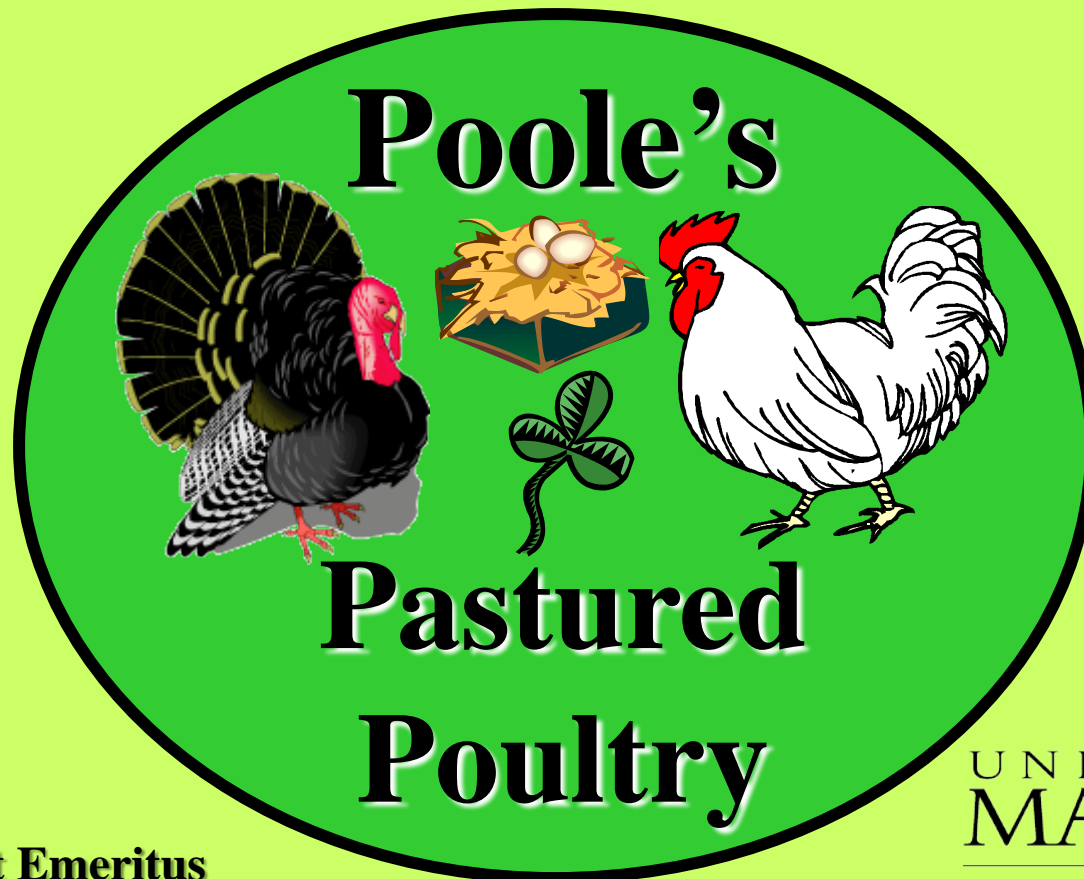


Introduction to Developing a Free-Range Poultry Enterprise



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UNIVERSITY OF
MARYLAND
EXTENSION
Solutions in your community

A man wearing a pink cap and a green and tan fishing vest is kneeling in a stream, holding a large fish. He is smiling and looking towards the camera. The background shows a rocky stream bed and water.

Hey
Poole,
look what I
caught!

Poole's
Pick Your Own
Fish



**There are
risks with all
enterprises.**

Non-Traditional Agriculture: Why Consider a Free-Range Poultry Enterprise?



The Commercial Poultry Industry



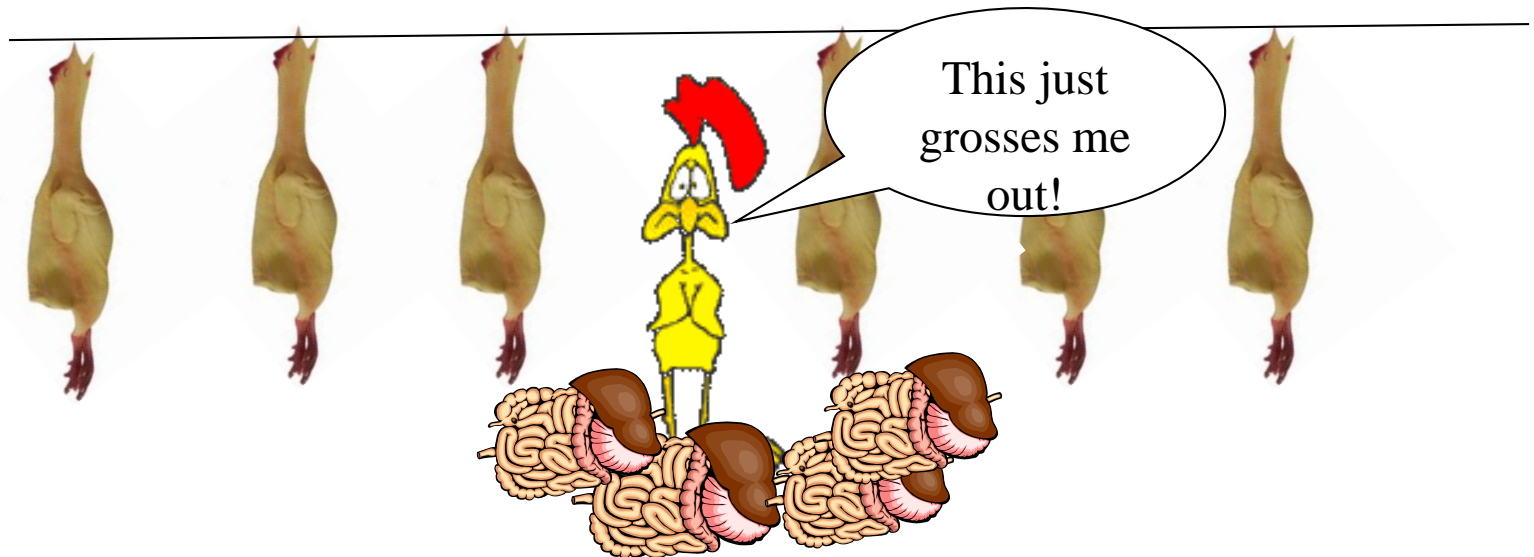
- ❑ The birds are raised in unnatural conditions in confinement houses.
- ❑ Because of the stress on the birds from the crowding and the air they breathe, they receive antibiotics regularly in the feed.



The Commercial Poultry Industry

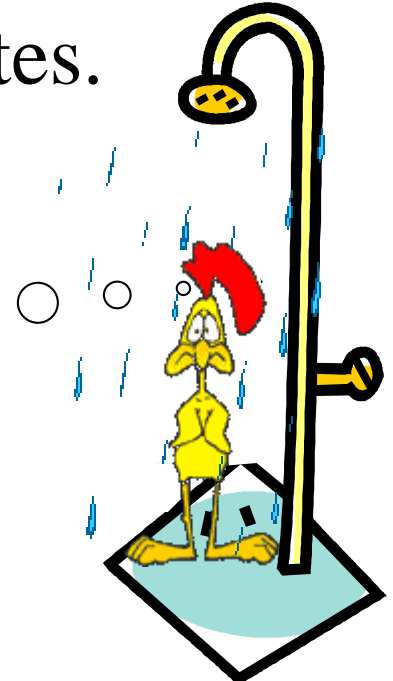
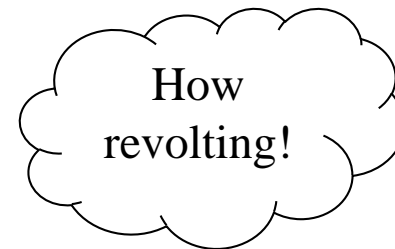


- ❑ Automated processing plants make it difficult to keep the product free of *Salmonella*.
- ❑ Mechanical evisceration breaks open intestines and pours fecal matter over the carcass.



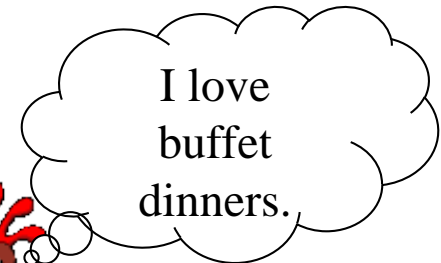
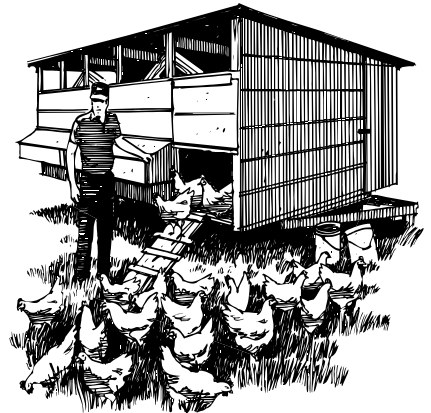
The Commercial Poultry Industry

- ❑ Contaminates on the carcass get into the chill tanks.
- ❑ Birds will receive several chlorine baths in an attempt to counteract the contaminants.



The Free-Range Chicken Alternative for Small Farms

- The birds are raised in a non-stressed environment.
 - * they are not crowded
 - * they have a natural diet of grains, forage, and bugs
 - * they have plenty of fresh air and sunlight



Free-Range Poultry

Alternative for Small Farms

- ❑ The birds are processed by hand, thereby keeping the carcass clean.
- ❑ This is an antibiotic-free system.



Alternative Poultry Production Techniques

- ❑ Free-range
- ❑ Pastured poultry
- ❑ Semi-intensive
- ❑ Yard and crop
- ❑ Innovative



Free-Range

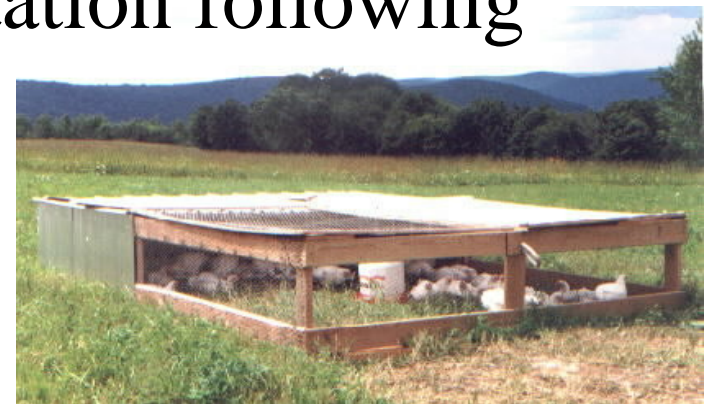
- ❑ Refers to operations using moveable housing and access to pasture.
- ❑ In free-range operations, portable houses or pens are moved regularly so that chickens may forage grass, seeds, and insects.



Pastured Poultry

- ❑ Term used to describe a modification of free-range.
- ❑ A field pen is used where the grazing area and bird density are strictly controlled.
- ❑ Birds are pastured in floorless pens and moved daily usually in a rotation following cattle.

10 x 12 x 2
Holds 75 – 100 birds



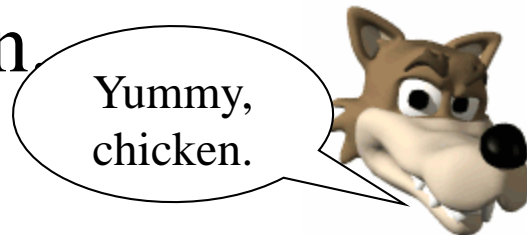
Semi-intensive

- ❑ Refers to permanent housing with access provided to a yard or pasture.
- ❑ Birds in this system should be rotated to different yards, otherwise they will quickly turn a yard into bare soil.



Yard and Crop

- ❑ A catch-all term referring to poultry operations that do not include a formal plan for rotating pasture or have no pasture access at all.
- ❑ Birds are allowed to roam the farm at will, shutting them up only at night for protection.



Innovative

- ❑ Birds forage fallow land in a floorless pen which is moved daily.
- ❑ Birds feed on weeds, seeds, and insects, as well as depositing manure on the ground.
- ❑ The field will be rotated to crop production the following season.



The area can be fenced in, you don't have to have cages.



Free-Range Poultry Enterprises

- ❑ Table birds (meat)
- ❑ Layers
- ❑ Turkeys
- ❑ Ducks
- ❑ Game birds



Ha, ha, you missed me, you missed me!

Table Birds

Oh no, it has
mad chicken
disease!



- Fryers
 - * young birds less than 4 lb.
- Broilers
 - * weigh 4-5 lb. dressed weight
- Roasters
 - * young birds 5-10 lb.
- Capons
 - * males castrated at 3 wks. and sold at 7-11 lb.

Table Birds

How about
free delivery?



- Laying hen with eggs
 - * In-production hen is harvested and her un-layed eggs are displayed with her. Used for chicken noodle soup.
- Stewing hen
 - * Old retired hen.
- Pieces and parts
 - * valued added.



Starting Out

I'm tired
of being
your
maid!



Hey Poole,
we need our
litter
changed.



□ Chicks

- * Least expensive way
- * Less likely to bring in disease
- * Require most care
- * Get chance to know them and they you

□ Started Birds

- * Good deal if you can find them
- * Good for laying flock, saves feeding unproductive birds

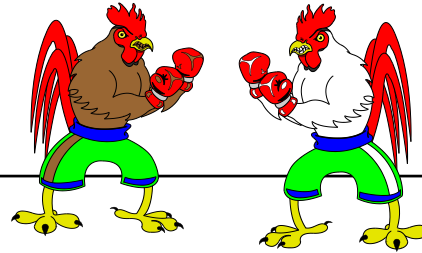


Starting Out

- Mature Birds
 - * Most expensive
 - * Fewest surprises
 - * Actual age is unknown
 - * Disease could be a problem



Starting Out



- Buy 25% more birds than you think you need.
 - * This allows for mortality and culling.
- For laying flock decide on how many eggs you want and size the flock accordingly.
 - * Estimate 2 eggs/day for 3 hens in flock.
- Unless raising cockerels for meat, most birds should be hens. Too many roosters fight.

Broiler Enterprise



- ❑ Start with 50 to 100 birds.
- ❑ You will need about 3 acres of land for each 400 birds you raise.
- ❑ Don't worry about selling this first batch of birds, you want to gain some experience.
- ❑ Plan to use the birds yourself and give some to friends.



Housing Chicks



- ❑ A 6x8ft. room is adequate for 100-200 chicks, 15x15 to 400 chicks.
- ❑ If you run more than 200-300 birds, you need to partition them off.
- ❑ Studies have shown that performance drops off in groups of more than 300 birds.

Housing Chicks

- ❑ Rooms need to be very weather tight; cold, drafty, and damp spaces are lethal to chicks.
- ❑ For heating, some use a combination of red infrared 250 watt electric brooder lamps and propane infrared heaters.
- ❑ However, woodstoves, light bulbs, or other things can work.



Housing Chicks



- ❑ The temperature at the floor level should be 90⁰ F the first week.
- ❑ The temperature can be dropped an average of 5⁰ F / wk. after that.
- ❑ Chicks can handle freezing temps at 3 wks., the decreasing temps help them to get ready.

Housing Chicks

- ❑ Provide more room for the birds as they grow.
- ❑ If warm enough, the birds can be moved to pasture at 2-4 wks. Salatin waits until 4-6 wks., it really depends on the weather.
- ❑ When the birds are ready to stand the night-time temps without piling, they are ready.



Getting New Chicks

- ❑ Remember to control your dog and cat.
- ❑ Commercial feeds such as Chick Starter and Game Bird Starter (21-24% protein) can be used for the first 2 wks. Then shift to a locally mixed ration.
- ❑ Most pre-mix starters have some antibiotics.

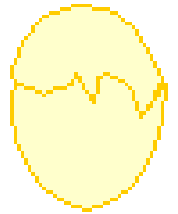


Don't count on city folks for much help either with predators.



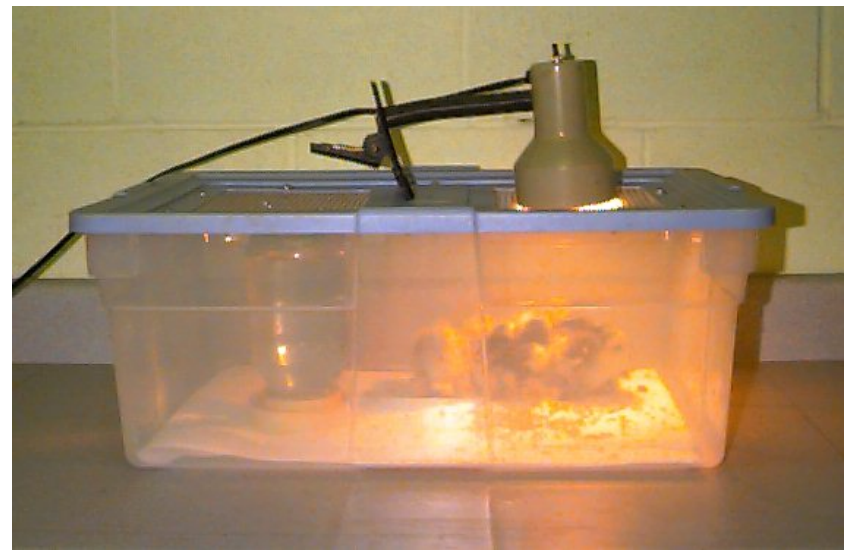
Getting Chicks

- ❑ Initially you will get chicks from a hatchery.
- ❑ Later you may want to hatch your own chicks.
- ❑ Cold is one of the hardest things on chicks.
- ❑ Don't push the season by getting chicks too early in the year.



Getting Chicks

- ❑ You need to be assured that the postal truck handling your chicks will have at least 50⁰ F in non-heated trucks.
- ❑ When chicks arrive you will need to get them warmed up to 90⁰ F quickly.
- ❑ When they are cold they don't eat, their first desire is warmth.



Getting Chicks

- ❑ For 100 chicks, an area of 10 ft² is adequate, a cardboard box with a light bulb hanging down will work just fine.
- ❑ Use a thermometer at chick level to monitor the temperature.



Getting Chicks

- ❑ You will need a waterer and feeder, but initially some newspaper with feed and grit sprinkled on it is okay.
- ❑ You want the chicks to have unlimited access to feed and water.



Moving Chicks to the Field

- ❑ It is best to move the birds early in the morning when it is going to be dry and warm.
- ❑ The birds can be loaded directly into the skid or chicken mobile and towed to the field, or they can be put into chicken crates and taken to the field.

Insulated Pasture Brooder



Moving Chicks to the Field

- ❑ If you do not have a confinement cage system, it is best to keep them in the house or pen the entire first day to bond with the new environment.
- ❑ Otherwise they will leave and not return at dusk.

Not a good way to move chickens.



Moving Chicks to the Field

- ❑ In a skid house system, move it after the birds have gone in for the night.
- ❑ That way, the next morning when they go out they are familiar with the house and will return.

Guess who
was out late
last night?



Bedding

- ❑ Use dry sawdust or wood shavings for bedding; shavings is preferred.
- ❑ You don't want anything that will mat down. Hay, leaves, and straw will mat.
- ❑ Matting reduces manure penetration which leads to the formation of a damp, filthy layer on top.



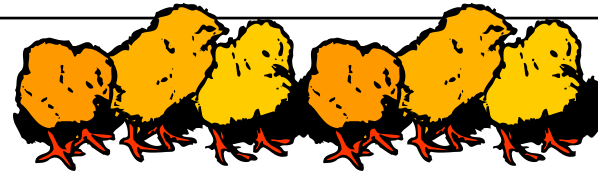
Bedding

- ❑ Wood chips are too big for chickens to scratch around.
- ❑ Wire mesh floors should not be used because they do not allow scratch and are devoid of the beneficial microorganisms that contribute to the health of young birds.



Bedding

I'm not
stepping in
that crap!



- J.S. found a direct relationship between mortality and the quality/quantity of bedding.
- When the brooder was cleaned out and new bedding put in, mortality was higher than if it was not cleaned but only aerated with new material added to the top.

Bedding

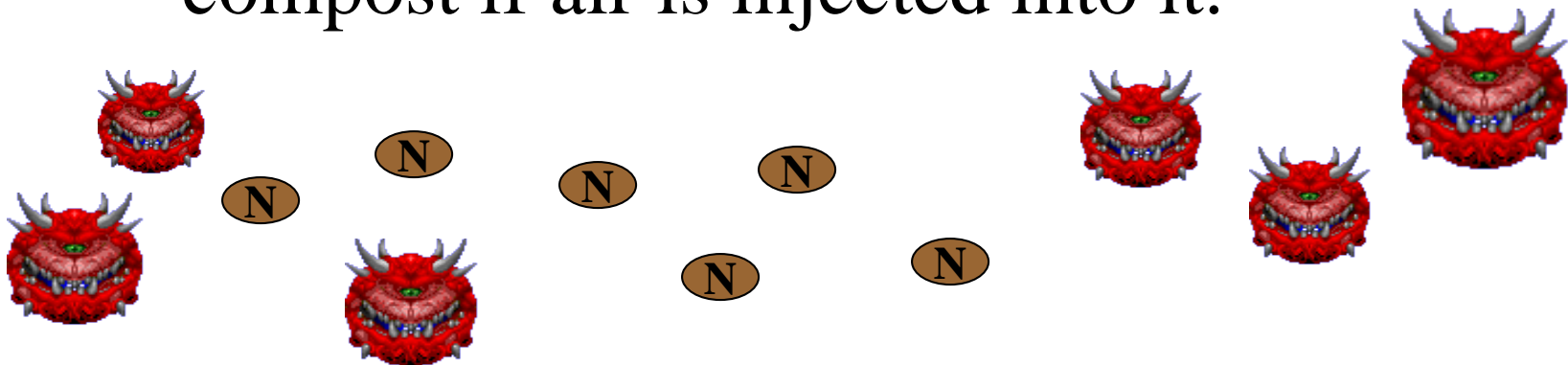


- ❑ The C:N ratio should be 30:1
- ❑ The quickest way to determine if the ratio is right is through smell.
- ❑ If you can smell ammonia, there is not enough carbon to soak up the N.
- ❑ Raw poultry manure is 7:1, cow is 18:1, wood shavings is 500:1

Bedding



- ❑ Carbon bonds to the soluble nutrients.
- ❑ Anytime you can smell ammonia in a livestock facility, spread some carbon-based materials on it.
- ❑ If the C:N ratio is correct, the bedding will compost if air is injected into it.



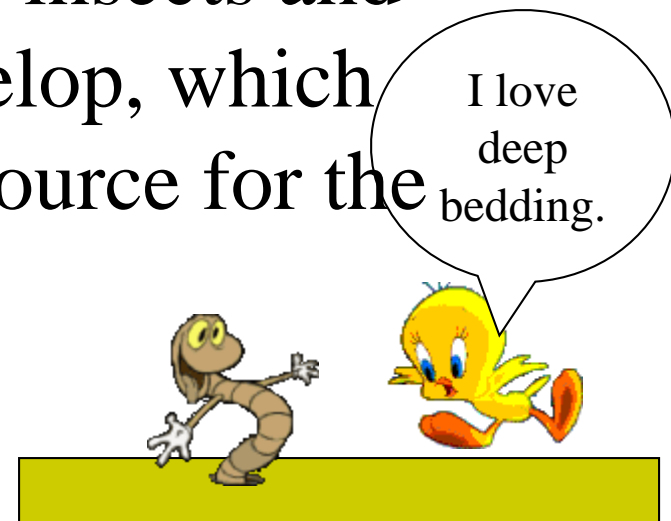
Bedding

- ❑ Between batches, the litter can be wet down with water and then stirred.
- ❑ Next, a couple of inches of fresh shavings can be added on top.
- ❑ In this system there is no big clean out, or sanitizers, or germicides.



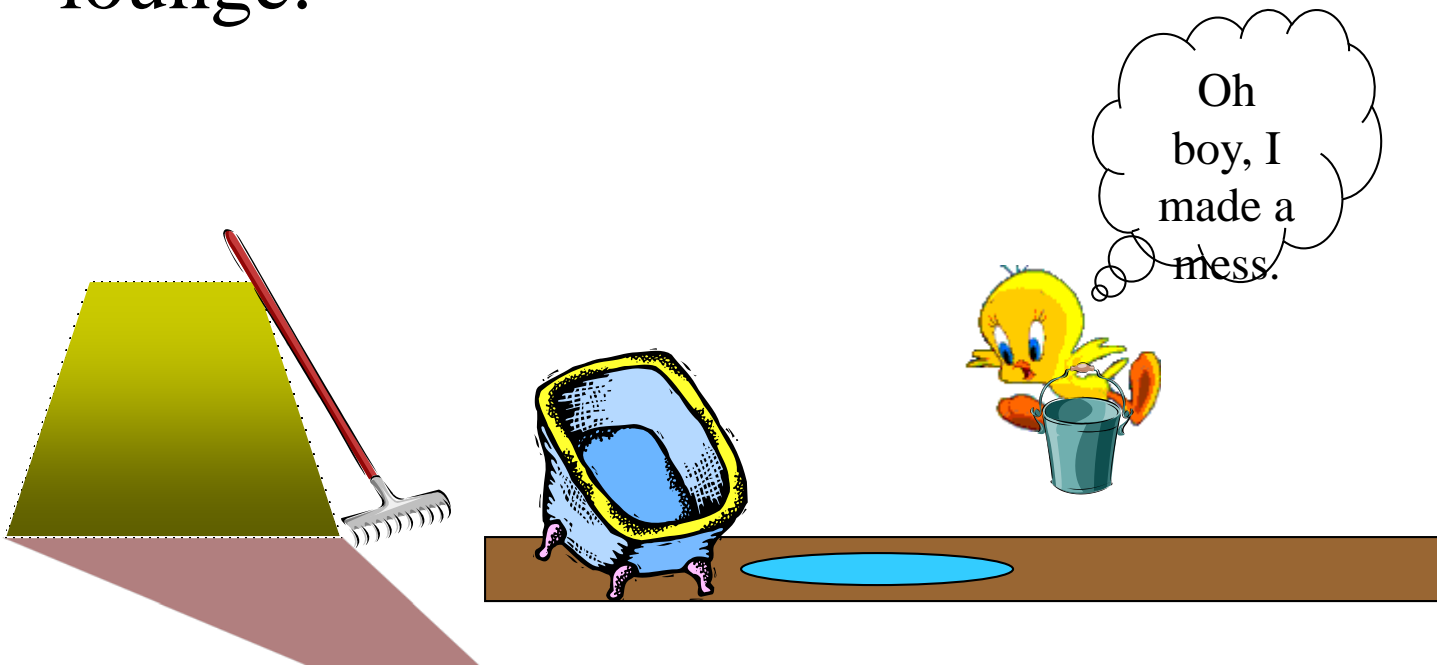
Bedding

- The deeper the bedding the better. The composting action will help to provide some heat.
- Deep bedding grows natural antibiotics and provides an environment for insects and other small creatures to develop, which then serve as a bonus food source for the birds.



Bedding

- Always keep a supply of clean, dry shavings handy to throw on damp spots, especially around waterers and under lamps where birds lounge.



Feeders

- ❑ The birds need enough linear space to accommodate 35-50% of the flock at one time.
- ❑ It is unnecessary to accommodate feeding space for all of them, since chicks spend a lot of time sleeping.
- ❑ When the chicks line up to the feeder count them. If it is not at least 35%, add some feeders.



Feeders



- ❑ Every few days feeder space will change as the birds grow, so fewer will fit around the feeders.
- ❑ One of the easiest ways to foster leg problems in chicks is the stress associated with inadequate feeder space.
- ❑ Make sure that they never run out of feed; it is better to waste some.



Do Not Debeak

- ❑ Debeaked chickens are useless on pasture.
- ❑ Cannibalism in pastured poultry is not a problem.
- ❑ There is no stress, boredom, or nutritional deficiencies.



How can it graze with that beak?



Feeders

- ❑ Trough-type feeders will provide more linear space than round-types.
- ❑ Don't make the chicks stretch for their food.
- ❑ The feeder should be nested into the bedding a half inch or so to make sure the lip does not exceed beak height.



Feeders and Waterers



Where's the beef?

- ❑ Birds want to search down into the feeder, stretching too much can cause leg problems.
- ❑ The lip of the feeder should hit the birds at about breast height.
- ❑ Waterers should be elevated as chicks grow for both cleanliness and drinking efficiency.
- ❑ The waterer lip should be higher than the feeder trough lip.

Grit

1 & 2- Glass jar drinkers
3- Grit box
4- Wall mounted grit or feed hopper

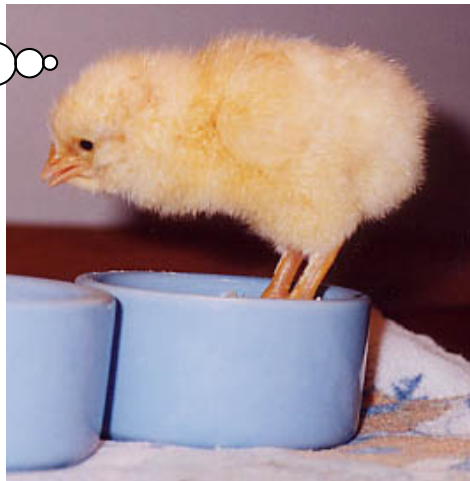


- ❑ You need to get grit into chicks as soon as possible. Silica and grit are necessary to the digestive process.
- ❑ Grit serves as food grinding stones in the bird's digestive system.
- ❑ There are commercially manufactured grits.
- ❑ Some farmers use creek sand and aggregates, which have a more diverse content of minerals and more.

Grit

- As soon as chicks arrive, grit can be spread out onto newspaper along with some feed sprinkled on top of that to insure that the chicks receive a good dose of grit right away.

They call
this a
pool?

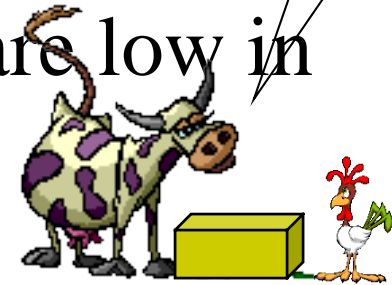


Supplemental Vegetable Matter



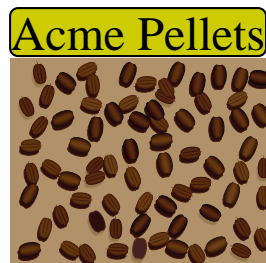
- Hay chaff, lawn clippings, and weed seeds can all be made available to the chicks.
- They are nutritious and stimulate the scratching skills necessary for foraging.
- Caution needs to be taken with feeding too much fresh materials since they are low in energy and reduce the amount of grain eaten.

Get your
own
bale!



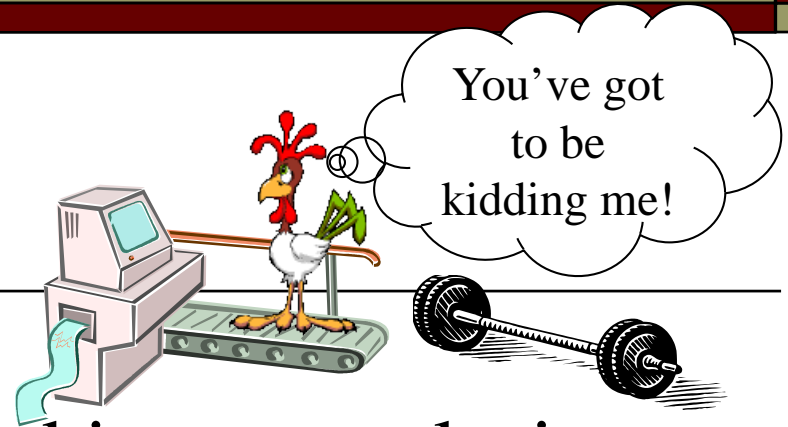
Feeding Poultry

- ❑ Using a balanced, pelleted ration is easiest.
- ❑ Most rations contain corn for energy, soybean meal for protein, and vitamins & minerals.
- ❑ Typical commercial feeds have antibiotics and other stuff to improve health and growth.



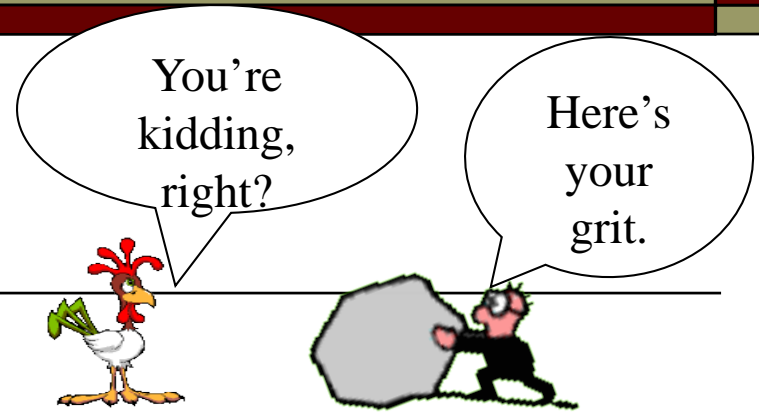
Does
Poole
expect me
to eat that?

Feeding Poultry



- ❑ Chickens are nibblers, making several trips to the feed trough for small meals; this requires energy.
- ❑ So, most commercial feeds are pelleted so the birds have to eat more feed at each meal.
- ❑ However some pastured poultry producers feel that the frequent meals provide exercise and a better meat product.

Feeding Poultry



- ❑ Feeding a fibrous diet requires grit for the chicken's gizzard to aid in grinding food.
- ❑ Most commercial diets are so low in fiber that chickens don't need grit.
- ❑ However pastured poultry will need grit to digest forage, seeds, and other wild stuff.

Feeding Poultry

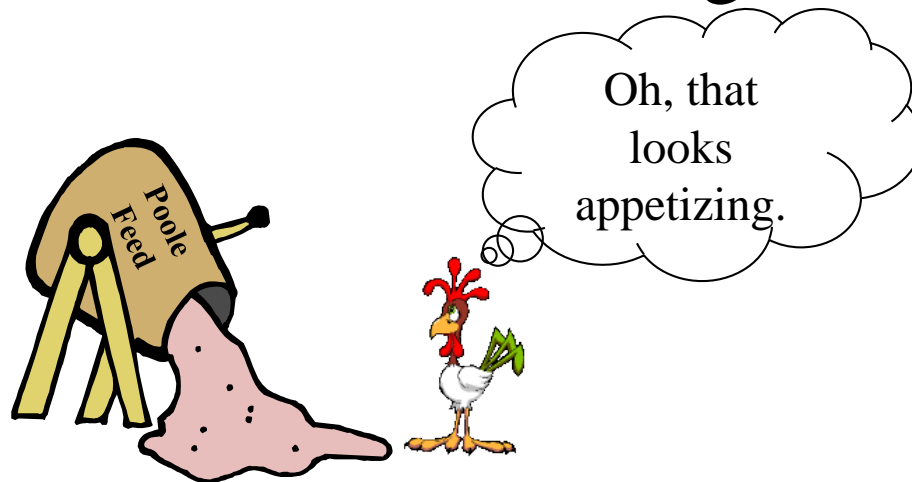


I believe that
I'll have the
Grower with a
side order of
Grits.

- ❑ Different rations are used depending on the production stage of the birds.
- ❑ Starter rations are high in protein, while grower and finisher rations can be lower in expensive protein.
- ❑ Starter is usually 24% protein, grower 20% protein, and finisher 18% protein. Layer is typically about 16% protein.

Feeding Poultry

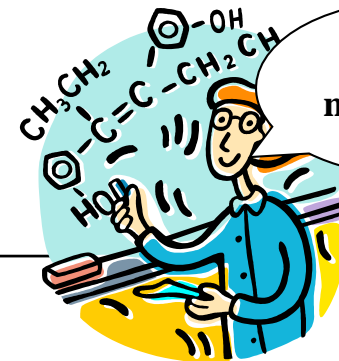
- ❑ Some producers decide to mix their own rations at home to save money and to ensure that it's all natural.
- ❑ Creating a balanced diet is complex and costly for producers with little background in nutrition.



Feeding Poultry



You folks better stay in Poole's class.



Chickens need strong teeth.

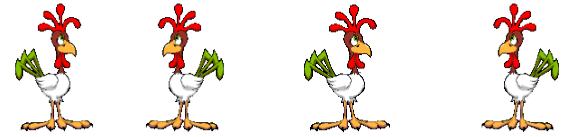
- ❑ Specialized knowledge is required on the nutrient requirements of poultry and the nutrients contained in feedstuffs.
- ❑ Feed ingredients need to be sourced, milled, mixed according to formulation, and usually pelleted.
- ❑ You're better off in the beginning buying commercially prepared feeds.

Feeding Points to Remember

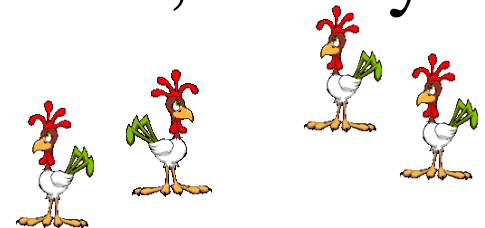
- ❑ Aside from housing, feed accounts for 70% of the cost of raising chickens.
- ❑ Don't feed raw potato peels, cook them first.
- ❑ Don't feed spoiled or rotten feed stuffs.
- ❑ Don't feed strong-tasting foods like onions, garlic, or fish. It will flavor eggs and meat.



Be a Visual Observer



- ❑ If the birds are spread to the edges of the brooder house, it is too hot.
- ❑ If they bunch up under the heat sources and pile up, it is too cold. 🔊
- ❑ They should walk erect and tall and routinely stretch.
- ❑ You should hear happy chirping birds, if they are quiet, something is wrong.



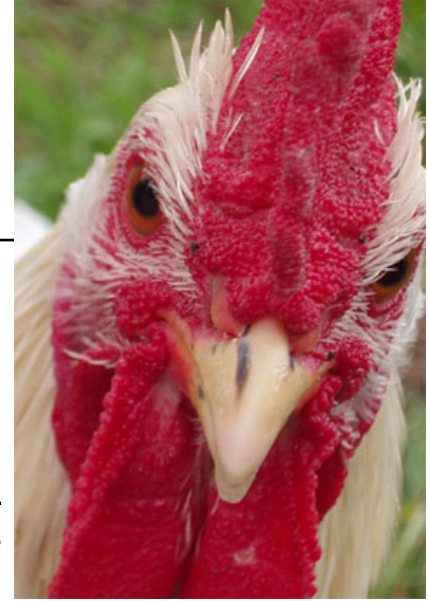
Mortality

- Normally, about 1-2% of chicks die in the first couple of days.
- These are typically runts and those that come from the hatchery sick.
- If your mortality rate rises to 4-5% in the first week, something is wrong.



Intensive Management

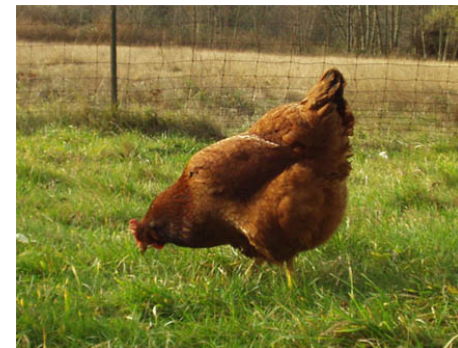
- ❑ A high level of care is necessary if you are going to raise healthy baby chicks and prepare them for foraging without vaccinations, sterilizers, and antibiotics.
- ❑ To raise a nutritious chicken product, it is not enough to eliminate the negatives, positives that stimulate the chicken's ability to thrive must be developed.



Breeds



- ❑ Rhode Island Reds, White Rocks, and New Hampshire Reds are dual purpose breeds.
- ❑ They lay fairly well, are deep bodied and yield a fairly meaty carcass.
- ❑ The Production Red is a genetically improved Rhode Island. It's a better layer, but a smaller bodied bird.



Breeds

- ❑ The White Leghorn is the queen of commercial layers. It's a 3 lb. bird and lays over 300 eggs/year.
- ❑ The Cornish Cross is the king of meat birds. It's a cross between the double-breasted Cornwall chicken and the White Rock.
- ❑ Virtually all of the broilers in the U.S. are Cornish Cross.



Breeds

- ❑ The marketability of the Cornish Cross needs to be considered when selecting a breed.
- ❑ Most of the public are not used to tougher, narrow breasted types of chicken.
- ❑ Niche markets can be developed, however for the other birds of your choice.



Breeds



- ❑ The Cornish Cross does take some management to raise, since it was developed for factory production.
- ❑ The old non-hybrid breeds are hardy and mortality runs close to zero.
- ❑ The non-hybrid birds take 12 weeks to reach 4 lb. rather than 8 weeks like the Cornish Cross. Longer production times yield less palatable birds and lower profit.

Breeds

This can't
be our son!

- Purebreds vs. Hybrids

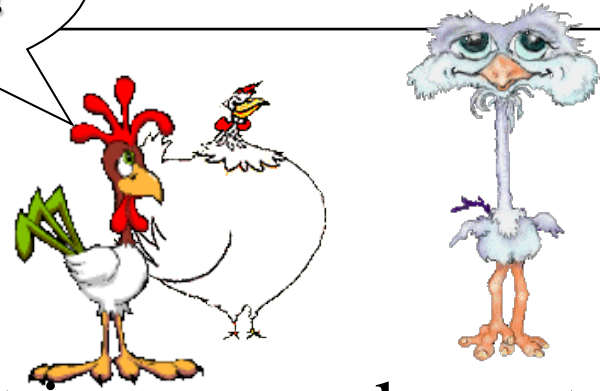
- * This is a big decision

- Hybrids

- * Will be more efficient in egg and meat production

- Purebreds

- * Will produce consistent offspring, if you decide to develop your own replacement flock.



Watch out for those oddball breeds.



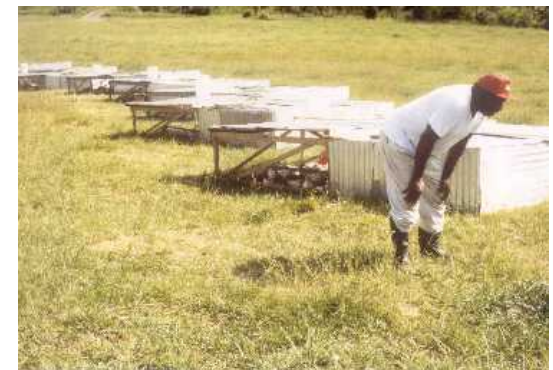
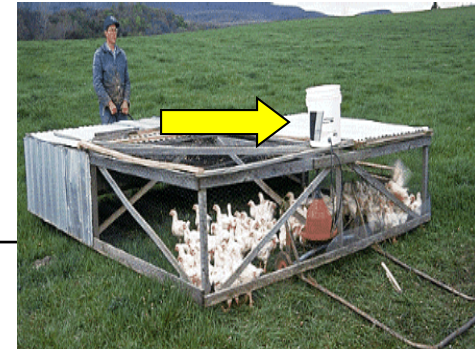
Broiler Pasture Pens

- ❑ Mobile chicken pens used to house grazing birds in the field vary in size and design.
- ❑ They are designed to be moved, so the size depends on the method of moving it.
- ❑ Some will drag the pen with a tractor to the new site. J.S. uses a dolly to pull his 10x12x2 pens that house 80-90 birds.

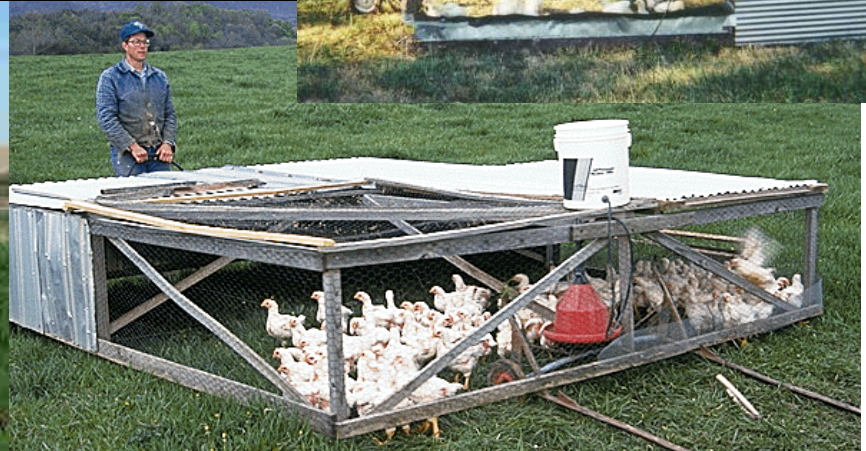


Pasture Pens

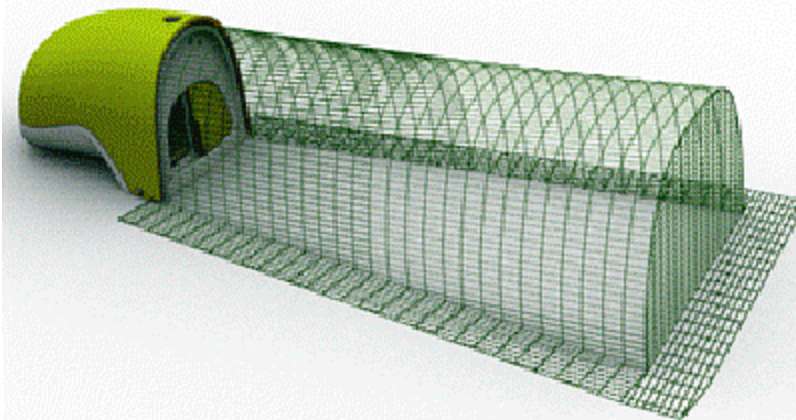
- ❑ Water is critical for healthy, productive birds.
- ❑ Gravity fed white 5 gal. plastic buckets work well (white stays cool).
- ❑ For feeders, some use 6 inch PVC pipe, with one-third cut out at the top then it is hung in the cage.
- ❑ The pens should be arranged in a wing formation in the field so that a hard rain will not wash through one pen into another.



Different Pen Designs



More Pen Designs



Even More Pen Designs



Still More Pen Designs



Still Even More Pen Designs



More and More Pen Designs



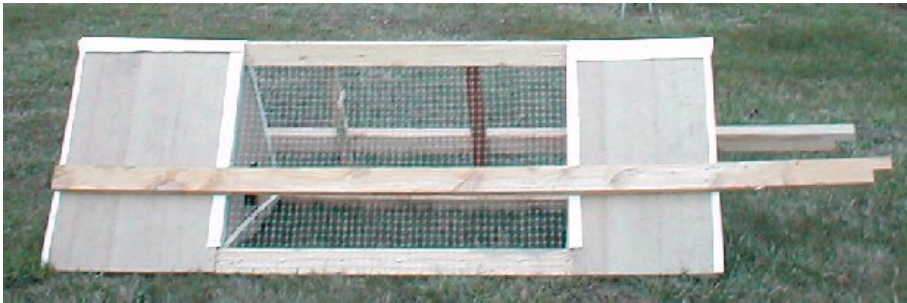
You want more, you got more.



Did I hear someone want more?



Had enough pen designs yet?

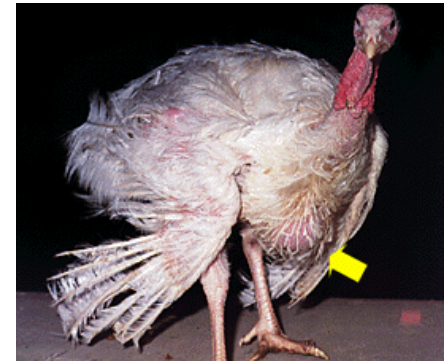


Last of the Pen Designs



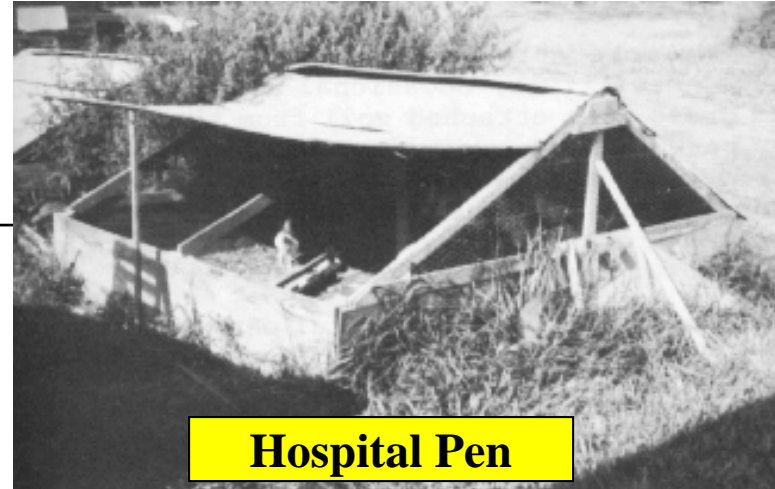
Flock Health

- ❑ This has not been a serious problem in successful free-range operations despite not using vaccines and antibiotics.
- ❑ Birds are not crowded together, are well fed, and have clean water.
- ❑ “All in” and “all out” flocks are best.
- ❑ Pasture rotation is recommended.



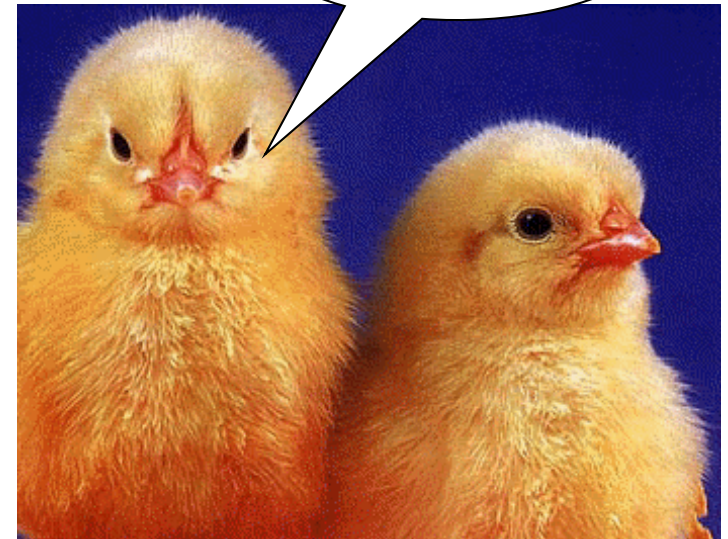
Flock Health

- ❑ Pneumonia will affect young birds, especially if they get chilled. It will run its course.
- ❑ You will have sick birds, so have a hospital pen available to house them.
- ❑ This quarantined area, with its special attention, proximity to feed, water, and pasture is often all that is needed to help them to recover.
- ❑ The hospital pen can also be an area in a stationary house if there is space.



Bio-security

- ❑ Keep a flock history
- ❑ Start with good foundation stock
- ❑ Maintain a closed flock
- ❑ Breed for resistance
- ❑ Medicate only as necessary
- ❑ Provide a sound environment
- ❑ Practice good sanitation
- ❑ Minimize stress
- ❑ Feed a balanced ration



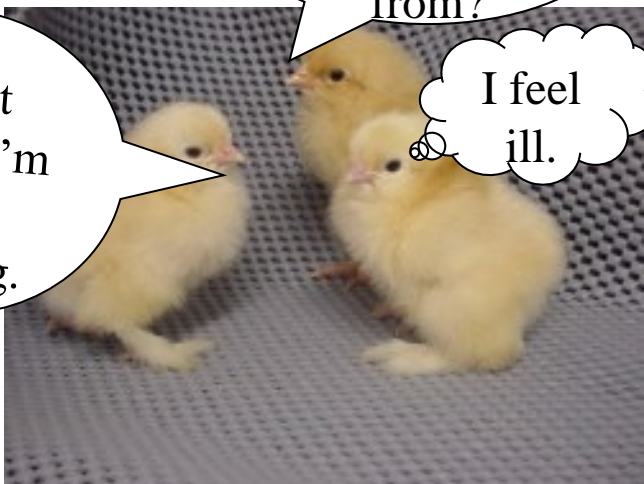
Closed Flock

- ❑ Each flock is exposed to a unique set of disease-causing organisms, so they develop their own set of immunities.
- ❑ Birds from two healthy flocks can therefore give each other diseases for which the other has no defenses.
- ❑ Once your flock is established, the best advice is to keep it closed.



Closed Flock

- Maintaining a closed flock means that you don't:
 - *mix birds from various flocks
 - *bring in new birds
 - *return a bird to your property once it has been elsewhere
 - *visit other flocks
 - *let owners of other flocks visit your's
 - *borrow or lend equipment
 - *hatch eggs from other flocks
 - *allow wild birds free access



Don't worry I'm just visiting.

Where did you come from?

I feel ill.

Sanitation

- Your judgement will determine when it's time to clean out the bedding; J.S. builds his houses to accommodate 18 inches of bedding.
- When it's time, select a warm day so the facility can dry quickly.
- Suppress dust by lightly misting equipment and walls with water and a little detergent.



Sanitation

- ❑ Remove portable equipment, such as feeders, waterers, nests, and cages.
- ❑ Remove litter and droppings (compost) and spread in an area where birds will not range for at least one year.
- ❑ Use a broom, brush, or shop vac to remove dust and cobwebs from ceiling and walls.



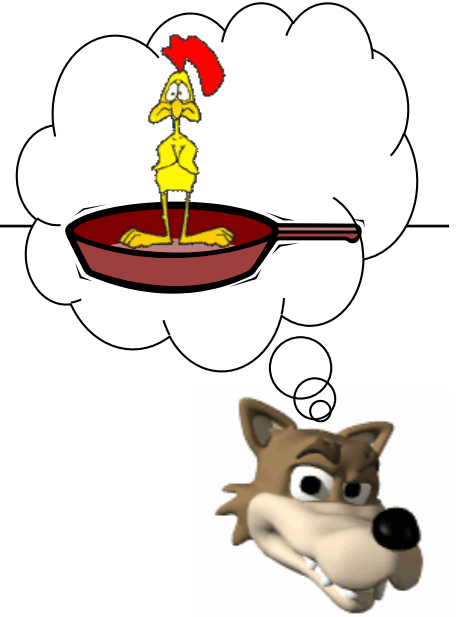
Sanitation

- ❑ Brush, blow, or vacuum dust from fans, vents, and electrical equipment.
- ❑ Use a hoe or other scraper to remove manure and dirt clinging to the floor, walls, and perches. Keep scrapping as long as you see manure or dirt.
- ❑ Apply detergent and hot water to the ceiling, walls and everything washable and brush.
- ❑ Open up and let the room dry before putting in new bedding.



Predators

- Will be the most serious concern to free-range poultry producers.
- Prevention is the best route of action:
 - *keep fields mowed or grazed.
 - *pens moved up close to the edge of the woods of a field are more likely to be attacked by predators
 - *boards can be used to plug depressions in the field along the edge of a cage greater than one-inch to prevent predators from gaining leverage.



Predators: Guard Animals



The Mule Clown



The Chicken Dog

Predators



*If there is a sign of predators around a pen, i.e. birds have been maimed through the cage, leg traps can be set around that cage the next night. 📢

- ❑ Rats are a problem with very young birds.
- ❑ Foxes, opossums, and raccoons are by far the worst predators.
- ❑ Snakes are predators too.



The fox is a bold, confident animal.



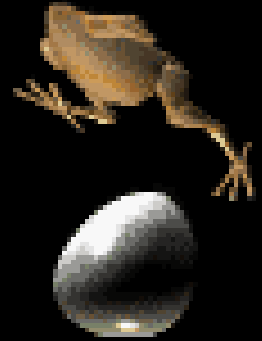
Don't believe that they'll stop with just rabbits.



Predators

- Headless birds indicate a raccoon.
- Gutted birds indicate an opossum.
- Foxes generally won't come around pens because of the human scent.
- However if they do, they will find it easier than hunting and will continue.
- They like to carry off the bird; they will dig into a pen.

Raccoons
are a real
pain.



Predators

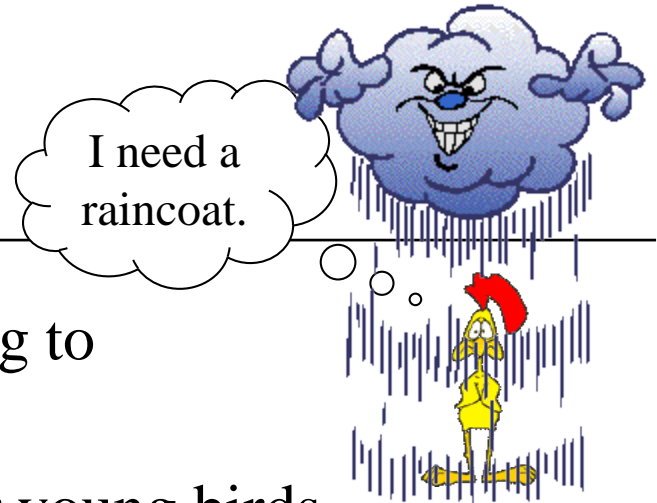
- ❑ Weasels and coyotes inhabit this region as well, so you should be alert to them.
- ❑ Birds of prey, i.e. owls and hawks, will grab your birds too.
- ❑ A predator-proof 8 ft. electrified high-tensile wire fence is a good start for most predators including the neighbor's dog.



Electric fences have limitations.



Weather



- ❑ The biggest weather problem according to producers is rain.
- ❑ Wet birds get cold; this is not good for young birds.
- ❑ Cold birds snuggle together for warmth.
- ❑ The ones in the center can suffocate as they pile together.
- ❑ Older birds don't snuggle as much as younger birds; they will hunker down, won't eat, or drink, and slowly freeze to death. They need to stay active.

Weather



- ❑ It is not the brief thunderstorm that is the problem.
- ❑ It is the cold, rainy, several day storm.
- ❑ The saturated ground with water running through it, or with puddles forming is a real problem.
- ❑ Action needs to be taken quickly.

Now, this is what I call a gold rain!

Arctic Chicken



Weather

- Action strategies include:
 - *taking some dry hay and spreading it out over the area under the pen, gently pushing the chickens up onto the dry hay as you spread it out.
 - *If there is a cold breeze as well, wind blocks should be placed against the side of the pen.



Weather

- ❑ Cold, dry weather is not a problem for adult birds down to 20⁰ F. Below 20⁰ F can be a problem.
- ❑ Heat above 90⁰ F can be a problem for adult birds.



The Laying Flock

Some Thoughts



- The business is a year-around operation. The market is especially strong in winter.
- Egg production drops off as day length shortens unless supplemental light is added.
 - *this is difficult in pastured poultry operations.
 - *egg business income is enough to justify the expense of adding lights.

The Laying Flock

Housing



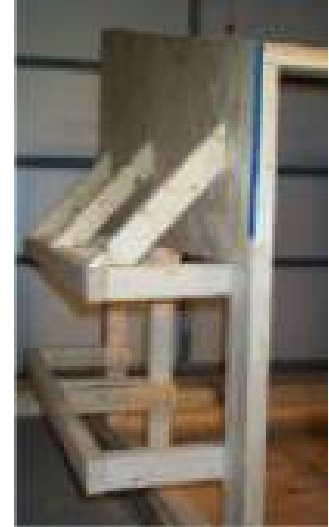
□ Eggmobile

*broiler pens can be modified with 6 ft. nest boxes hanging on the enclosed sides to accommodate 6 partitions on a side (12x12x12). A 3-4 in. high board can be put in front to keep the chickens from scratching out bedding.

The Mobile Pen



The Mobile Pen



The Laying Flock Housing



□ Eggmobile (con't)

- *one nest box is needed for every 4 hens.
- *community nest boxes (4x2x12) will serve 40-50 hens.
- *the eggmobile can house 40-50 hens.



The Laying Flock

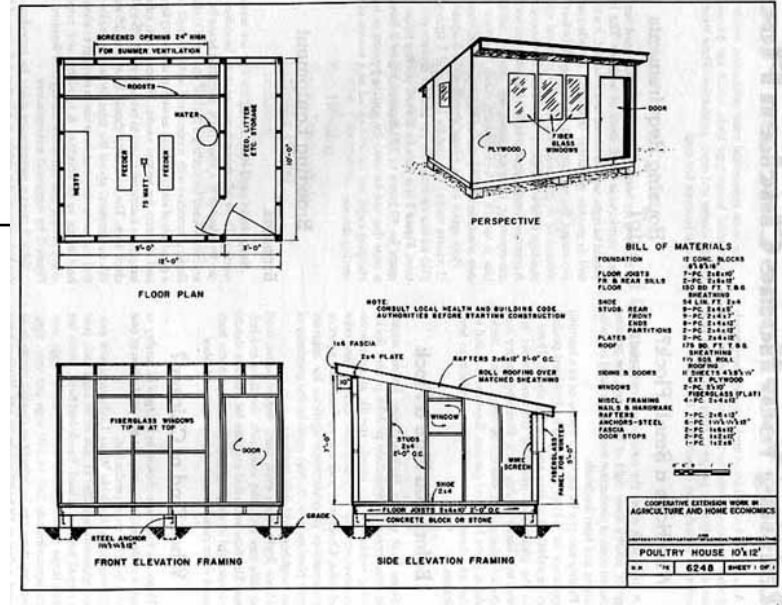
Housing

□ Pole building layer house

* more true free-range than pastured.

* standard 30x40 ft. pole building, insulated can house 600 hens, or 350 hens and 400 pullets at a time.

* 600 layers will average 245 dozen eggs per week (70% rate of lay).



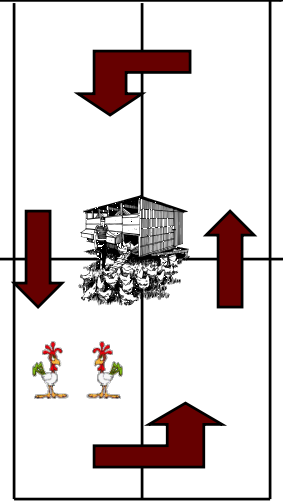
The Laying Flock

Housing

□ Pole Building Layer House (con't)

*perimeter fence 1,000 ft² or larger area around the building and sub-divide this into 4 or more paddocks around the entire building.

*the chickens will be rotationally grazed through the paddocks around the building.



Coop Design Needs

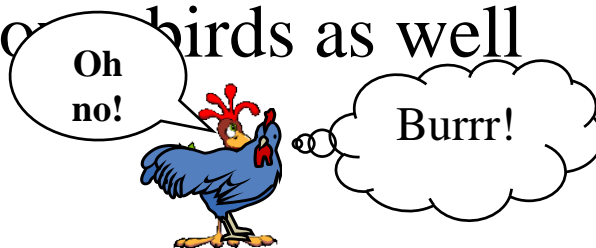
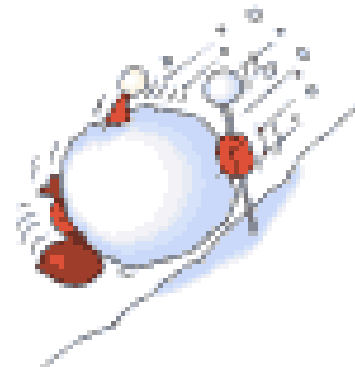
- ❑ Easy to clean
- ❑ Has good drainage
- ❑ Protects from wind and sun
- ❑ Keeps out rodents, wild birds, and predators
- ❑ Provides adequate space for flock size
- ❑ Is well ventilated
- ❑ Is free of drafts
- ❑ Maintains uniform temperature
- ❑ Has place for birds to roost
- ❑ Has nests that entice hens to lay indoors
- ❑ Offers plenty of light, natural and artificial
- ❑ Includes sanitary feed and water stations



The Laying Flock



- ❑ Hens can be allowed outside to graze when temperatures are above 20⁰ F.
- ❑ Started pullets (female chickens less than 1 year old) are best for getting started.
 - *these are ready to lay birds.
 - *you can raise your own pullets, but allow 20-25 wks. to get them to age.
 - *you can hatch your own birds as well (can't use hybrids).



The Laying Flock

Feeding

- ❑ How you market your eggs/birds will affect how you feed your birds.
- ❑ Most commercial mixes contain preservatives and meat by-products from animals that died prior to and during slaughter.
- ❑ If you use a natural diet and let your customers know this and why you have to charge more for your eggs, you'll make money.



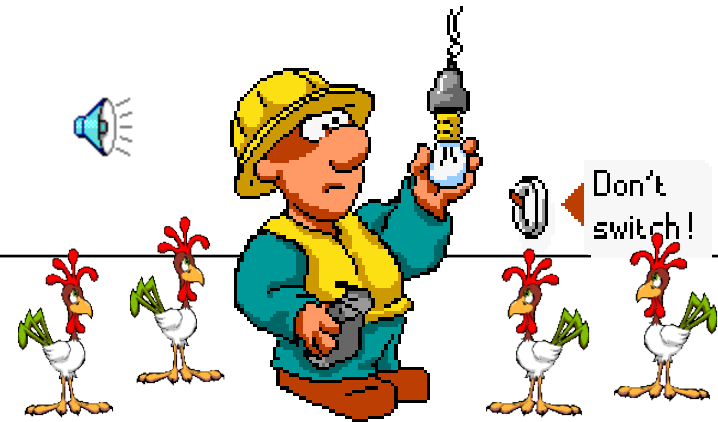
The Laying Flock

Feeding



- ❑ For the first 8 weeks use a Broiler Starter ration, then switch over to a layer ration.
- ❑ Limestone (calcium) can be built into the feed ration for strong shell and eliminates feeding more expensive oyster shell. (Don't feed dolomite limestone, the added mg will affect egg production.)
- ❑ People will pay more for additive-free eggs.

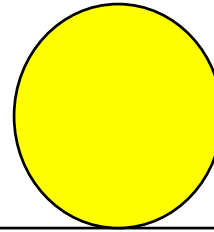
The Laying Flock



□ Lighting

- *layers need 14 hours of light/day.
- *egg laying will cease with the decreasing day length of fall and winter.
- *supplemental lighting with a time clock is important.
- *set the clock to come on at 5:30 a.m. and to go off at 9:30 p.m.

The Laying Flock



I hate molting!

□ Molting

- * old feathers are lost and replaced by new ones.
- * the process may take 1-2 months for some egg laying breeds.
- * some breeds may take longer.
- * egg production drops off during molt.
- * often egg production is better than before when it resumes after molt.

The Laying Flock

□ Breeds

- *using started pullets may limit you to using one of the hybrid breeds.
- *there are some breeds that produce white, or brown eggs; decide which you want to produce.
- *if you are willing to raise your own pullets, there are more options.
- *you could then look at the dual purpose breeds.



The Laying Flock

Free range Marketing Points

- ❑ In commercial operations, eggs are stored during peak production, this means that the eggs sold in the store can be 6 months old.
- ❑ In commercial operations, eggs come from hens housed in stressful conditions resulting in eggs with thin whites and pale yolks.
- ❑ You will have a better quality, fresh egg.
- ❑ You can go the organic route if you have organically raised feed.



How about this new idea?



What happens when hens eat Fruit Loops!

Free-range Turkey Production

- ❑ Turkey production is more seasonal than chickens.
- ❑ Much of the management is the same as with chickens.
- ❑ You will need 1 acre/year of good pasture for each 100 turkeys.
- ❑ Turkeys should be rotated to new ground yearly in a 3-year rotation to avoid disease and parasites; the rotation should not follow chickens.



Free-range Turkey Production

- ❑ 50 birds is a good number to start with.
- ❑ Typically, you should order 15% more birds than you need.
- ❑ They are fragile and there are usually some weaklings that do not make it.
- ❑ Turkeys are more fragile than chickens until their immune system develops at about 22 weeks.
- ❑ They consume more feed than chickens.



Free-range Turkey Production

- ❑ Poults (young turkeys) can be purchased from a hatchery.
- ❑ There are several breeds of turkeys.
- ❑ The Broad Breasted Bronze is a breed that has done well in free-range operations; however success within breeds can vary between hatcheries.
- ❑ Brooding your own turkeys is exactly the same as with chickens.



Free-range Turkey Production

- ❑ Poults should be kept inside until 8 weeks of age.
- ❑ Turkeys require a higher protein feed than chickens.
- ❑ Cannibalism problems will develop if protein is low.
- ❑ Purina Game Bird Starter is recommended.



Free-range Turkey Production

- ❑ Most people want birds averaging 16-17 lb.
- ❑ Overall, orders will range for birds between 10-26 lb.
- ❑ Typically, the production period is about 24 weeks.
- ❑ You need to regularly check the weights of your birds in October, so that you can get them to desired weight by Thanksgiving.



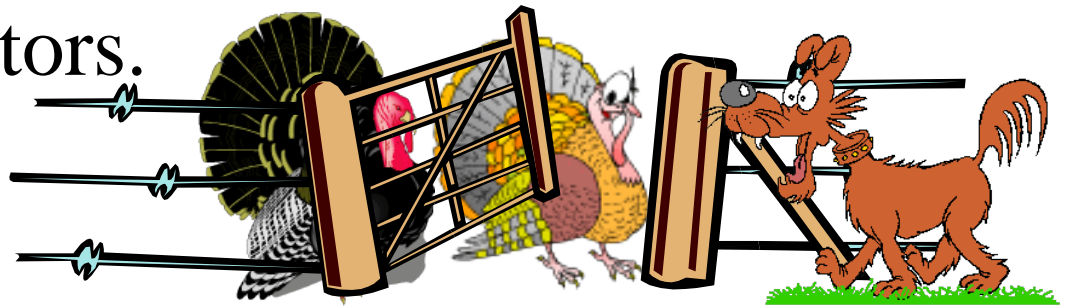
Free-range Turkey Production

- ❑ It takes about 3.6 lb of feed to get a pound of weight gain with turkeys.
- ❑ Weight gain can be controlled by the type of feed, ie. Starter (if too low), Finisher (last 10 days on schedule), or Holding Diet (if too big)
- ❑ A holding diet typically consists of a 50-50 mix of whole corn and wheat.



Free-range Turkey Production

- ❑ Grazing turkeys will usually stay within 150 feet of the roost.
- ❑ Turkeys like forage about 4-5 inches tall.
- ❑ Typical pasture mixtures are fine.
- ❑ Electric fence, or netting works well to keep predators out.
- ❑ Dogs and cats can be your worst predators.



Free-range Turkey Production

- ❑ Roosts can be put on skids so that they can be moved around the field.
- ❑ The roost can be moved around the field as needed as the pasture forage is consumed.
- ❑ The same mobile chicken pen can be used for turkeys; it can hold about 30 birds.
- ❑ The mobile pen should be moved daily.



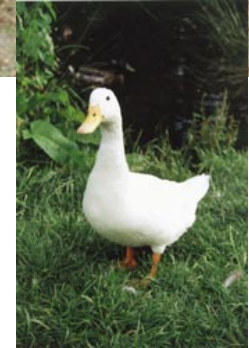
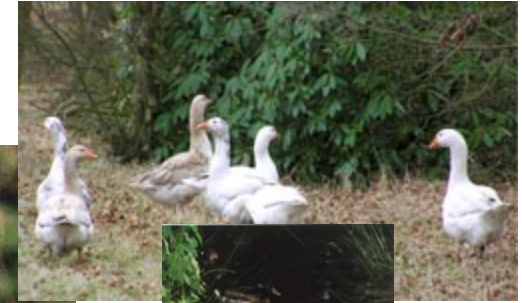
Free-range Turkey Production

- ❑ There are some producers who are breeding their own turkeys.
- ❑ In fact some of them are creating their own cross breeds to improve production.
- ❑ However, breeding your own turkeys should not be considered until you have gained some experience.



Another Good Poultry Production Idea

- ❑ What about producing free-range game birds, geese, or ducks?
- ❑ There are some restaurants that would love to be able to offer free-range raised game birds such as pheasant and quail to their customers.
- ❑ The production of these birds would not be too different from raising chickens.



Game Bird Production



- ❑ Game birds, being wild species, will need more open space than domestic poultry.
- ❑ They are more fragile than domestic poultry and are more prone to health problems and cannibalism.
- ❑ Game bird chicks are also more expensive to buy.
- ❑ Their skin is more delicate which makes them more difficult to process.

Game Bird/Other Poultry Production



- ❑ Game birds have a longer production time than domestic birds.
- ❑ All of this makes game birds more costly to raise.
- ❑ Ducks and geese are very good grazers and will do well in a free-range operation.
- ❑ Ducks and geese are more difficult to process because the oil in the feathers makes it more difficult to remove them.



Game Bird/Other Poultry Production



- ❑ One last thing to mention, the big catch to raising game birds is that they are regulated by the government.
- ❑ In order for you to raise game birds, you will have to obtain a permit from the Department of Natural Resources.
- ❑ This is not an impossible task, but it is something that you will need to do before you begin production.

Pasture Needs



- ❑ You want a good quality grass and legume mixture.
- ❑ Forage quality would be the same as any other pastured animal.
- ❑ One acre of good pasture is needed for every 400 chickens you have on pasture at any one time.
- ❑ The forage species is not that important, most grass and legumes are satisfactory.

Pasture Needs

- ❑ Kentucky bluegrass, orchard-grass, brome grass, ryegrass, white clover, ladino clover, alsike clover, and birdsfoot trefoil are good choices.
- ❑ The shorter the the grass, the easier it is to move the mobile pens.
- ❑ Chickens like it short, 2 inches with 6 inches as a maximum.



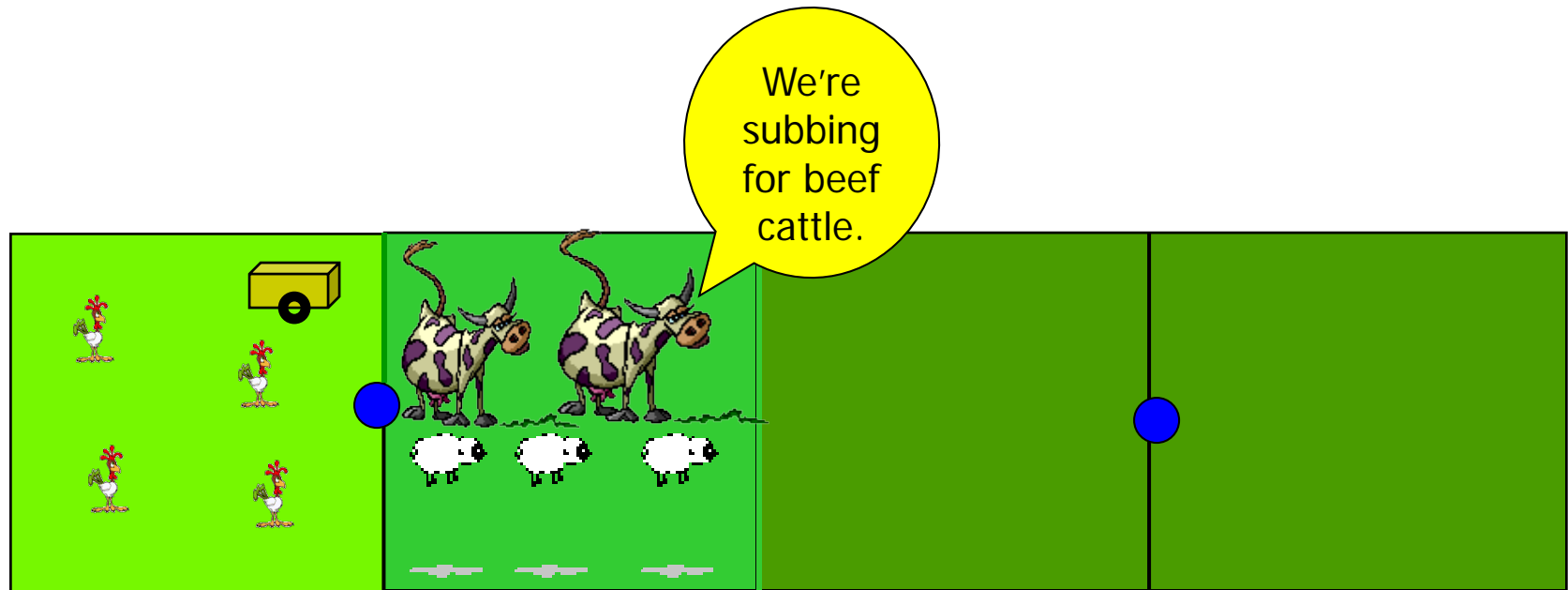
Pasture Needs

- ❑ You will need to keep the grass mowed or grazed down for them.
- ❑ This is a good opportunity to get multiple use out of your pasture by having the chickens follow grazing livestock. The birds love to pick through manure piles.

Oh boy,
fresh
meadow
muffin!



Co-grazing Works Well



Pasture Needs

- ❑ Shorter grass also makes it more difficult for predators to hide and it is easier for predators to find mice in the field.
- ❑ Chickens do like weeds, they are preferred, next are legumes, so don't get too much into the overall condition of the field.
- ❑ Monocultures are not recommended.



Plants Poisonous to Poultry

- ❑ Poison Hemlock
- ❑ Monkshood
- ❑ Privet
- ❑ Yew
- ❑ Nightshade
- ❑ Horse radish

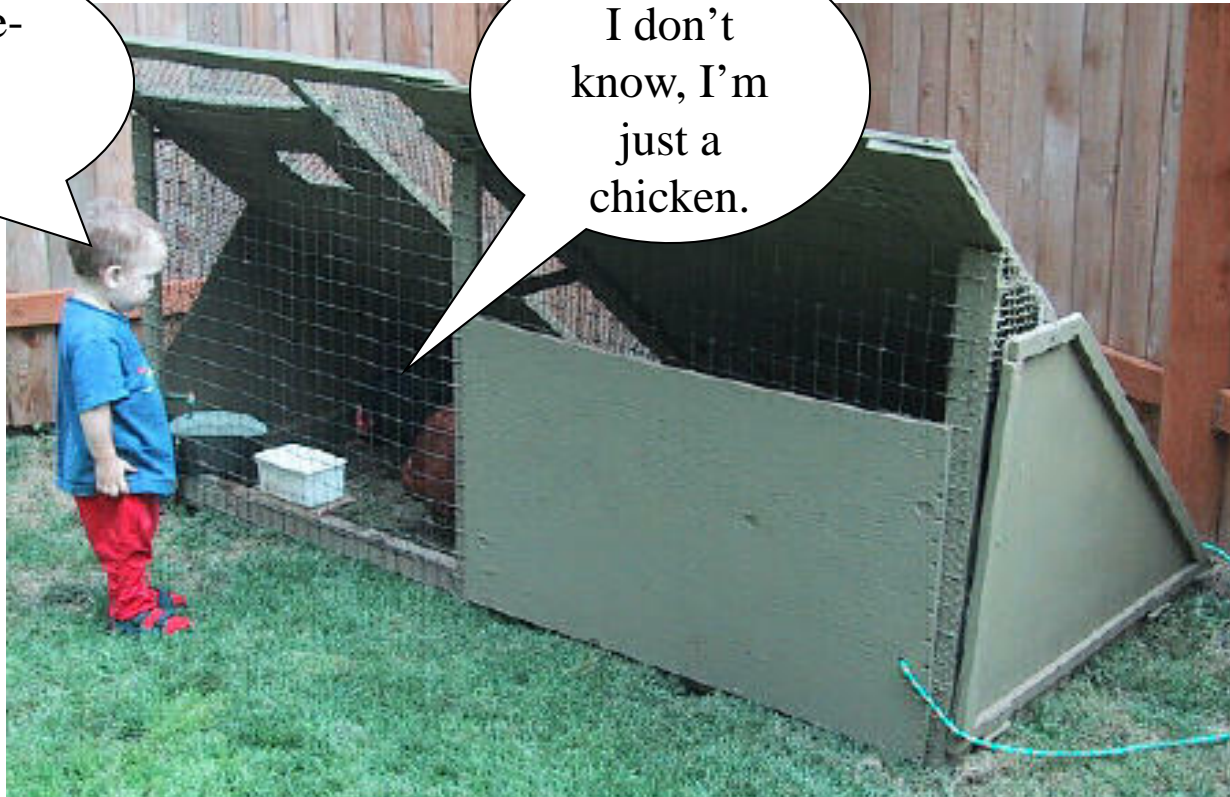


Thank you, I'll see you next week.



Are you a free-range or pastured poultry?

I don't know, I'm just a chicken.



Introduction to Free-Range Poultry, Part II



Terry E. Poole

Principal Agent Emeritus

University of Maryland Extension

UNIVERSITY OF
MARYLAND
EXTENSION
Solutions in your community

Business Plan

- ❑ Developing a business plan doesn't have to be anything complicated.
- ❑ It can be as simple as an outline of why you are in business, what are your objectives, and how you are going to get there.



Business Plan

According to my
business plan you
were supposed to
be a red rooster.

□ A business plan should include:

*a mission statement

- the purpose of your farm

*a statement of goals, objective, strategy

- a snapshot of the farm operation

*a production plan

- describes the production process



Business Plan

These chickens
are going to
make me rich.



- A business plan should include (con't):
 - *a financial plan
 - balance sheet, income statement
 - *staffing and organizational plan
 - details who does what and if more help is needed
 - *Management and contingency plans
 - planning, organizing, directing, coordinating the business

Free-range Poultry Marketing

- ❑ The marketing points discussed last week with the meat chickens can be applied to all of the other free-range enterprises.
- ❑ You have a clean, all natural product.
- ❑ Promoting this message can help you sell not only your chickens, but also eggs, turkeys, and even game birds.
- ❑ Restaurants and grocery stores will pass that message on to their customers.

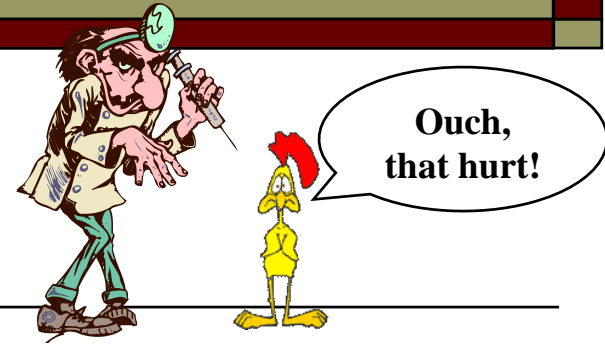


Marketing



- ❑ You want to sell direct to the customer.
- ❑ Small farm operators should not be selling to middlemen.
- ❑ One of the keys to marketing is to successfully promote/advertise your product.
- ❑ In this message you tell prospective customers why they should buy your product over someone else's.

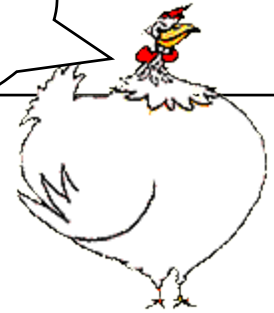
Marketing



- Here are a few ideas that can be used to make your poultry different from the typical chicken found in the grocery store.
 1. Your poultry is raised without preservatives in the feed.
 2. Your poultry is raised without arsenic in the feed.
 3. No animal abuse is permitted.

Marketing

Firmer muscle tone, now that's what I'm talking about.



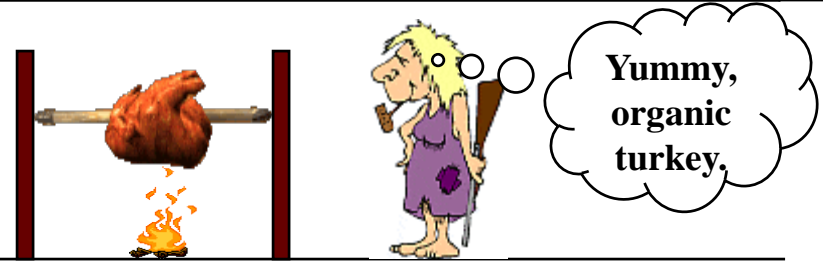
4. Firmer muscle tone equals better textured meat quality.
5. The longer grow-out period you use means more flavor.
6. Your poultry is fresh, not frozen.
7. Hand evisceration results in lower bacteria on the meat.
8. Clean blood-free meat from Kosher slaughter.

Marketing

9. Customers will be supporting a local small business.
10. Customers can know that you are knowledgeable about your product and can answer questions.
11. Your eggs are much fresher.



Marketing



- Another way to differentiate your poultry product is to raise it organically.
- You can apply through the state to become Certified Organic.
- This process usually takes about 3-years.
- Folks are willing to pay more for eggs, meat, and other products that they believe are safer and healthier to eat.

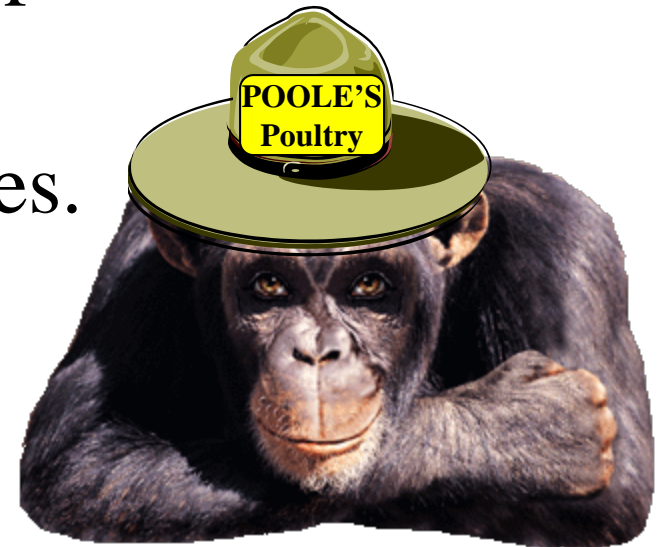
Marketing

- Here are some reasons you can tell your customers why your poultry products cost a lot more than in the local grocery store.
 1. You have higher distribution costs due to fewer units delivered per trip.
 2. You have higher feed costs because you use better ingredients.



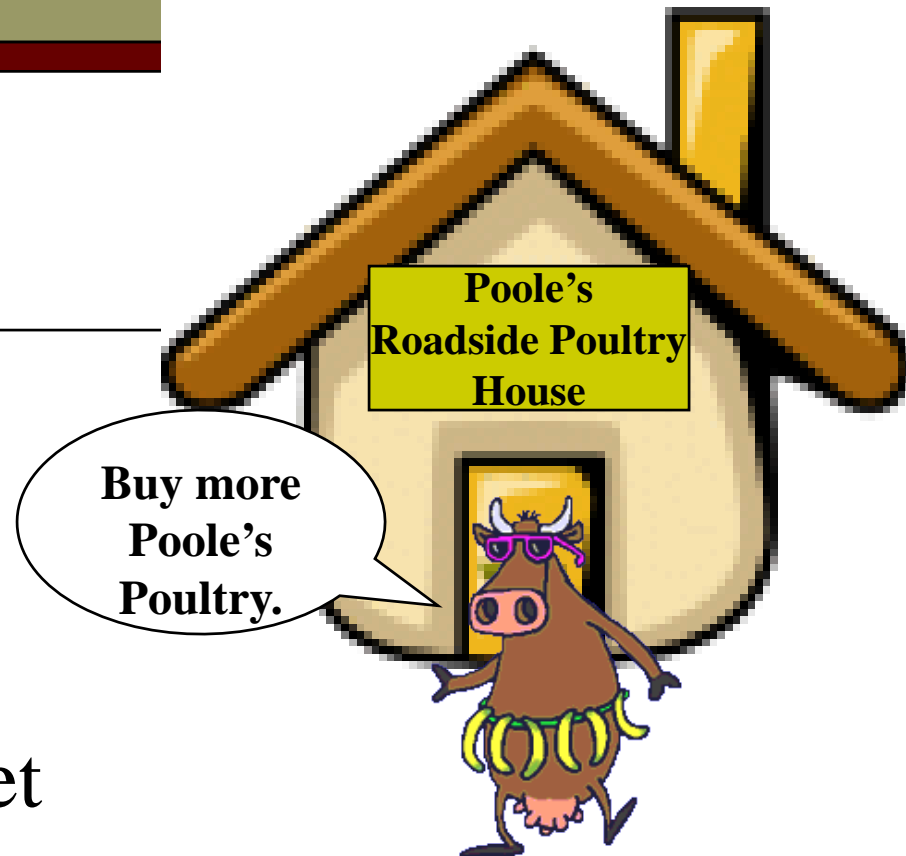
Marketing

3. You have higher unit of time per product produced because it is not automated.
4. You are not government supported.
5. You have a higher cost of supplies due to a smaller size operation.
6. You have higher personal taxes.



Marketing Styles

- Direct Marketing
 - *Farmers Market
 - *Roadside Market
 - *Subscription Market
 - customer pickup
 - you deliver



Marketing Styles



□ Selling to Restaurants

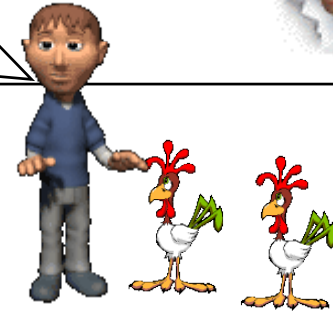
*This can be a fun and rewarding way to market your product. You can develop a great relationship with the chef.

*A good restaurant will be able to use a lot of your product per week.

*You will need to be able to meet their demand for both quantity and quality.

Marketing Styles

Yikes, the
government
is watching
us!



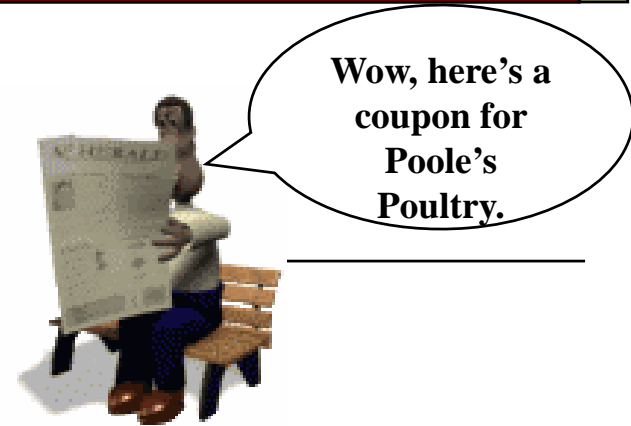
□ Selling to Restaurants

*If you do decide to sell to restaurants, you should have your operation USDA inspected.

*The liability issue needs to be considered here, if someone becomes sick at the restaurant, a suit could find its way to you.

*Be careful with your commitments, restaurants go in and out of business.

Marketing Styles



□ Selling to Grocery Stores

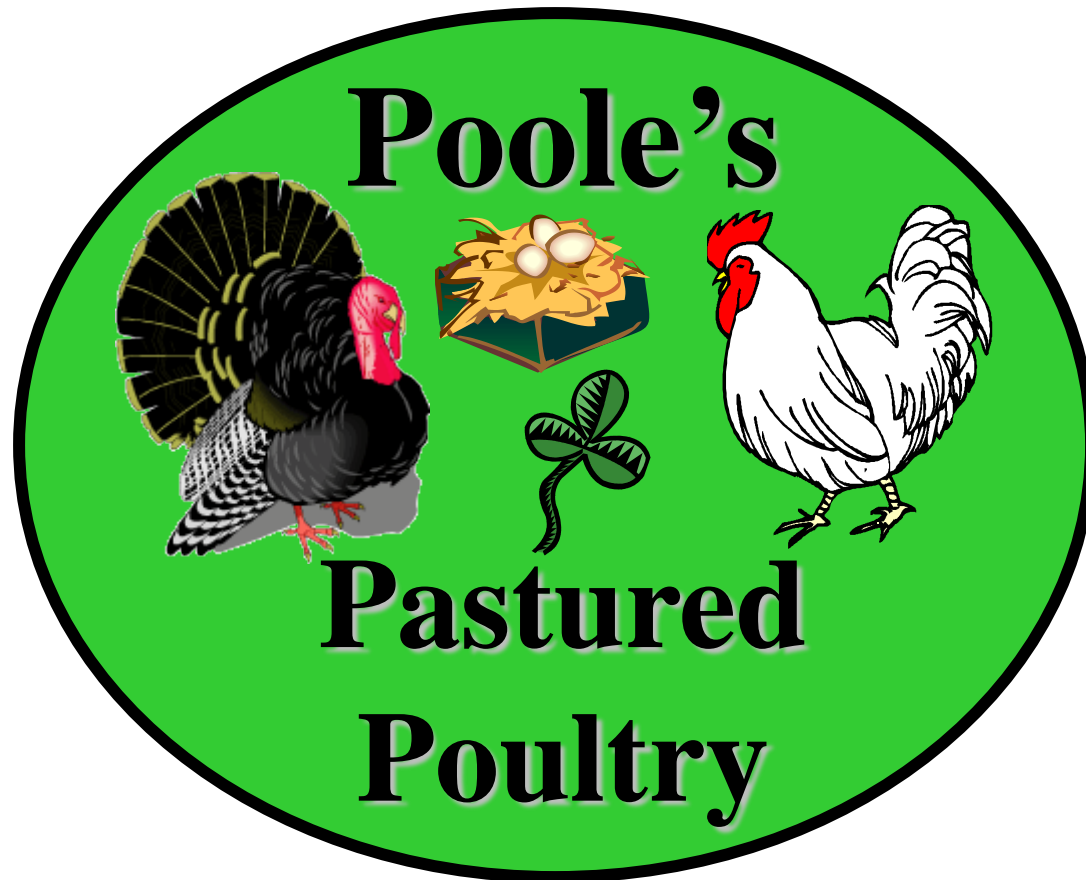
*This can be a good way to move a lot of your product.

*To be really successful in this market, you should develop your own label with a logo.

*You will also need to advertise.

*Look how successful Frank Perdue was with his campaign.

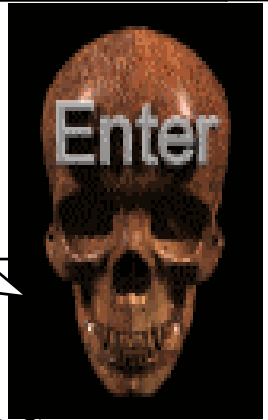
A logo can be a great marketing tool.



Marketing Styles

Welcome to
Poole's On-
line Poultry
Store

Enter



❑ Buying Clubs

*These are co-ops, or groups of families that order in bulk and in advance.

❑ Community Supported Agriculture (CSA)

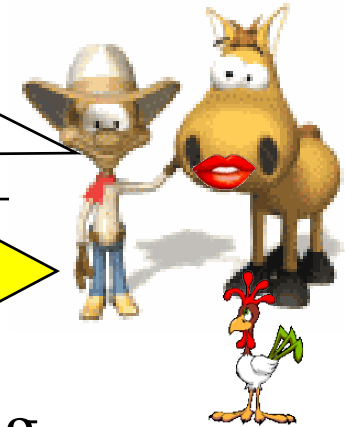
*Folks in the community buy shares in the operation (contract) and:

- share in decision-making and work.
- share in the harvest.
- benefit from a lower cost.

Marketing Styles

Me and my
horse are
here to help.

Harry "Dude" Homeowner



□ CSA (con't)

*This style of marketing is rapidly gaining popularity with small farms.

*Money collected up-front, helps to fund the operation.

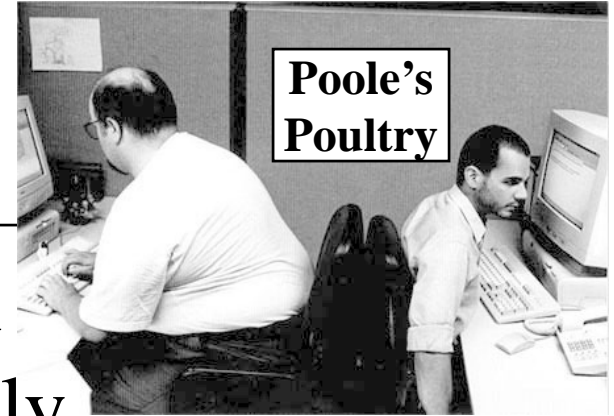
*The labor assistance helps too.

□ Mail Order

*Selling by mail is another option.

*The internet opened up this market.

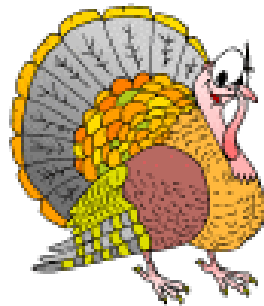
Marketing



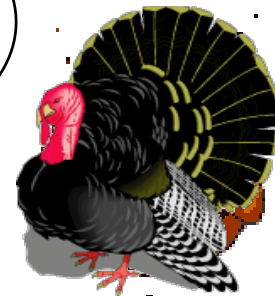
- ❑ To be really successful, you may have to be able to supply your product all year around.
- ❑ This would apply to restaurants, grocery stores, and caterers.
- ❑ Producing all year around can be costly, so this is a big decision. Do a business plan.
- ❑ Selling in these markets may necessitate your getting USDA inspected.

Marketing

- Remember that you will always need to have a quality product.
 - *Restaurants, grocery stores, and caterers will demand it.
 - *Their reputation is on the line with your product.



Tom, I told
you to use
sun screen.



Marketing

Poole, your
chicken gave
me gas!



- ❑ Remember that, at all levels of marketing, you will need to have some people skills.
- ❑ This is especially true with direct marketing.
- ❑ If you hate to be around people and interact with them, then market wholesale.
- ❑ Direct marketing will give you immediate feed-back on your product performance.

Marketing

- ❑ The appearance of your farm has a lot to do with the perception of your farm operation by your customers.
- ❑ Clumps of weeds, piles of trash, old rusted equipment laying around, untrimmed areas, dead birds, bad smells, flies, and overgrazed and/or weedy pastures reflect poorly on you.
- ❑ This says that you have a poor product.

Poole's
Poultry



Wow,
that's a
big rat!



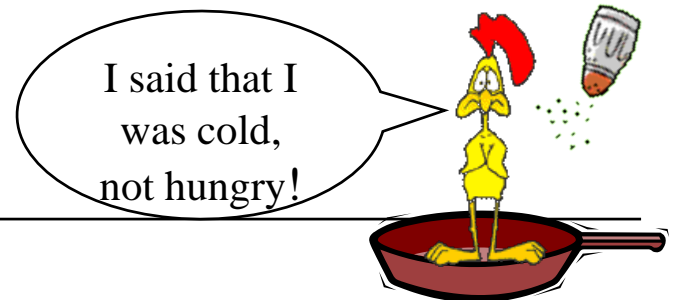
Inspection

I hope these turkey burgers are free of mad turkey disease.



- ❑ The customer is the ultimate inspector.
- ❑ Part of your marketing and customer service revolves around their observance of your operation.
- ❑ How they perceive you as a farm manager will directly affect their perception of your quality control on the products you market.

Inspection



- ❑ Early direct poultry folks got around selling processed birds to customers by selling live birds and then providing the processing free.
- ❑ The idea is that by the time the government comes around, you'll have established a base of customer support.
- ❑ It's recommended that you treat your neighbors with an occasional bird or some fresh eggs.

Inspection



Daddy!

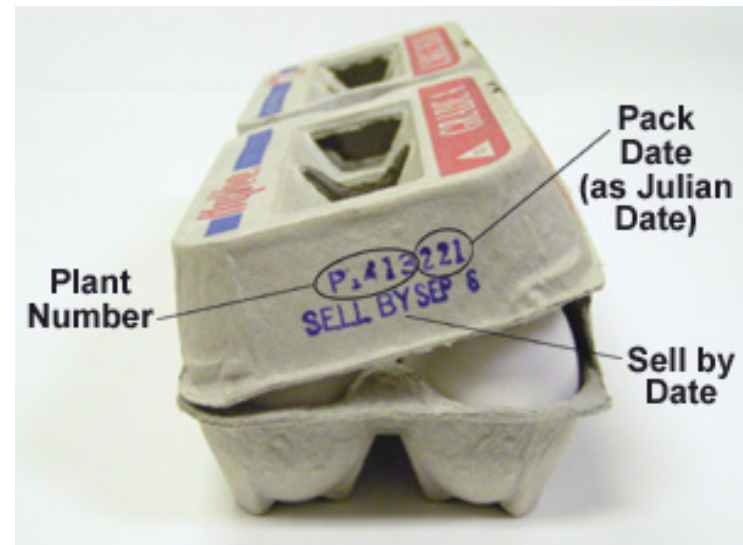
No way
kid!



- ❑ Small farm poultry enterprises can process up to 20,000 meat birds on the farm without having to be USDA inspected.
- ❑ However, if you are planning to sell to stores, restaurants, or caterers you should get inspected (It's not required).
- ❑ Producer cannot engage in slaughter, buying, or selling poultry products other than from own production (farm).

Inspection

- ❑ There are limited federal regulations on egg laying operations with less 3,000 birds.
- ❑ FDA labeling, which includes safe handling instructions, fair packaging, and nutritional information do apply.



Inspection



- ❑ Maryland egg regulations apply to all producers regardless of the number of birds.
- ❑ Producers must register annually with the MD Secretary of Agriculture; there is no fee for operations with less 3,000 birds.
- ❑ Registered producers are considered approved by the health department, so eggs can be sold on and off the farm.

Inspection

- ❑ MD Eggs Regulations require that flocks must originate from a source monitored for *Salmonella enteritidis*.
- ❑ Registrants must comply with all requirements of the MD Egg Law.
- ❑ Producers registered to sell eggs are automatically registered in the Poultry Premise Registration Program.



Inspection



- ❑ **MD egg standards include factors essential to food safety; these include fresh, clean, and unbroken.**
- ❑ **No inedible eggs; large blood clots, mixed rots, or black rots.**
- ❑ **No adulterated eggs; contaminated with bacteria, pesticides, or filth.**
- ❑ **Must meet weight requirements for labeled size; Jumbo 30 oz./doz., Extra Large 27 oz./doz., Large 24 oz./doz., and Medium 21 oz./doz.**

Inspection

- ❑ MD egg labeling requirements include:
- ❑ Grade and size
- ❑ Net quantity, weight, or count
- ❑ Identity of product; eggs
- ❑ Packer or distributor name and address
- ❑ MDA registration number
- ❑ Lot Number to designate flock; small producers can use Lot 1.
- ❑ Safe handling statement
- ❑ Cartons can be reused, but must be clean.



Inspection



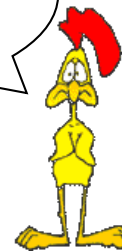
- ❑ MD egg regulations include refrigeration.
- ❑ The law requires shelled eggs to be kept at an ambient temperature of 45° F after packing and during transport.
- ❑ MDA allows coolers as long as the eggs are not submerged in ice.
- ❑ Some counties require commercial refrigeration at farmers markets and some also require a retail license to sell at farmers markets.

On-Farm Slaughter

- ❑ This is where you can add value and have a marketing edge.
- ❑ Birds killed and processed by hand will be safer and of higher quality than those done by a machine.
- ❑ In on-farm operations, birds are allowed to bleed-out rather than killed by shock before bleeding.
- ❑ Hand evisceration keeps the carcass cleaner than mechanical devices.



Look what
Farmer Poole
did to me!



You now
have value-
added.



On-Farm Slaughter



- ❑ Small scale poultry processing equipment is available. Some used equipment can sometimes be found.
- ❑ The end product of a free-range, on-farm processed chicken is a product that has not been raised on antibiotics, or contaminated with fecal-borne microorganisms.
- ❑ The bird was raised in a more natural environment.

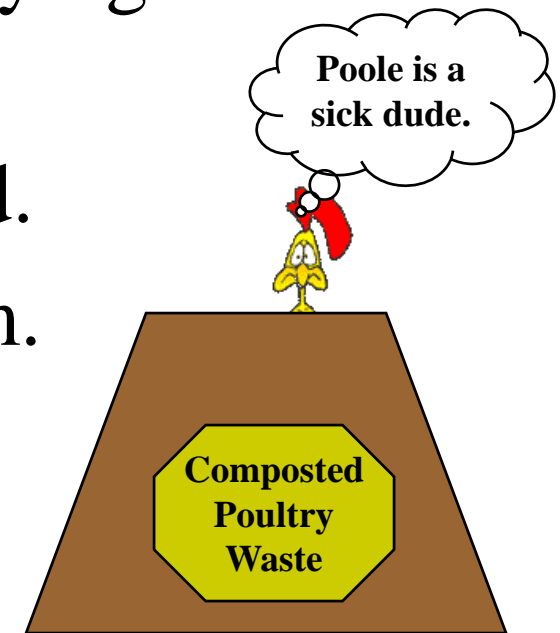
Sustainable Farming Connection: Mobile Poultry Processing Unit

A mobile processor can serve many.



Dealing With Dead Birds

- ❑ No matter how good you are at raising your birds, you will have some dead birds.
- ❑ There are some various ways to dispose of the poor deceased fowl, such as paying to have them hauled away.
- ❑ Don't bury them in the backyard.
- ❑ The best way is to compost them.



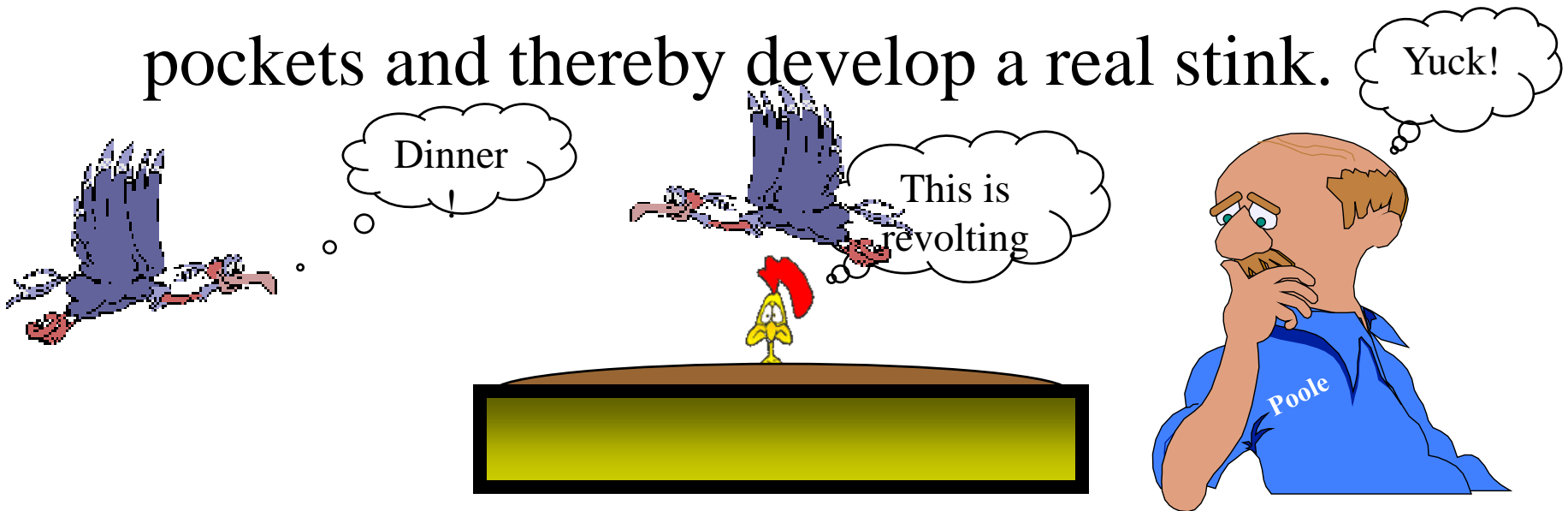
Composting Dead Birds

- ❑ Composting is the best and most efficient way to get rid of dead birds and processing waste.
- ❑ Research and experience have shown that these materials will break down quickly with no smell and can then be spread onto a crop field.



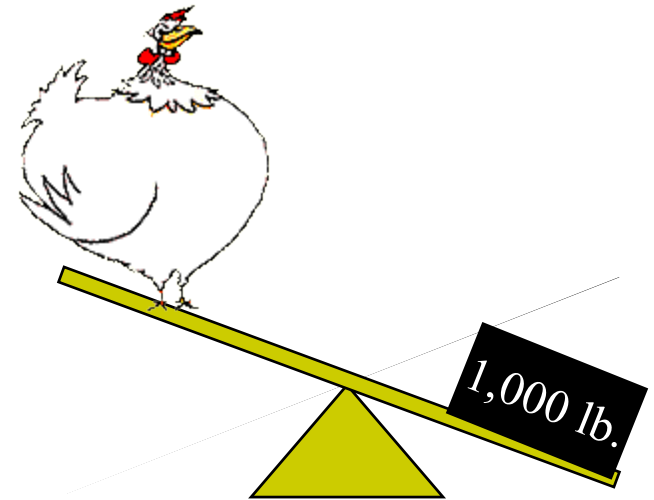
Composting Dead Birds

- ❑ Best results are obtained when using materials that soak up liquids and pack down like sawdust.
- ❑ Straw and other loose materials will form air pockets and thereby develop a real stink.



Nutrient Management

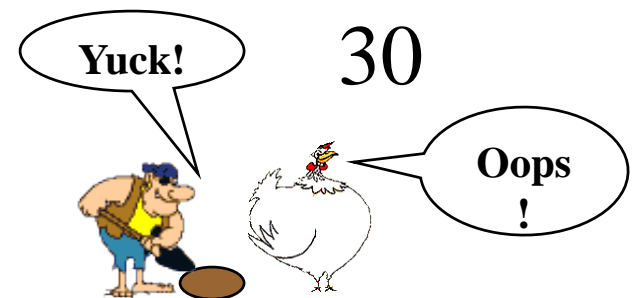
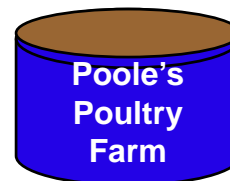
- ❑ Nutrient management is a law in the State of Maryland.
- ❑ You will be required to have a NM plan if you make \$2,500 or more in gross farm income, or if you have 8 animal units.
- ❑ An animal unit is 1,000 lb.



Nutrient Management

- Here are some poultry animal unit (1,000 lb) equivalents to equal 8 animal units:

Broilers/fryers (4 lb)	2,000
Ducks (6.7 lb)	1,200
Geese (12.3 lb)	650
Turkeys (18.8 lb)	90
Emus (133.3 lb)	60
Ostrich (266.7 lb)	30



Nutrient Management

Poultry Manure	Moist. %	Nutrients (lb/ton)		
		N	P ₂ O ₅	K ₂ O
Fresh layer	75	27	22	16
Layer, in pit (yr.)	50	23	52	45
Broiler/shavings (7 weeks)	50	25	35	25
Broiler/shavings (4 months)	25	36	33	41

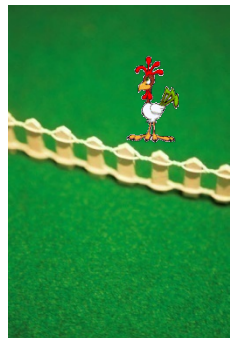
Do not underestimate the importance of good nutrient management planning.



What is a Nutrient Management Plan?

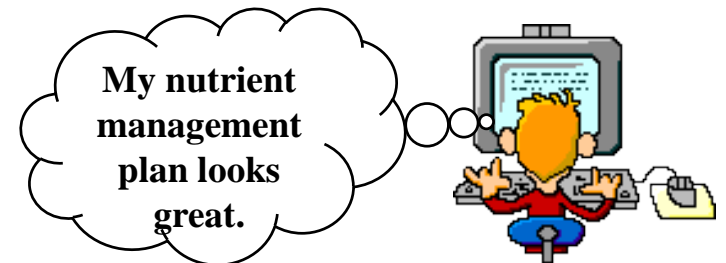


- In its simple form, it's an outline or accounting of what you do with the plant nutrients generated on or brought onto your farm.
- Plant nutrients include fertilizer and manure.
- The principal plant nutrients accounted for in a NM plan are nitrogen and phosphorus.
- N and P contribute to algae blooms in the Chesapeake Bay and other bodies of water.



How do you get a Nutrient Management Plan?

- 1) You can hire/pay someone to write your plan.
- 2) You can try to get Extension to write your plan. **Note:** We are full and only take new farmers when they are referred to us from the Soil Conservation District and need a plan as part of a new conservation practice.
- 3) You can become certified to write your own plan.



Remember, there's not always a pot of gold at the end of a rainbow.



Thanks for your enthusiastic attention.



That's
 some
powerful
manure!

