Raising Chickens in Your Backyard

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Viroqua WI
Saturday 20, 2013
Disclaimer

This presentation contains trade names and products from private companies—these are for educational purposes only and are in no way an endorsement by UWEX.
Topics

• Selection of Chickens  (5-13)
• Housing & Equipment  (14-29)
  • Winter considerations (17-29)
• Starting Chicks (30-35)
• Poultry Nutrition Basics (36-46)
• Pasturing Poultry (47-59)
• General Poultry Health (60-70)
• Layers and Eggs (71-78)
• Meat Birds (79-82)
Benefits to raising chickens

Eggs

Meat

Pleasure
Selecting the Right Chicken for You
SO Many Where To Start

- American Poultry Association
  - About 55 Breeds of Standard Chickens
  - About 65 Breeds of Bantam Chickens

Many other breeds that are not recognized
Selecting A Breed: What type of chicken do you want?

Layer type

Meat type

Dual Purpose

Ornamental
What size ???

• **Standard Chickens vs Bantam Chickens**

Both chickens are 2 year old hens. Top is a standard dark Cornish, bottom is a bantam dark Cornish.

Note: all standard chickens have a bantam but not all bantams have a standard.
What Color?
What Pattern?

Spangled

Columbian

Mottled

Barred

Laced
Any “Funky Look?”
What Type of Comb?

- Single
- Pea
- Rose
- V-Comb
- Cushion
- Buttercup
- Strawberry
Sources of Birds

• Hatcheries
  – Large quantities
  – Sell day olds
  – Breed type may be lacking

• Breeders
  – Breed type better
  – May be able to buy smaller quantities and older birds
  – Cost more

• Swaps, auctions, etc.
  – Inexpensive,
  – Purchase mature birds
  – Health could be an issue
Housing & Equipment
Housing

Key Factors:
- Clean and dry
- Adequately ventilated and draft free
- Provides the proper space
- Provides protection

<table>
<thead>
<tr>
<th>Chicken Types</th>
<th>Requirements Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer type Pullets</td>
<td>1.5</td>
</tr>
<tr>
<td>Layer type Adults</td>
<td>2</td>
</tr>
<tr>
<td>Broiler type</td>
<td>2-3</td>
</tr>
</tbody>
</table>
## Equipment

### Feeding System

### Watering System

### Laying/Breeding/Ornamentals
- Nest Boxes – 1sq. ft/ 4 layers
- Roost – 8”/ bird
- Supplemental light – 14-16 hrs.

### Brooding/ Chicks
- Supplemental Heat – 250 watt bulb/ 50 chicks
- Brooder Guard

<table>
<thead>
<tr>
<th>Age (Weeks)</th>
<th>Water Space (in)</th>
<th>Feed Space (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>.25</td>
<td>1</td>
</tr>
<tr>
<td>4-8</td>
<td>.5</td>
<td>2</td>
</tr>
<tr>
<td>8-16</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>16+</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
Winter considerations

- Birds themselves
- Adjustments to feed
- Equipment
- Litter
- Insulation
- Heat

Winter slides provided by Ron Kean, UWEX Poultry Specialist
The Birds

- **Health**
  - Get rid of parasites (internal and external)
  - May want to consider culling unthrifty, “free boarders”

- **Age of birds**
  - Plan ahead so you don’t have late chicks
  - Very old birds may have more problems
**Other Things to Consider**

- **Feed**
  - Balanced ration should be good
  - Extra cracked corn or scratch grain
    - Adds extra energy for heat
    - Don’t overdo it

- **Water**
  - Very important
  - Typically drink twice as much as feed (by weight)
  - Need heaters or multiple trips each day
Rubber pans (if not using heater)
WATERERS

- Rubber pans (if not using heater)
- Heater methods
  - Base heaters
  - Light bulb over top
  - Submersible heater
Deep litter is good (6-12 inches is good)
- Start it before cold sets in
- Insulates floor
- May compost some

Need to keep it dry
- Keeps diseases down
- Decreases ammonia production
- Hard-packed litter loses advantages
- Damp and cold are not a good combination
INSULATION

- Good for summer and winter
- Walls and ceiling if possible
- Inaccessible to birds
  - Cover it with plastic, plywood, etc.
  - Make it something they won’t eat
- Balancing act
  - Keep heat in
  - Move gases out
    - Water vapor
    - Ammonia from waste
    - CO2

- Natural ventilation
  - Warm air rises so vents on top allow air out
  - Cooler fresh air enters through inlets
  - Need temperature difference (or wind) to make it work
VENTILATION

- In extreme cold
  - Don’t want draft blowing on birds
    - Baffle in front of inlet
    - May want to put cloth in front of inlet
  - Don’t want to lose too much heat
Using bird’s body heat is easiest
Have a few thousand hens and this won’t be a problem!!
Try to confine birds to a small area
  - Covered roost area
    - “Community nest” situation
    - Insulate this
    - Rodents may be a problem
    - May need to clean fairly often

Use a heater
Most important is to keep it safe
- Keep birds from contacting it
- Keep litter from contacting it
- Try to limit dust buildup
- Watch out for exhaust gases
MORE ON ADDITIONAL HEAT

- Lights (i.e., heat lamps) will affect egg production
- Doesn’t need to be “toasty” warm
- Balancing act with ventilation again
- May have to give up optimal conditions to keep birds warm
Starting Chicks
STARTING CHICKS

Probably more than necessary

Nice setup, with comfortable chicks

www.holisticbirds.com

www.gov.mb.ca/agriculture/livestock/poultry

Comfortable chicks supplied with warmth, feed and water.
LIGHTS

- 24 hours per day of light is okay
- Some will use 23 L:1 D
- Lights don’t need to be very bright
- Can get by with natural light
  - May take longer to reach market weight
Temperature

- Maybe slightly cooler than other chicks
  - Start at 90° and decrease 5° per week
- Temperature gradient is best
- No drafts
TEMPERATURE GRADIENT
STARTING CHICKS

- Comfortable
- Too Cold
- Too Hot
- Drafty
Poultry Nutrition
What do they Need?

• Factors that affect nutritional need
  – Breed and Strain
  – Age
  – Sex
  – Rate of Growth & Production
  – Health
  – Environment
Feeding

• Keys to poultry diets
  – **Amino Acid balance** is more important than % protein
  
  – Feed is **balanced on energy** needs of the birds in Kcal ME/ lb
  
  – **Water** is very important, there is a direct relationship between water and food consumption.
Forms of Feed

- Mix & Grinds
- Crumble
- Pellet
Commercial Rations

• Each Company Brand has their own program.

• Basics
  – Starter or Starter Grower
    • Chicken Starter 18-22% Protein
    • Game Bird Starter 24-28% Protein
  – Grower/ Finisher
    • Usually 18-22%
  – Layer
    • 15-20%
Mixing your own feeds

• There are many different ways to mix feeds or have your own feed made
  - Concentrates and Mineral/Vitamin Mixes are important in mixing the home ration
## Examples

### Various Poultry Feed Formulations & Nutrient Content Using Prince Poultry Concentrate

<table>
<thead>
<tr>
<th></th>
<th>18%</th>
<th>17%</th>
<th>16%</th>
<th>15%</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poultry Concentrate</td>
<td>725</td>
<td>650</td>
<td>575</td>
<td>500</td>
<td>450</td>
</tr>
<tr>
<td>Corn</td>
<td>1275</td>
<td>1350</td>
<td>1425</td>
<td>1500</td>
<td>1550</td>
</tr>
</tbody>
</table>

**NUTRIENT CONTENT***

<table>
<thead>
<tr>
<th></th>
<th>18%</th>
<th>17%</th>
<th>16%</th>
<th>15%</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Protein (min) %</td>
<td>18</td>
<td>17</td>
<td>16</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Lysine (min) %</td>
<td>0.95</td>
<td>0.89</td>
<td>0.80</td>
<td>0.73</td>
<td>0.68</td>
</tr>
<tr>
<td>Methionine (min) %</td>
<td>0.45</td>
<td>0.43</td>
<td>0.40</td>
<td>0.37</td>
<td>0.35</td>
</tr>
<tr>
<td>Crude Fat (min) %</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Crude Fiber (max) %</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Calcium %</td>
<td>2.4</td>
<td>2.2</td>
<td>2.0</td>
<td>1.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Phosphorus %</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>0.60</td>
<td>0.56</td>
</tr>
<tr>
<td>Salt %</td>
<td>0.52</td>
<td>0.47</td>
<td>0.41</td>
<td>0.36</td>
<td>0.32</td>
</tr>
<tr>
<td>Selenium (ppm)</td>
<td>0.435</td>
<td>0.39</td>
<td>0.345</td>
<td>0.30</td>
<td>0.27</td>
</tr>
</tbody>
</table>

*Nutrient values are based upon generally accepted values. Actual nutrient content will vary with actual content of various ingredients used.

### Various Poultry Feed Formulations & Nutrient Content Using Prince Poultry Base Mix

<table>
<thead>
<tr>
<th></th>
<th>21% Chick Starter</th>
<th>18% Chick Starter</th>
<th>17% Layer</th>
<th>16% Layer</th>
<th>23% Broiler Starter</th>
<th>20% Broiler Grower</th>
<th>18% Broiler Finisher</th>
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<tbody>
<tr>
<td>Base Mix</td>
<td>75</td>
<td>60</td>
<td>50</td>
<td>50</td>
<td>75</td>
<td>65</td>
<td>60</td>
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<tr>
<td>SMB 48</td>
<td>675</td>
<td>560</td>
<td>505</td>
<td>455</td>
<td>720</td>
<td>630</td>
<td>525</td>
</tr>
<tr>
<td>Corn</td>
<td>1230</td>
<td>1360</td>
<td>1250</td>
<td>1335</td>
<td>1145</td>
<td>1290</td>
<td>1400</td>
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<tr>
<td>Calcium Carbonate</td>
<td>15</td>
<td>15</td>
<td>189</td>
<td>154</td>
<td>4</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Salt</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Fishmeal</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>50</td>
<td>--</td>
<td>--</td>
</tr>
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**NUTRIENT CONTENT***

<table>
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<tr>
<th></th>
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<th>16%</th>
<th>23%</th>
<th>20%</th>
<th>18%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Protein (min) %</td>
<td>21</td>
<td>19</td>
<td>17</td>
<td>16</td>
<td>23</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Lysine (min) %</td>
<td>1.1</td>
<td>1.0</td>
<td>0.9</td>
<td>0.8</td>
<td>1.3</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Methionine (min) %</td>
<td>0.5</td>
<td>0.45</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Crude Fat (min) %</td>
<td>2.5</td>
<td>2.6</td>
<td>2.4</td>
<td>2.5</td>
<td>2.6</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Crude Fiber (min) %</td>
<td>2.2</td>
<td>2.1</td>
<td>1.9</td>
<td>2.0</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Calcium %</td>
<td>1.2</td>
<td>1.0</td>
<td>4.2</td>
<td>3.5</td>
<td>1.2</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Phosphorus %</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>0.6</td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Salt %</td>
<td>0.24</td>
<td>0.24</td>
<td>0.29</td>
<td>0.29</td>
<td>0.30</td>
<td>0.30</td>
<td>0.29</td>
</tr>
<tr>
<td>Selenium (ppm)</td>
<td>0.30</td>
<td>0.24</td>
<td>0.20</td>
<td>0.20</td>
<td>0.30</td>
<td>0.30</td>
<td>0.26</td>
</tr>
</tbody>
</table>

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Source: Prince Feeds
The Extras

• **Grit** — basically stone (mostly a granite product) added to the feed to aid in the grinding of feed in the gizzard

• **Scratch**— a mixture of grains, corn, wheat, milo, etc. These mixes are large particles and have a medium to coarse grind

• **Calcium** — can be added to layer diets, added larger particle size, typically in the form of oyster shells, limestone
The Extras

• **Table Scraps:**
  – Used as a treat and not a replacement of regular poultry feeds
  – Typically leaf and green is a good rule of thumb
  – Meat scraps can be feed in small amounts
  – Caution on spices and salt, could have negative impact on production
The Extras

• Medicated vs. Non-Medicated feeds
  – Dependant on markets
  – Usually only a coccidiostat and feed with the starter rations.
Pasturing Poultry
Common Systems

• The “Chicken Tractor” Method

• Day Range System

• Other Systems
“Chicken Tractor” Method

• Movable pen system
  – Common for meat bird production
  – Floorless pens that are moved once or twice daily
Day Range

- Semi-permanent housing
- Fenced in area “Yard”
- Moved weekly or bi-weekly
- Common for both layers and meat type birds
Other methods

• Yarding/Ranging

• Free Ranging

• “All Over”
Poultry and Forage Utilization

Who is the best forager?

Geese – are the only ones that gain a majority of their diet from pasture.

Turkeys/Ducks/Chickens – there are reports that chickens can receive 30% of their diet from pasture, however this number is actually believed to be less than 10%.
Poultry Pastures

- Pastures should remain short 3” - 4”
- Good mixture of legumes and grasses
- Tolerant to traffic
- Sod vs. bunch grass
Pasture Mixes

• Not many recommendations

– Cornell University 1940
  • Kentucky Bluegrass
  • Canada Bluegrass
  • Rough-stalked Meadow Grass
  • Timothy
  • Rye Grass
  • White Clover
Pasture Mixes

- Common reports of small grain such as oats and rye
- Alfalfa
- Birds Foot Trefoil
- From many accounts diversification is very important
Can I save feed $ on Pasture?

- Study from Truman State University
  - Feed Efficiency of Pasture Poultry Systems
    Michael Siepel, et.al.

- Undergraduate Project

- Looked at weight gain and feed efficiencies in three production systems
Feed Efficiency: Comparison Across Trials

Inside Salatin Day-Range Poultry Production System

Feed Efficiency (lb feed/lb gain)

Spring 2001
Spring 2002
Fall 2002
Spring 2003
Comparison of Average Daily Gain: Cornish-Rock vs. Rainbow Free Range

Note: ADG evaluated for the entire period the Cornish were on pasture and for the comparable 6 week period that the Rainbow were on pasture.
Is it profitable?

Annual gross and net returns per bird from pastured poultry, 1997 and 1998, four farms

<table>
<thead>
<tr>
<th></th>
<th>Farm A</th>
<th>Farm B</th>
<th>Farm C</th>
<th>Farm D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross return</td>
<td>$6.70</td>
<td>$8.47</td>
<td>$6.38</td>
<td>$3.80</td>
</tr>
<tr>
<td>Net return</td>
<td>$3.81</td>
<td>$3.64</td>
<td>-$0.05</td>
<td>-$2.82</td>
</tr>
<tr>
<td># Birds sold</td>
<td>2,898</td>
<td>2,100</td>
<td>633</td>
<td>420</td>
</tr>
</tbody>
</table>

Source: CIAS Research Brief #57 – Raising Poultry on Pasture
General Poultry Health

"Quit complaining. For one thing, chicken soup is good for a cold. For another, it's nobody we know."
Concerns about disease

bird to human

• **Salmonellosis**
  – *Salmonella enteritidis* or SE can be contracted by eating undercooked eggs or contamination from raw meat. The disease in very rare occasions can occur through fecal contamination.

• **Influenza**
  – In other countries there have been reports of Influenza infecting people from birds. In the US we have had the specific subtype of the virus that affects humans

• **Histoplasmosis**
  – Respiratory disease in humans caused by a soil fungus, can grow in buildup or in piles of old poultry manure and pigeon droppings.
Respiratory Diseases

There are many causes and is very common

Signs:
- Coughing
- Sneezing
- Discharge from the eyes and nostrils
Respiratory Diseases

• Causes:
  – Viruses
  – Bacteria
  – Parasites (such as the gapeworm)
  – High ammonia levels
Respiratory Diseases

• Vectors:
  – Other Chickens
  – Rodents
  – Manure
  – Dust
Non-Respiratory Diseases

• Merek’s Disease
  – Chickens 12-25 weeks old
  – Mereks is a type of avian cancer that affects the nervous system, causes lameness and paralysis
  – Mereks is a virus spread in the air on dust and dander
  – No treatment, vaccine is available
Non-Respiratory Diseases

• Egg Drop Syndrome
  – Affects chickens,
  – Causes thin to no shelled eggs, and reduced egg production
  – Transmitted through the chick.
  – No treatment, molting of the flock to restore egg production
Non-Respiratory Diseases

• Pullorum
  – Chickens and turkeys
  – Death of chicks at 5-7 days old. Droopiness, weakness, pasted vent with white diarrhea
  – Transmitted through the egg.
  – Diseased birds are to be eradicated by law
Other Concerns

- **Mites**
  
  **Size:** 1 millimeter in diameter

  **Color:** Dark Reddish Black

  **Egg Color & Location:**
  White to off-white along the feather shaft

Mites live on the host and in the environment:
- Decreased Food Intake
- Decreased Egg Production
- Decreased Weight Gain
- Increased Susceptibility to Other Diseases
Other Concerns

• Lice

  **Size:** 2-3 millimeters long

  **Color:** Light Brown

  **Egg Color & Location:**
  White and at the base of the feather

Lice only live on the host, and appear to be fast moving.
- Decreased Food Intake
- Decreased Egg Production
- Decreased Weight Gain
- Increased Susceptibility to Other Diseases
Six Steps To Biosecurity

1. Keep Your Distance
2. Keep It Clean
3. Don’t Haul Disease Home
4. Don’t Borrow Disease
5. Be Informed
6. Report Sick Birds
Layers & Eggs
Special Considerations: Layers

Color

Size & Shape

<table>
<thead>
<tr>
<th></th>
<th>Jumbo</th>
<th>Extra Large</th>
<th>Large</th>
<th>Medium</th>
<th>Small</th>
<th>Pee Wee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>30 oz.</td>
<td>27 oz.</td>
<td>24 oz.</td>
<td>21 oz.</td>
<td>18 oz.</td>
<td>15 oz.</td>
</tr>
<tr>
<td>Units</td>
<td>56 lbs.</td>
<td>50 1/2 lbs.</td>
<td>45 lbs.</td>
<td>39 1/2 lbs.</td>
<td>34 lbs.</td>
<td>28 lbs.</td>
</tr>
</tbody>
</table>
The Laying Hen

- Smaller Framed
- Angular in appearance
- Want her to be healthy and vigorous
Hen in Production

• **In Production**
  – Comb and Wattles
    • Large
    • Bright red
    • Waxy
  – Pubic Bones are flexible
  – Vent large and moist
  – Abdomen full and pliable

• **Out of Production**
  – Comb and wattles
    • Small
    • Pale
    • Shriveled
  – Pubic bones are ridged and close together
  – Vent is small and dry
Pigment Bleaching

2. Eyering
   (7 to 10 days)

3. Earlobe
   (7 to 10 days)

4. Beak
   (4 to 6 weeks base to tip)

5. Shanks
   (4 to 6 months)
   Gradual fading all over but completed in the following order:
   a. Front and sides of shanks
   b. Rear of shanks
   c. Tops of toes
   d. Hocks

1. Vent
   (1 week)
Lighting

• Long day breeders
  – min length of time needed to be effective is 13 hours and after 17 no benefit with 16 hours being the best.

• Light intensity of 1 foot-candle
Egg Production

• **Infundibulum** - Picks up the yolk after it is released (fertilization) 15 min

• **Magnum** - thick thin albumen and chalaza 3 hours

• **Isthmus** - adds the membrane layers 1 ¼ hours

• **Uterus** - adds the shell 21 hours

• **Holding area until the egg passes**
Market Birds
Special Considerations: Meat birds

Shape of Carcass

Commercial Broiler

Dual Purpose Breeds

Growth Rate

Taste & Texture
### Poultry Requirements

**Less than 1000 birds per year**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Sold at a farmers market</th>
<th>Sold to retail establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>All birds must be slaughtered and processed at a meat licensed facility</td>
<td>Birds are processed at a licensed meat establishment</td>
<td></td>
</tr>
<tr>
<td>Birds are labeled “not inspected,” and have the name and address of producer, and net weight</td>
<td>Bird-by-bird inspection is required</td>
<td></td>
</tr>
<tr>
<td>A mobile retail food license is required to sell birds at farmers markets, and local ordinances may also apply</td>
<td>Birds are fully labeled</td>
<td>In addition, the producer must be registered as a meat distributor</td>
</tr>
</tbody>
</table>

**More than 1000 birds per year**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Sold at a farmers market</th>
<th>Sold to retail establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bird-by-bird inspection required at a state or USDA licensed facility</td>
<td>Same requirements as at left</td>
<td>Same requirements as at left</td>
</tr>
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<td>Birds are fully labeled</td>
<td>Local ordinances may apply at farmers markets</td>
<td>In addition, the producer must be registered as a meat distributor</td>
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<tr>
<td>Producer must have a retail food establishment license</td>
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**NOTE:** If the product is sold over state lines, the processing facility must be under USDA inspection.
### Determining Your Price

#### Sample: Breakeven Calculator

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<tbody>
<tr>
<td>1</td>
<td>SIMPLE BREAKEVENT CALCULATOR POULTRY</td>
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<td>by Adam Hady - Richland County UWEX</td>
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<td>4</td>
<td>Purchase cost</td>
<td>price per bird</td>
<td># birds</td>
<td>Dollars</td>
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<td>Chick/poul/duckling cost</td>
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<tr>
<td>11</td>
<td>Feed cost</td>
<td>Amt / bird</td>
<td>Unit</td>
<td>Price</td>
<td>Unit</td>
<td>Dollars/bird</td>
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<td>Total Bird cost</td>
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<td>$11.03</td>
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</tbody>
</table>

#### Costs and Income

- **Fixed Cost**: $5.83
- **Total Fixed Cost**: $62.91
- **Estimated Live wt of the Bird**: 8.2 lbs
- **Total Cost**: $82.11
- **Break Even Sale Price**: $4.28
- **Income**:
  - **Birds Sold**: 61.932
  - **Gross Income**: $309.96
  - **Net Profit**: $44.65

[Sample Breakeven Calculator](http://richland.uwex.edu/ag/documents/Poultrybrekevencalculator.xls)
Poultry Resources

• UWEX Poultry Educational Resources: http://www.uwex.edu/ces/animalscience/poultry/resources.cfm
• Richland County UWEX Poultry: http://Richland.uwex.edu/ag/Poultrylinks.html
• Guide to Raising Healthy Chickens (A3858-01): learningstore.uwex.edu
• Producing Poultry on Pasture (A3908-03): learningstore.uwex.edu
• Pasture Poultry Ark (A3908-02): learningstore.uwex.edu
• University of Kentucky Small and Backyard Flocks: www.ca.uky.edu/smallflocks/
• Mad City Chickens: http://www.madcitychickens.com/
• Urban Chickens: http://urbanchickens.org/
Questions???