooled, and fed to the broilers - - separate from the regular dry feed.

Today’s broilers grow fast and will gain about a pound of body weight for each 2 pounds or less of feed they eat. Thus, whatever type of feed and feeding program you use, it is important that your broilers have feed available to them at least 12 to 14 hours each day. That feed always needs to be fresh and high quality.

## Health

Broilers must be healthy to eat and grow to their potential. They must also be healthy to be show quality birds, and show officials will not allow unhealthy birds to be exhibited. Therefore, one must be concerned with disease prevention during the market broiler growing project. If obtained from a clean hatchery source and cared for properly, most disease problems with broilers are minimal. The broilers will be ready to show or be processed for food in just 6 to 8 weeks, so there is not a lot of time to be exposed to disease. Disease and illness can be prevented by proper sanitation practices and by reducing exposure to disease organisms. It is important to never mix your broilers with other birds. You need to keep your broilers isolated and away from all other poultry. The older birds may be resistant to, but still carry, some things to which the young chicks have never been exposed. If you do have older birds, keep them separated and work with the younger chicks first when you do your daily chores.

During the growing period, check the broilers for external parasites (mites, lice, and ticks). Parasites, both external and internal (worms), are seldom a problem where broilers are properly managed and sanitary conditions maintained. Parasites should not be a problem, but if they do occur certain chemicals can be used to control the parasites and also to spray the facility, if necessary.

Medications should not be given unless broilers are sick or stressed. You need to remember that broilers are meat-producing birds, and many medications are not approved for use in chickens that are used for meat purposes. Some exhibitors use medicated feed during the growing project. Be sure to read and follow all labels on medicated feeds. Some medications will require a withdrawal time that should be followed if the broilers are going to be used for processing (food).

Cannibalism (“picking”) may occur. The cannibalistic nature of chickens is increased by overcrowding, poor ventilation (air flow), high temperature, and insufficient feeder or waterer space. Occasionally bright light will also stimulate them to pick. Cutting down light will help, such as shading windows or reducing light bulb wattage. An ounce of prevention is worth a pound of cure. Sometimes, however, they pick for no apparent reason. For chicks that have been picked, smear an anti-peck compound, a menthol-based ointment (such as Vicks salve), pine tar, or grease mixed with hot pepper on the bloody, injured areas. Generally, it is not necessary to trim the beaks of broilers grown for exhibition.

You should always cull your broilers as the flock gets older. Small, sick, stunted, deformed, or crippled birds should be removed during this time. These culls should still make adequate meat-type birds when they are processed, but it is unlikely that will be selected for a show. Culling the birds will allow more room, will increase feeding and watering space, and will reduce social pressure for the remaining birds. Thus improving fleshing, uniformity, and finish in the remaining flock.

Knowledgeable regular surveillance of the broilers and pen conditions should be practiced throughout the growing period. Walk among the broilers daily, observing the chicks closely for signs of discomfort or disease, heat stress, feather picking, and cannibalism. Routinely inspect feeders and waterers, check environmental conditions, and keep the litter dry daily. Apply basic troubleshooting skills when necessary. Expect the unexpected and try to prevent problems before they occur. Last, but not least, provide tender loving care through the use of good bird management, and the broilers will respond optimally to their properly controlled environment.

At most shows it will not be necessary to show proof of a negative pullorum test on the pen since the chicks should have originated from a NPIP clean flock. However, a poultry certificate of purchase from the U.S. Pullorum-Typhoid clean flock of origin may have to be presented to show officials. An official health certificate may not be necessary if an accredited veterinarian is present to inspect the broilers at unloading or shortly thereafter.

Live poultry can be a source of potentially harmful microorganisms: therefore, precautions must be taken when handling and caring for them, to prevent fecal/oral transmission among people. Adults must supervise young children when they handle chicks to make sure they do not put their hands or fingers in their mouth. Do not keep baby chicks or mature poultry in the family living space. Always wash your hands with soap and water after handling poultry.

## Sifting

The last 2 weeks before the show, start observing birds for superior uniformity and fleshing. The largest, heaviest broilers with the most breast meat are generally judged best in competition. The breast is the most valued part of the broiler and will be given the most consideration during judging. Take note of the birds which “catch your eye”, stand and walk well, are bright feathered, and display exceptional muscling. A dimpled breast with bulging muscle is desirable. Individually catch and handle such birds.

To catch, place one hand on the broiler’s back and gently pin it to the floor. Turn the bird so it is facing you; then, with both hands holding the wings to its body, pick it up. To hold and carry a broiler properly, place one hand under the bird so the breast is in the palm of the hand with the index finger between the hocks - - the thumb around one leg and the remaining fingers around the other leg. Place the other hand on the bird’s back to help steady the bird and cradle the bird between your arm and body.

Fleshing should be examined closely. To examine, grasp both legs with one hand allowing the broiler to hang down with its breast toward you. Do not allow the bird to bruise itself by flapping its wings. Breast shape should be as close to a rectangle as possible along the entire length of the keel bone. Keel bones, which are generally examined early in the judging process must be long and straight. The longer the keel, the more meat the breast will yield. To determine breast width and depth, using your other hand place your palm on the breast bone, thumb on one side of the breast, fingers on the other. Then slide your hand up and down, grasping or "cupping" the breast with your palm to determine depth, length, and thickness - - or the total amount of breast meat. The breast muscle should be wide and fully rounded throughout the entire length of the keel bone. The muscle must carry well up to the crest of the bone along its entire length. Normally, birds with a well developed breast will also be heavily muscled in the legs and thighs. Never the less, check to make sure that the legs and thighs have a plump, rounded appearance with the flesh carrying well down toward the hock and upward to the hip joint area.

Using plastic cable ties, leg band the "prospect" broilers that impress you most for easy identification when selecting the final show pen. Don't pull the ties too tight and snip off any excess cable tie with a side cutter. Check each broiler's toe nails - - if long or sharp, trim the nails to prevent carcass damage before the show. Return the broiler gently to the pen, being careful not to bruise the bird. Mark 2 or 3 broilers for each one needed at the show.

Before the show, determine what the judge will be considering in their evaluation of the broiler pens. Different shows have different criteria or score cards. Usually, the market broiler pens consist of 3 or 5 broilers. Regardless of the emphasis, a major factor the judge will be analyzing when he places the pen is uniformity. Modern processing plants rely on uniformity to decrease the number of problems that can occur in processing. The exhibitor will need to make some very important decisions when selecting birds for their pen. Each broiler in the entry pen should be as near a mirror image, carbon copy, or clone of its pen mates as possible in size, shape, fleshing, weight, finish, and even skin color. Uniformity of the birds that you select is of utmost importance. If one bird has a defect, it will affect the placing of the entire pen. Exhibitors often find that their very best individual birds do not match well as a pen entry. In fact, it may be that your best one or two birds will not be selected if another bird, or birds, can not fit well with them. Just prior to the show, catch the remaining "prospects" and select the best pen of 3 or 5 birds (as required by the show) which are the most uniformly well-muscled, along with one or two spares (alternates).

## Selection

Two or three days before the show, weigh each broiler "prospect". Eliminate birds outside the weight range - - just remove their leg bands and return to the pen. Now, examine each remaining "prospect" carefully for physical defects that detract or diminish a broiler's marketability and would cause them to be sifted or downgraded. The health and vigor of a broiler is of great importance. There should be no indication of disease, deformities, or parasite infestation.

Check for cuts and tears in the skin and broken or disjointed bones which would disqualify the broiler. Look for breast blisters, including mucous "sacs", and breast buttons, heavy calluses, or scaly conditions on the breast from poor litter management. Go over the skin for skin or flesh bruises anywhere other than on the wing tip. Wing tip bruises must not extend into any portion of the joint. Also look for insect bites, external parasites, and off-color pigmentation. While a minor detail, most judges and

consumers prefer a yellow pigment. Skin pigmentation normally occurs in the outer layer of the bird's skin and is highly influenced by diet. However, pigmentation is not an indication of finish (fat), so only minor emphasis is placed upon it. Broilers with dark shanks sometimes have extension of these pigments into the skin of the drumsticks, thighs, and abdominal membranes, causing these areas to appear black or greenish. These birds should not be shown if better quality broilers are available. Never show a bird that is infected with mites or other external parasites.

The judge will look at the overall shape or conformation of the bird. The ideal shape of a broiler should be rectangular. A long and straight breast bone, free from defects such as dents or knobs and carrying well forward and back between the legs and parallel to the backbone, a long and wide back with a broad spring of ribs, and a full and deep body consistent with breast width giving the bird three dimensional balance are the positive traits that the judge will be searching for. A larger frame offers more room for muscle so that the larger bird should yield more meat.

Determine if the breast bone is dented, crooked or curved, "V"-shaped, "knobby", or not parallel to the backbone. Is the back narrow, crooked, or hunched or humped? See if a leg or wing is deformed. Is the bird wedge shaped rather than rectangular? Eliminate all defective and questionable "prospects". Simply remove their marking bands and return to the pen. Defects such as crooked toes or beaks are not as important in the processed carcass, so they can usually be disregarded if these broilers are adequately fleshed and you do not have enough other birds to use in the final entry pen.

Check the degree of finish. Finish refers to the amount of fat that is found in and just under the skin. The judge will look there for a uniform layer of fat indicating the broiler is well-finished. Without an adequate finish, a well-fleshed broiler will lose a great deal of eye appeal. The fat deposition in the skin between and in the feather tracts on the side of the breast is the best indicator of finish. There must be a noticeable amount of fat in these areas. The skin of the abdomen should feel thick when pinched between the thumb and forefinger. The condition of the web of the wing is also indicative of the amount of fat deposited. The amount of finish that is considered adequate will vary from judge to judge, and will more or less depend on his personal preference. Broilers should not be fat to the point of being wasteful. Both finish and fleshing develop with age. Do not confuse finish and pigmentation (skin color).

Analyze the feathering on each "prospect" that remains. Today's market birds generally have light colored feathers. However, feather color is important to the extent that it might detract from the appearance of ready-to-cook poultry. Evaluate for multiple pin feathers, particularly those just coming through the skin and without sufficient "brush" on them to facilitate picking. Check for areas of skin which may be discolored because of broken quills or "burn" resulting from inadequate feather or "bareback". Eliminate those with an abundance of immature feathers, patches of bare skin, or damage from cannibalism. Discard extremely dirty or "ragged" feathered birds. A few broken feathers may be acceptable because these birds are not being shown in an "exhibition" class. A lack of feather covering over the keel area (breast) of well fleshed birds is not a defect and must not be considered as such.

By now it should be obvious that selection is simply the systematic elimination of any broiler with questionable or defective qualities. One can now select the final market pen entry from the few remaining "prospects." These were handled earlier to evaluate their muscling and just survived examination for conformation, finish, and feathering, and should be free of any defects. The breasts, thighs, and drumsticks carry the bulk of the meat and will be examined closely by the judge. While all must carry an

abundance of bulging muscle, the breast is the most valued part of the broiler and will be given the most consideration during judging.

Double check fleshing at this time. Make sure the breast is well developed and evenly muscled on either side of the keel. The breast must be long and wide, carrying the muscle width well back to the very end of the keel. The breast must be sufficiently well fleshed to create a rounded appearance from the flesh being carried well up to the crest of the keel or breast bone. Of lesser importance, but often a tie breaker in close competition, make sure there is adequate fleshing on the back along the vertebrae and around the hip bones. A broiler well muscled in one area is normally well muscled in all areas of the body.

Finally, observe these remaining “prospects” and assemble the pen of 3 or 5 broilers with superior fleshing that fit together with the most uniformity. If numbers permit, include an alternate. If possible, place these final “keepers” in a special separate pen with plenty of clean, fresh pine shavings.

## Preparation

Preparation is the final act in putting your bird in front of the judge, and the public. It is most important to give a good pen of birds a chance, so it is up to you to present the pen in top condition and help in its final presentation. At the show, the general appearance of the broilers should not only impress the judge, but should leave a positive impression of poultry to anyone passing by your cage. The market broiler en-try pen must be clean. When the broiler housing is kept clean and the litter was properly stirred and cleaned as needed during the project, the broilers will be reasonably clean. If you’ve done an adequate job raising the birds, washing them may not be necessary. Poor litter conditions, overcrowding, or unclean facilities will result in dirty feathers. Dirty birds are a reflection on the exhibitor and may be discriminated against during judging. A soiled broiler indicates that the owner spent little time on the project.

If feathers are soiled and you feel they need to be cleaned, wash them at least 2 or 3 days ahead of time. Use a warm room free of drafts with a temperature above 70 degrees, or do it outside on a warm, sunny, relatively still, day. Fill a large tub half full of warm water to which you’ve added a mild shampoo or a pure, “soft” soap such as Ivory, Cheer, Lux, or Casteel. Detergents may be too harsh on the feathers, making them dry and brittle. Make an abundance of good suds before putting the bird into the water. Grasp the broiler with both hands and lower it gently into the water, holding the wings so they cannot be flapped. “Bob” the broiler up and down in the water causing the feathers to “fan” out and to become thoroughly wet. Do not put the bird’s head under water. Then, with the bird standing on the bottom of the tub, release one hand but hold the bird firmly with the other. With the free hand, gently move the feathers on all parts of the body so the soap and water will penetrate to the skin. All feathers must be thoroughly soaked. After the feathers are soaked, with a sponge, or your hand, work the soapy water through the feathers and lather the bird’s body well. Sponge the feathers clean, being careful to wash in the direction that the feathers lay, making sure to rub the feathers from base to tip so as to prevent feather breakage, not to ruffle, or disturb their appearance. Be sure that all dirt has been washed off before removing the bird from the suds. The bird will be clean if it has been washed thoroughly in the suds.

When the plumage has been thoroughly washed, transfer the bird to a second tub of lukewarm water to which you’ve added a small amount of white vinegar, Downey, or something similar, to soften the water and to help remove the soap. Rinse soap from the feathers. To do this, soak the bird for a couple

minutes in the second tub of rinse water. Again, just “bob“ it up and down a few times, then draw it through the water 3 or 4 times against the grain of the feathers. Thoroughly rinse out as much of the soap as possible. It is important to remove all the soap; otherwise, if any remains the feathers will stick, be streaked, and will not fluff out - - and an unsightly bird will result.

Rinse the broiler a third time in another tub of lukewarm water to which you've added a pinch of sodium bicarbonate and a little bit of bluing (for example, Borateem), maybe 2 drops per gallon of water - - just enough to give the water a slight blue color. It is important not to get the water too blue or it will give the plumage a bluish tinge. The bluing helps whiten, condition, and give the feathers a sheen. Too much bluing may dye the feathers.

White birds are then placed in a fourth tub of lukewarm water for a final rinsing. A couple ounces of glycerine added to the water for the final rinse is really beneficial to the feathers. A thorough rinsing in the fourth tub will remove any remaining traces of the soap. When the washed bird is removed from the final rinsing, the plumage should be dried as much as possible. Work as much water as possible out with the hands, then dry with a towel. Just pat and press it dry with a clean towel. Do not rub - - it may damage the feathers or bruise the skin. Place the washed, partially dry bird in a clean pen with plenty of fresh pine shavings, or other litter which will not stain the wet white feathers, to keep the birds from becoming soiled again. Do not move from the warm, draft-free room until the broiler is thoroughly dry. If the weather is warm, and not too windy, birds may be placed outside to dry.

A broiler can be washed in 10 to 15 minutes, but it may take 12 to 18 hours for it to thoroughly dry. Birds should dry slowly for the best appearance. Some exhibitors like to use hair driers to hasten the drying process, but they may fluff or “puff“ the plumage more than is desirable. If a dryer is used, make sure the bird is not dried out fully, as it may make some of the feathers twist. Instead, dry it to about 80 to 90 per cent, then let them finish drying outside in the sun if it's warm, or in a warm room. Must broilers look best if they dry slowly and preen their own feathers. After the birds are thoroughly dry, and again just before showing, you can polish their feathers with a pure silk cloth.

Broilers must be handled gently to avoid bruising. Remember, birds can be bruised easily when you wash them because they're all wet and slippery. Bruises are a major defect. Do not allow the broilers to pile or slap their wings against a hard object, or broken bones and bruises may occur.

The feet and shanks (legs) of all birds should be washed in warm water whether you wash the broiler's plumage, or not. Use a small brush or a soft, old toothbrush and soap or detergent and scrub the legs to remove all dirt and old scales. After drying, rub a small amount of petroleum jelly, olive oil, or baby oil on the beak, comb, and shanks. This will help them stay clean until show time as well as improve their appearance. Do not apply too much as the plumage may become stained. Buff the head and leg parts with a clean, soft rag until all the oil has been worked in, taking care to not get any on the feathers. The day of the show, a mixture of equal parts of rubbing alcohol, glycerin, and olive oil makes an excellent cleaning and polishing solution for the beak, comb, and feet. Be sure not to apply an excess as to give the broilers an oily appearance. Good preparation enhances your broiler pen.

Most of the time, broiler chicks supplied from a central source are identified with specially numbered wing bands prior to shipment to the participant. However, broilers shown at some shows must be identified by special ID leg bands. If so, place the specially supplied leg bands on your selected bands just before you take them to the show. In either case, these wing or leg bands will be used to identify and

verify ownership of your birds at the show. If for some reason a band is lost, contact show management or youth group supervisors immediately.

Do not forget to take feeders and waterers, as well as sufficient feed, with to the show. Plastic 1-gallon milk jugs with a hole or part of one upper side cut out make handy feeders and waterers at the show -- and help to keep the broilers clean. Fast-en in the cage corners to prevent tipping. The jugs can be disposed of in the trash after the show.

## Transporting

Preparation for and care of the birds during transportation to the show is a very important part of having broilers that show well. When the final selection for the show has been made, the last step is choosing a safe coop for transporting the broilers to the show. The coop should allow transported broilers to remain clean, comfortable and free of bruises and broken bones. For transporting the market broiler pen, make sure the coop is large enough, and never put more than 5 or 6 broilers per coop. Do not crowd them, remember that broilers are prone to heat stress and must have adequate fresh air. Dusting the broilers with corn starch helps keep cleaned, white plumage in a freshened condition during transport.

Sturdy welded wire cages 2 1/2 feet wide by 3 feet long and 1 1/2 feet high work extremely well during the typical intense heat of summer. While larger cardboard boxes or pet carriers are often used, adequate air flow, as well as strength, is often limited. Never take birds to a show in a flimsy cage or box. In the bottom of the coop place 4 to 6 inches of good, clean pine shavings so that breasts will not be bruised, and to help keep the broilers clean. Be especially careful when putting birds into the coop to avoid bruising. Put them in and take them out of the coop head first to reduce the incidence of injury and frayed or broken feathers. Do not allow the birds to bruise by hit-ting them against the coop or allowing them to flap their wings. Above all, when carrying the coop or boxes, be careful not to drop the container or do anything that may cause bruising.

Should your trip to the show take more than 2 or 3 hours, place ice cubes in small containers (cans) fastened in the corners of the coop so birds will have access to water during transport. In extremely hot weather crushed ice mixed into the shavings before loading provides an evaporative cooling effect on the broilers during transport. Stop and check them as necessary to be sure they are doing well. Some shows allow contestants to bring an additional 1 or 2 broilers in case a bruise occurs during transportation. If so, check broilers carefully for bruises one final time when unloading and before presenting them to the weigher or sifter.

## Showing

To be able to exhibit birds in a show, you will have received a show schedule prior to the show, and filled in an entry form appropriately. This is usually returned to the show management a few weeks before the show. Arrive at the show in plenty of time to pen your birds. If any are soiled from transporting, wash or wipe off with a rag and do any final touch-ups. They may be immediately inspected by a veterinarian, then sifted or weighed. Make sure your birds have ample litter in their cage, and plenty of feed and water -- whether provided by you or the fair personnel. Determine exactly when and where the broiler pens will be judged, and what is expected of you -- then be there on time. Exhibitors should be

neatly groomed and wear clean, appropriate clothing. Often, they are issued an exhibitor's number which must be worn.

Showmanship is the ability to present your broilers in an attractive way. A successful broiler showman will have a positive attitude and will demonstrate respect for the judge and the other exhibitors. The successful exhibitor will truly enjoy the experience and express that enjoyment through actions and responses during the competition. Depending upon the preference of the judge, and show management, participants may be asked to remove their broilers from the cage, hold, carry, and return to the cage. Members who handle their birds in a calm, caring, and gentle manner tend to be successful. Exhibitors may also be asked questions about the care and feeding of their broilers, as well as other questions related to the project. Participants gain experience in communication skills by listening to and following the judge's instructions. After judging, you may be allowed to ask the judge questions.

