

*ALMOST*

# <sup>4</sup> Everything You Need to Know About Raising Broiler Chickens



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# SMALL POULTRY FLOCK OWNER CHECKLIST

## Selecting the bird:

- Type of poultry: meat type – Cornish Cross , or other breed
- Purchase disease free stock (from NPIP source, Pullorum and AI free)
- Plan for all-in - all-out flocks

## Before the birds arrive:

- Draft free coop or housing, cleaned and disinfected
- Brooder stove or heat lamp (red bulb type, if needed) set to 95°F for first week.
- Dry litter, (pine shavings preferred), 3-4 inches on clean floor.
- Roosts (use clean tree branches) 2-6" above ground for broilers
- Feeders and Waterers, cleaned and disinfected
- Fresh Feed, appropriate for age and type of bird

### **When the birds arrive:**

- Check for symptoms such as coughing, sneezing, watery eyes, labored breathing, diarrhea, or pasty butt. Check for external parasites
- Provide water for first couple of hours, then add feed. (if birds have been shipped overnight, then make a 5% sugar water solution for first day)
- Check waters, feeders, heat source, eliminate drafts, etc.
- Wild bird and rodent proof coop, set bait stations, traps, etc., as needed.
- Biosecurity - foot dips, clean shoes or boots, limit visitors and traffic, set up a quarantine area.

## **General Management:**

- Check birds daily for signs of disease.
- If disease is suspected get a reliable diagnosis and treat as necessary.
- Cull very sick or injured birds, use proper disposal (burn or bury deep)
- Establish a regular de-worming program
- Keep litter clean and dry, replace wet litter. Do thorough clean out every six months including disinfection.
- Proper disposal of manure such as composting.

# Choosing Meat Breeds



Unlike with layers, there are limited options...

- Cornish X
- Other hybrid varieties (Reds, Barred, Silvers.etc)
- Dual purpose varieties (Bufs, Barred Rocks)



## Colored Feathered Birds – becoming more popular

Freedom ranger

J.M. Hatchery

178 Lowry Road, New Holland, PA 17557

(717)336-4878





Here is what Troy Griepentrog wrote about the Freedom ranger: I spent about \$229.11 buying the chicks and feed. I fed about 530 pounds of commercial feed plus about 90 pounds of whole oats. The following numbers aren't precise, but should be pretty close:

620 pounds of feed produced 195 pounds of live birds (3.17 pounds of feed per pound of gain — about the expected ratio).

130 pounds of meat (about \$1.76 per pound)

## Red Broilers:

The *Label Rouge (France)* birds grow to 2.25 kg in 12 weeks, while the *fast-growing broilers (Cornish cross)* reach the same weight in 6 weeks. The carcass is generally more elongated and has a smaller breast and larger legs than conventional carcasses. In addition, slower-growing breeds are more suitable to outdoor production than fast-growing broilers.







Red Ranger

**Mt-Di Poultry Farm and Hatchery**

Owner/ Operator: George Dibert

Address: 131 Hen House Lane

Altoona, PA 16602

Phone: 814.942.7024

Email: [mtdifarm@atlanticbb.net](mailto:mtdifarm@atlanticbb.net)

**U.S. Pullorum – Typhoid Clean**

**U.S. AI Clean**

**NPIP No. 23-519**

Cornish Cross, Red Ranger, Rosambro



**Rosambro Broilers (medium-growth).**

The Rosambro is a new breed also offered by MT-DI Hatchery. Rosambro broilers are grown to an age between eight and ten weeks old. This bird has many of the same benefits as the Red Broiler with somewhat faster growth than the Red Broiler (but slower than the Cornish Cross).



The Red Ranger Broiler is a very profitable broiler to raise because of its strong disease resistance. The Red Ranger broiler chickens have an excellent conformation of white and dark meat yields, a tender texture with the flavor of a slow growing bird. The Red Ranger has a dark red feathering with a few of the tail feathers being either white or black, yellow shanks, beak, and skin.



**Cornish Cross Broilers (fast growth).**

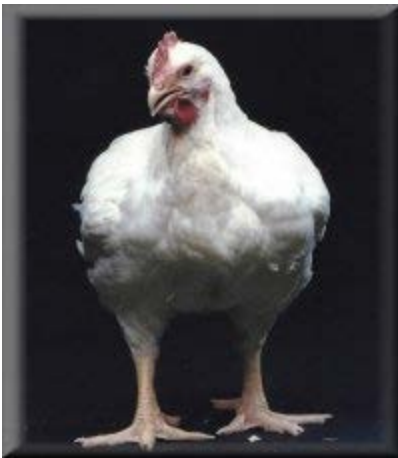
Cornish Cross (also called Cornish Rock) is an extremely fast growing chicken that is processed between six and eight weeks.



*Baby Chicks  
Broilers  
Egg Layers  
Pullets*

266 E. Paletown Rd. Quakertown, PA. 18951  
Phone: 215-536-3155 • Fax: 215-536-8034

Office hours:  
Mon - Fri 8am-5pm



**Moyer's Broiler/Roaster chicks** (sometimes nicknamed Cornish Giants) can be grown to a live weight of over 4 lbs. by 6 weeks of age Or, to a roaster weight of 8-10 lbs. Live weights of 4-5 lbs. can be achieved on close to 2 lbs. of feed per pound of meat. They have excellent conformation, plump, tender breast meat and good skin texture.



**Moyer's K-22 Red Broilers (Cockerels Only)** is a hearty meat bird that has resistant genetics providing good textured, flavorful meat for the discriminating consumer. They are perfect for the pastured poultry producer. The K-22 is a slower growing bird than the cornish giant with the males growing to a live weight of 5 pounds at around 8 weeks.



Stromberg's Chicks and Game Birds

100 York Street

P.O. Box 400

Pine River, Mn 56474

**Phone:**

(218) 587-2222

**Toll Free:**

(800) 720-1134

**Fax:**

(218) 587-4230



Red Broiler from Stromberg's



The Noll family is working to make medium-growing genetics more widely available in North America. Henry Noll offers a Silver Cross that grows to five pounds live weight in nine weeks.

Noll's Poultry Farm  
Kleinfeltersville, PA 17039  
717-949-3560  
717-949-3722 FAX

Joe Cebe, Sr. offers a Cebe Red and Cebe Black meat variety that grows to 5 pounds live weight in 9 to 10 weeks.

Cebe Farms  
P.O. Box 1404  
Ramona, CA 92065  
760-789-8221

Matt John of Shady Lane Poultry Farm, Inc. is currently developing a new hatchery and plans to introduce several alternative broiler lines during the next several years.

Shady Lane Poultry Farm, Inc.  
520 Agawam Road  
Winchester, KY 40391  
859-737-2636

Privett Hatchery  
PO Box 176 Portales, NM 88130  
Tel: 575-356-6425  
Toll Free: 1-877-PRIVETT  
info@privetthatchery.com

Privett Hatchery has a slow-growing white broiler that can be treated just like a dual-purpose chicken.

Breeds of Red or Gray Broilers specific for range rearing:

Yankee Chicks, Inc/Hall Brothers Hatchery  
P.O. Box 1026  
Norwich, CT 06360  
860-608-1389  
860-889-6351 FAX  
Contact: Jerry Srednicki

Or Gormavian Farms  
Gary Proctor – 860-716-9064

Other birds can be ordered from Morris Burr 860-455-9964

A more complete listing of hatcheries throughout the U.S. can be found at [www.aphis.usda.gov/vs/npip/](http://www.aphis.usda.gov/vs/npip/) and at [www.poultryconnection.com/hatchery.html](http://www.poultryconnection.com/hatchery.html).

**examples of hatchery Web sites**

[www.belthatchery.com](http://www.belthatchery.com)—559-264-2090

[www.esteshatchery.com](http://www.esteshatchery.com)—800-345-1420

[www.mcmurrayhatchery.com](http://www.mcmurrayhatchery.com)—800-456-3280

[www.moyerschicks.com](http://www.moyerschicks.com)—215-536-3155

[www.mthealthy.com/index.html](http://www.mthealthy.com/index.html)—800-451-5603

[www.privetthatchery.com](http://www.privetthatchery.com)—877-774-8388

[www.townlinehatchery.com/chicks.html](http://www.townlinehatchery.com/chicks.html)—616-772-6514

# Basic Needs

Fresh Feed

Fresh Water

Fresh Air

Light

Darkness

Thermal Environment

Protection

Space



# Feeding your birds



# Poultry Nutrition

What are the needs of the bird??

7 major nutrient classes

- Carbohydrates
- Protein
- Fat
- Vitamins
- Minerals
- Water
- Oxygen





The chick requires:

13 vitamins

13-16 inorganic elements (minerals)

13 Amino Acids

1 Essential Fatty Acid

Source of Energy

With the exception of water, these nutrients are provided by the ingredients that make-up the diet. Ingredients are classified as:

- Cereal Grains
- Animal Proteins
- Vegetables Proteins
- Vegetable Fats
- Animal Fats
- Micro Minerals
- Macro Minerals
- Vitamin Premixes

# Some Feedstuffs that supply Amino Acids to the Diet

Animal Proteins

Vegetable Proteins

Microbiological Ingredients

Synthetic AA

Purified AA or Proteins

Examples:

Corn, which is low in lysine

Soybean meal, which is low in methionine

By themselves neither corn nor soybean meal can provide enough essential amino acids to maximize performance.

But when the two are combined, they provide adequate amounts of the essential amino acids and are said to complement each other.

## What about Carb's and Fat?

Supply Energy\* - Needed for heat and movement

Carb's

Sugars

Starches

Gums

Etc.

Cereal Grains – Corn, Oats, Barley, Rice, etc.

\*Chickens need about 1,300 to 1,500kcal/lb of energy daily!!

1 calorie is the energy required to raise 1gm of water 1°C,

From 14.5 to 15.5°C.

1 kcal is 1000 calories.

## Fats and Oils

Corn Oil or other Vegetable Oils

Animal Fats

Not really an essential nutrient,

other than Linoleic acid (18:2 fatty acid).

Animal fats – solid, relatively inexpensive.

Problems with digestion by young birds.

Vegetable oils - liquid, expensive

Pellet quality, dustiness of feed



## Energy

important because it governs feed intake

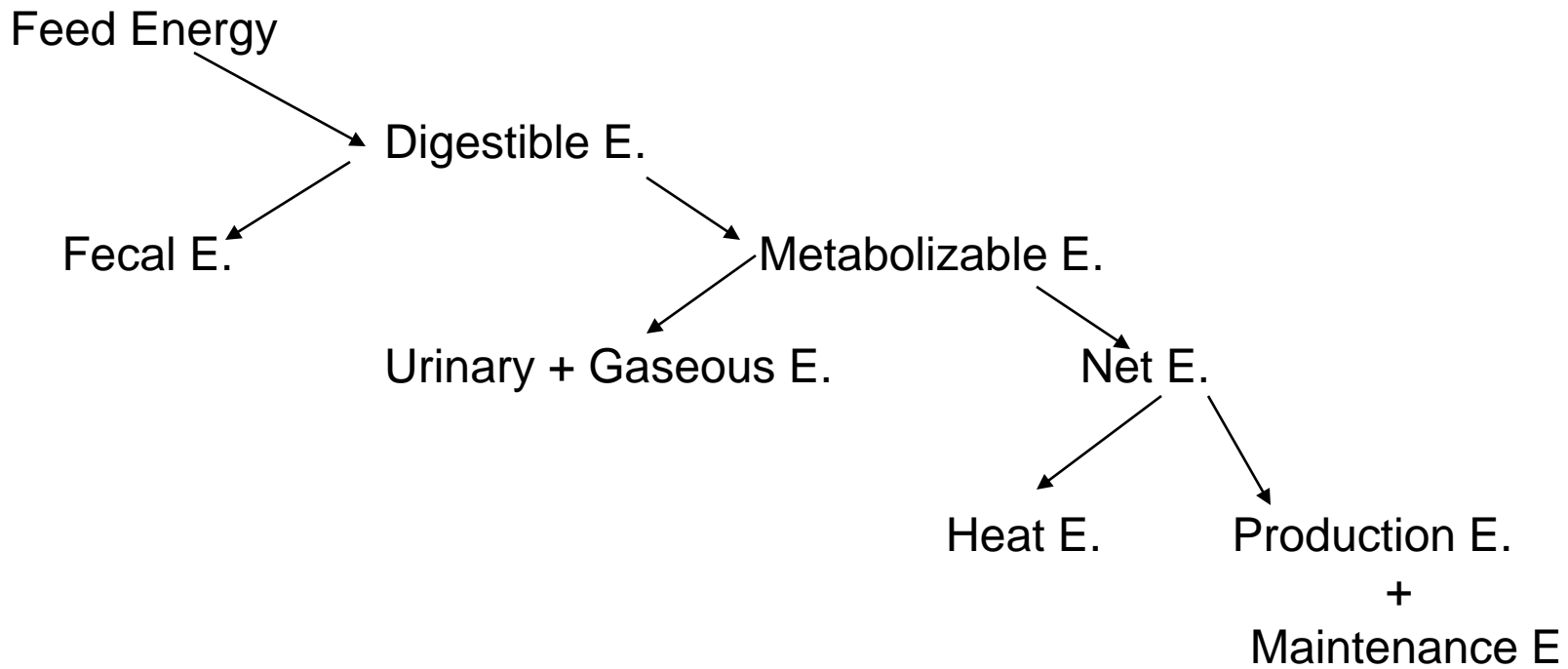
high energy ---> low feed intake

low energy ---> high feed intake

Sources of energy - everything in the diet other than minerals.

Metabolizable energy (ME) =

Energy intake as feed minus energy appearing in urine and feces.



# What about them Vitamins?

With the exception of Vitamin C, Poultry Require all the vitamins!

Vitamins act a catalysts for many reactions, and re required in small quantities. They can occur as vitamins per se or as precursors (provitamins).

Fat Soluable - A, D\*, E, K

\*Poultry cannot use just any form of D, must be D<sub>3</sub>, cholcalciferol!

Water Soluable: Thiamine (B1)                      Folic Acid  
                          Riboflavin (B2)                      Choline\*\*  
                          Pyridoxine (B6)                      Biotin  
                          Cyanocobalamin (B12)                      Niacin  
                          Pantothenic Acid

\*\* very high requirement by poultry, unlike 4 footed animals, Very little is synthesized by the chick. Generous safety factor 2-10x requirement.

Storage loss -> time, temperature, humidity

# Time for Minerals

## Macro Minerals

Calcium  
Phosphorous  
Potassium  
Sodium

Chlorine  
Magnesium  
Sulfur

## Micro Minerals

Iron  
Copper  
Cobalt  
Manganese  
Iodine

Zinc  
Chromium  
Fluorine  
Selenium  
Molybdenium

## **Broiler Starter Feeds**

The objective of the starter/brooding period (0 to 10 days of age) is to establish good appetite and achieve maximum early growth. The target is to achieve a seven-day body weight of 170 g or above. Broiler Starter should be given for ten days. The Starter represents a small proportion of the total feed cost and decisions on Starter formulation should be based on performance and profitability rather than cost.

The digestible amino acid levels in the feed are important aspects and must be considered when purchasing feed. (See Table 1)

In wheat-feeding areas the use of some maize may be beneficial.

Total fat levels should be kept low (<5%) and saturated fats should be avoided, especially in combination with wheat.

## **Broiler Grower Feeds**

Broiler Grower feed will normally be fed for 14 to 16 days.

The transition from Starter feed to Grower feed will involve a change of texture from crumbs to pellets.

There is a continuing need for a good quality Grower feed to maximize performance.

## **Broiler Finisher Feeds**

Broiler Finisher feeds account for the major cost of feeding and economic principles should be applied to the design of these feeds.

Changes in body composition can be rapid during this period and excessive fat deposition and loss of breast meat yield need to be carefully considered.

Table 1.

Nutrient Specifications for As-Hatched Broilers Grown to 4.4-5.5 lb liveweight.

From Ross 308 mgmt guide 2007

		Starter		Grower		Finisher	
Age fed	days	0-10		11-24		25-slaughter	
Energy	kcal	3025		3150		3200	
	MJ	12.65		13.20		13.40	
AMINO ACIDS		Total	Digest <sup>1</sup>	Total	Digest <sup>1</sup>	Total	Digest <sup>1</sup>
Lysine	%	1.43	1.27	1.24	1.10	1.09	0.97
Methionine & Cystine	%	1.07	0.94	0.95	0.84	0.86	0.76
Methionine	%	0.51	0.47	0.45	0.42	0.41	0.38
Threonine	%	0.94	0.83	0.83	0.73	0.74	0.65
Valine	%	1.09	0.95	0.96	0.84	0.86	0.75
iso-Leucine	%	0.97	0.85	0.85	0.75	0.76	0.67
Arginine	%	1.45	1.31	1.27	1.14	1.13	1.02
Tryptophan	%	0.24	0.20	0.20	0.18	0.18	0.16
Crude Protein	%	22-25		21-23		19-23	
<i>For optimal portions margin it is recommended that amino acid density be increased up to 5% in all diets</i>							
MINERALS							
Calcium	%	1.05		0.90		0.85	
Available Phosphorus	%	0.50		0.45		0.42	
Magnesium	%	0.05-0.50		0.05-0.50		0.05-0.50	
Sodium	%	0.16-0.23		0.16-0.23		0.16-0.20	
Chloride	%	0.16-0.23		0.16-0.23		0.16-0.23	
Potassium	%	0.40-1.00		0.40-0.90		0.40-0.90	

Table 2. Examples of Broiler Diets.

	Starter		Grower		Finisher	
Corn	563	268	582	605	652	506
Wheat	-	200	-	-	-	270
Barley	-	200	-	-	-	-
Soybean meal (48%)	336	270	305	307	238	170
Meat Meal (50%)	20	-	30	-	20	-
Fat	35	17	46	45	47	10
Ground limestone	17	16	13	15	15	15
Calcium phosphate (20% P)	15	15	10	15	15	15
Salt	3	3	3	3	3	3
Vitamin:Mineral premix <sup>1</sup>	10	10	10	10	10	10
Methionine	1.2	1.0	0.8	0.6	0.6	1.0
<b><u>Calculated analysis</u></b>						
Crude protein (%)	22.0	22.0	21.8	20.0	18.0	16.1
Digestible Protein (%)	17.7	17.7	17.7	16.2	14.2	12.9
Crude Fat (%)	5.9	5.9	7.0	7.0	7.3	3.4
Metabolizable Energy (kcal/kg)	3060	3060	3145	3146	3200	3050
Calcium (%)	1.00	1.00	0.98	0.95	0.94	0.96
Av. Phosphorus (%)	0.42	0.42	0.42	0.42	0.41	0.41
Sodium (%)	0.17	0.17	0.18	0.17	0.17	0.18
Methionine (%)	0.48	0.48	0.46	0.40	0.37	0.37
Methionine & cystine (%)	0.82	0.82	0.80	0.71	0.64	0.61
Tryptophan (%)	0.31	0.31	0.30	0.28	0.25	0.22
Lysine (%)	1.25	1.25	1.27	1.10	0.96	0.78
Threonine (%)	0.94	0.94	0.94	0.86	0.78	0.65
<b><sup>1</sup>Use additional choline chloride if vitamin premix does not contain this vitamin</b>						



# Pasture Management

Alfalfa is good, but the soils of New England are acid and require a lot of lime and soil treatment. Ladino clover has been found to be a productive plant of high palatability for poultry.

Types of legumes and grasses for Pasture Forage:

White and red clover or Ladino clover,  
Orchard grass,  
Kentucky blue grass,  
Perennial rye grass and,  
Alfalfa

University research shows that chickens get only 10-15% of dry matter for their diet from the pasture itself, and turkeys up to 30%, so supplementation with other feeds is important, such as corn, or wheat and soybean meal, and vitamins and minerals.

<http://www.free-rangepoultry.com/>

Here are some mixtures from 1947, when pasture was at a peak.  
Keep pasture mowed to increase new growth of fresh plant.

Example Pasture Mixtures: (per acre)

1. 12 lbs of Kentucky Bluegrass  
6 lbs of perennial rye grass  
2 lbs of Ladino clover

From Cornell

2. 6 lbs of Kentucky bluegrass  
10 lbs of perennial ryegrass  
4 lbs of Canada bluegrass  
2 lbs of Redtop  
2 lbs of Ladino clover  
1 lb of White clover

From Penn State

3. 8 lbs Kentucky Bluegrass  
8 lbs Timothy  
3 lbs Alsike clover  
2 lbs Ladino clover

From Univ. of Maryland

4. 2.5 lbs Ladino Clover  
5 lbs Domestic rye grass  
( seed with clover in the spring)  
6 lbs Kentucky bluegrass  
(Seed in fall)  
4 lbs timothy

(2 lbs in the fall)

**Table 3.** A typical traditional seed mixture for poultry pasture

Species	Quantity	
	lb	kg
Perennial ryegrass ( <i>Lolium perenne</i> var. Aberystwyth 23)	20	9.07
Creeping red fescue ( <i>Festuca rubra</i> )	3	1.36
Wild white clover ( <i>Trifolium repens</i> ; English certified)	1	0.45
White clover (var. Aberystwyth 100)	1	0.45
Total	25 lb/acre	28.1 kg/ha

**Table 4.** Seed mixture used in Department for Environment, Food and Rural Affairs-funded project\* at ADAS Gleadthorpe

Species	Quantity (kg)
Amenity perennial ryegrass ( <i>Lolium perenne</i> )	31.50
Smooth-stalked meadow grass ( <i>Poa annua</i> )	4.50
Brown top bent ( <i>Agrostis capillaris</i> )	2.25
Timothy ( <i>Phleum pratense</i> )	2.25
White clover ( <i>Trifolium repens</i> )	4.50
Total	45 kg/ha

\*Project OF0153.

The mixture (table 4) was chosen to be representative of a robust pasture for poultry and is similar to those specified in the literature.

It proved to be hard wearing for meat birds during a wet summer, and the birds were observed to eat it.

Some herbs (rosemary (*Rosmarinus officinalis*), sage (*Salvia officinalis*), oregano (*Origanum vulgare*) and thyme (*Thymus vulgaris*)) have powerful antioxidant capabilities and moderate antimicrobial activities (Adams, 1999).

It maybe desirable, therefore, to include herbs in the mix if such a practice permitted a reduced reliance on the feeding of synthetic antioxidants, and if immune responses were to be enhanced.

**Symposium on 'Nutrition of farm animals outdoors: Intake of nutrients from pasture by poultry.** Andrew Walker and Sue Gordon IN: *Proceedings of the Nutrition Society* (2003), **62**, 253–256

# Some Housing and Equipment Suggestions

Depends on type of rearing management:

Conventional – enclosed mechanical ventilated facility

Pasture Pens - Chicken tractors, etc.

“Free Range” pasture - Basic shelter.

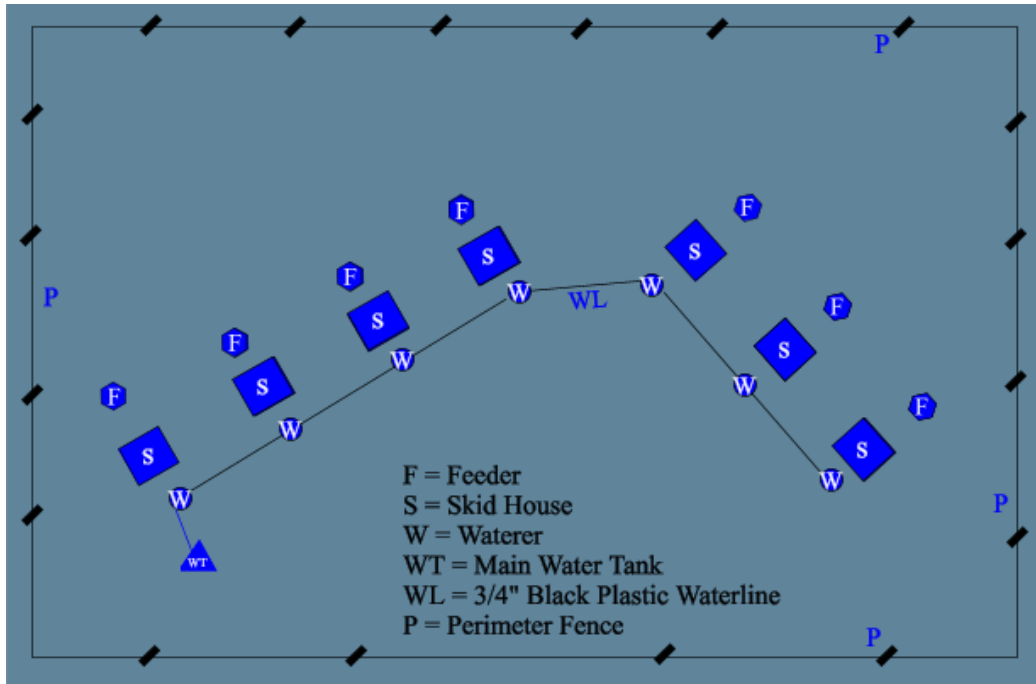
# Chicken Tractor?



Do I Look  
Like John  
Deere?







## Free-Range Poultry Essentials

Maintain at least 150' between skid houses and field perimeter fencing to minimize predation problems.

Maintain at least 100' between each skid house to maintain flock separation. Move skids ahead 50' to fresh pasture as necessary, generally every three to four weeks or as needed to keep birds out of mud. Usually, any time the birds have trashed an area around the skid that is larger 5 feet it is time for a move. Expect the birds to range about 40' out from each skid.

©2008 Herman Beck-Chenoweth

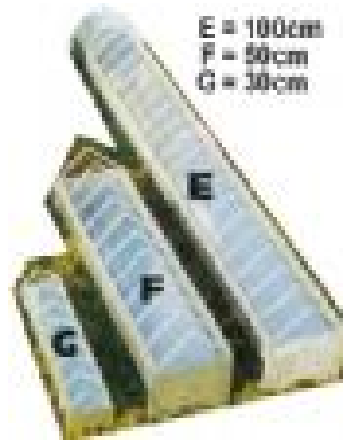


Bottom Line:

Keep birds in a DRY and DRAFT FREE  
Environment!!

# Feeding and watering equipment











<http://toolmakingart.com/2008/06/10/chicken-feeders/>





Photo credit: Alexandra Kent



# Processing your birds

Stun

Exsanguinate (bleed out)

Scald (138 to 145° F)

Defeather

Remove head, neck and legs (below hock)

Eviscerate

Chill

Package





08/11/2007









Go to Office located at: \_\_\_\_\_  
Or call \_\_\_\_\_ at phone number: \_\_\_\_\_

## Biosecurity Risks

### *Potential Points of Disease Vector*

Chicks/Poults/Pullets	Feed
Bedding material	Water
Supplies	Air
Equipment	Pets
Multi-Age Complexes	
Pests (insects, rodents etc.)	
People (including shoes, clothing etc.)	



### *Potential for Transmission*

Birds going off farm (Market birds, pullets, culls and deadstock)  
Eggs  
Equipment  
Used Supplies  
Pests (insects, rodents etc.)  
People (including shoes, clothing, crews etc.)  
Feed  
Air  
Manure

# <sup>1</sup> Sources of information on raising poultry.

<http://web2.uconn.edu/poultry/poultrypages/>

<http://extension.unh.edu/Agric/AGDLEP/PoulRab.htm>

<http://www.feathersite.com/Poultry/BRKPoultryPage.html>

<http://www.backyardpoultrymag.com/>

<http://www.backyardchickens.com/coop.html>

Forsham Cottage Arks; <http://www.forshamcottagearks.co.uk>

Henhouses <http://www.henhouses.co.uk> [http://posc.tamu.edu/extensionprograms/publications/index\\_publications.htm](http://posc.tamu.edu/extensionprograms/publications/index_publications.htm)

<http://extension.unh.edu/Agric/AGDLEP/PoulRab.htm>

<http://www.ansi.okstate.edu/poultry/>

<http://www.free-rangepoultry.com/>

Some good Books and resources for poultry:

Storey's Guide to Raising Poultry - Leonard S. Mercia, Storey Books, Pownal, Vermont 05261 ISBN 1-58017-263-6

A Guide to Raising Chickens - Gail Damerow Storey Books, Pownal, Vermont 05261 ISBN 0-88266-897-8

Feeding Poultry – The classic guide to poultry nutrition - G. F. Heuser. Norton Creek Press. ISBN 0-9721770-2-7

Chicken Tractor – The permaculture guide to happy hens and healthy soil. Andy Lee and Pat Forman.

Pastured Poultry Profits – Joel Salatin – ISBN0-9638109-0-1

Profitable Poultry Management 23<sup>rd</sup> ed. 1958 Snyder, Rowoth, Scholes and Lee. , Beacon Milling Company, Cayuga, NY

<sup>1</sup> Listing of materials does not imply endorsement of any author or material contained in the books or websites.





The.... ! Well you know!!