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WHAT THIS GUIDE WILL HELP YOU DO

- CLARIFY your goals in considering poultry production options
- UNDERSTAND the range of options you have in the Upper Midwest
- IDENTIFY those that fit your strengths, interests, and resources
- ENCOURAGE further planning, discussion, and networking
- PROVIDE contact information to research areas of interest on your own

WHAT THIS GUIDE WILL NOT DO

- COVER every system or combinations of these used in the Upper Midwest
- PROVIDE state-of-the-art technical data
- REPLACE the expertise and counsel of breeders, nutritionists, veterinarians, accountants, attorneys, contractors, or consultants
- GUARANTEE success, sustainability, or personal satisfaction
- MAKE decisions for you

HOW YOU CAN USE THIS GUIDE

- SKIM the entire guide (to get an overview)
- READ sections of greatest interest (to satisfy an immediate need or curiosity)
- START at the beginning (to use a systematic approach to your situation).
- PERSONALIZE your guide—highlight or circle important ideas
- REFER to additional resources listed for more details to make your decision

THIS GUIDE WAS DEVELOPED TO:

- HELP farmers compete, prosper, and create operations with mid- to long-term potential
 - ENCOURAGE producers of different types, sizes, and philosophies to coexist and cooperate, recognizing that there is no single perfect production system
 - OFFER options that can provide market access to smaller or newer poultry producers
 - BUILD upon the expertise and experience of noted authorities, working together as an integrated team
 - SUPPORT poultry production in the Upper Midwest as a vital contribution to a well-balanced economy
 - HELP producers who are ready to make a change in their enterprise.
-

INTRODUCTION

Poultry as a New Enterprise

Thinking of raising poultry? Many farmers are interested in poultry because of its income potential and management flexibility. Poultry enterprises may be operated seasonally or year-round, full-time or part-time, on pasture or in a barn. Poultry products can be sold direct from the farm or for a premium in specialty markets where buyers seek something a little different. There's a lot to get excited about! There's also a lot to consider when it comes to marketing, processing, and production.

All poultry products must be processed at some level before they can be sold. For this reason, poultry growers must either contract with a large-scale company or arrange processing on their own. The same goes for marketing. Conventional meat and egg markets, like other agricultural sectors, are dominated by large-scale companies. Consequently, it takes a bit of footwork to successfully market poultry products as an independent grower. But, if you're willing to keep an open mind, to be creative, and to cater to the demands of buyers, poultry may become one of your most promising farm enterprises.



Minnesota Producer Alvin Schlangen with processed organic eggs, ready for market.

Using This Guide

Poultry Your Way (PYW) is for anyone interested in commercially raising, processing, and marketing poultry. It is designed to help you consider alternatives, and to help you make decisions about which alternative(s) will be most compatible with your family and business goals.

In the first chapter, **Take Stock of Resources and Goals**, you are encouraged to inventory available resources and identify goals for the poultry enterprise. Next, in **Poultry Overview**, we introduce and briefly describe domesticated species. Poultry species and breed choice will affect your production, processing, and marketing options.

The following three chapters are the nuts and bolts of the publication—poultry marketing, processing, and management. It may seem that we've gotten things backward. After all, you need to produce birds first before you can process and market them. We've chosen to discuss marketing first, then processing, and finally production management because this is the sequence in which you will find it necessary to make decisions. Because the poultry industry is heavily vertically integrated, growers don't have the option of producing first and waiting until slaughter time to identify a buyer and processor (as with other livestock and commodity markets). When raising poultry, it's necessary to identify markets, buyers, and processors in advance of production. You simply can't produce on a large scale without a market contract, nor can you expect to market independently without a processing plan.



Day-range chickens on pasture.

Poultry Marketing Alternatives begins with basic background information about poultry meat and egg markets—customers, products, and relative prices (when available). In **Poultry Processing Alternatives** we discuss on-farm and off-farm processing options, as well as the legal considerations associated with each. In the next chapter, **Poultry Management Alternatives**, five poultry production systems are described: (1) Industrial Management; (2) Traditional Management; (3) Day-range Management; (4) Daily Move Pen Management; and (5) Organic Management. Accompanying each management description are real-life profiles of successful poultry farmers in Michigan, Minnesota, and Wisconsin. In the profiles, growers talk about how a particular management system is working on their farm, what types of challenges they've experienced, where they market, how they get their poultry products to market, and what they might do differently next time.

Each of these three chapters — Marketing, Processing, and Management — concludes with an **Explore Your Opportunities** section, that offers suggestions to help you follow up on an idea and learn about the availability of custom processing services, for example, or about the going market price for pasture-raised chicken at your local farmers' market. The information you gather about marketing, processing, and management alternatives will help you in **Chapter Six: Select the Best Alternative**. Finally, in **Develop a Poultry Enterprise Plan**, a series of questions is presented by topic to help you work out the marketing, processing, and management details in a written plan. An extensive **Resources** section is provided as well, should you want to further explore any of the poultry marketing, processing, and management alternatives on your own.

So, whether you are a commercial farmer seeking to make better use of pastures or a new farmer interested in contract production, we encourage you to flip through these pages. Think about the marketing, processing, and management options. Read about other farmers' experiences. Check out the resources to get more in-depth information, and develop a poultry enterprise plan that best fits you and your farm.

Your decisions about whether or not to raise poultry, how to process the birds or eggs, and where to market products will be influenced by many personal factors. Not everyone will be interested in producing 200 black-skinned chickens on pasture for the Hmong community. Conversely, not everyone will want to put up 500,000-bird broiler barns under contract with an integrator. Many opportunities will be unique to your location, markets, land, climate, skills, and goals.

The questions below are offered to help you evaluate any ideas you and your family may have for the poultry enterprise. In the chapter, Select the Best Alternative, you will use your answers, along with what you know and learn, to determine whether poultry farming makes sense for you and, if so, what your poultry enterprise might look like.

RESOURCES

Land:

| Total acres owned: | | Total acres leased: | | Topography | Water |
|--------------------|-------|---------------------|-------|------------|---------------|
| Tillable | _____ | Tillable | _____ | _____ | Source _____ |
| Pasture | _____ | Pasture | _____ | _____ | Quality _____ |
| Other | _____ | Other | _____ | _____ | |

Climate (season and number of production days):

Geographic location:

- Within _____ miles of a major urban area:
- Within _____ miles of a custom processor:
- Within _____ miles of a poultry integrator:
- Other: _____

Equipment (describe size and remaining useful life):

- Buildings _____
- Fencing _____
- Waterers _____
- Feeders _____
- Crates _____
- Freezers and Coolers _____
- Processing equipment _____
- Vehicles _____
- Other _____

TAKE STOCK

People (describe skills):

- Family members _____
- Community members _____
- Hired help _____
- Volunteers _____
- Interns _____

Community (describe availability of the following):

- Feed mill _____
- Farmers' market(s) _____
- Intermediary markets
(grocers, restaurants) _____
- Equipment _____
- Breeding stock supplies _____
- Neighbors with experience _____
- Seasonal labor _____

Money (list value):

- Total assets (farm and nonfarm) _____
- Total liabilities (farm and nonfarm) _____
- Cash available _____
- Borrowing capacity _____

Skills (describe):

Have you worked with poultry? _____

Have you ever processed live birds? _____

Do you enjoy interacting with people? _____

Have you ever managed employees? _____

Do you keep good records? _____

Are you good at managing money? _____

TAKE STOCK

VALUES AND GOALS

What DO you enjoy doing? (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Working with livestock | <input type="checkbox"/> Working on a seasonal basis |
| <input type="checkbox"/> Working outdoors | <input type="checkbox"/> Having time to rest and take vacations |
| <input type="checkbox"/> Working together as a family | <input type="checkbox"/> Communicating with customers |
| <input type="checkbox"/> Managing independently | <input type="checkbox"/> Recordkeeping |

What types of farm work do you DISLIKE? (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Working with livestock | <input type="checkbox"/> Working on a seasonal basis |
| <input type="checkbox"/> Slaughtering | <input type="checkbox"/> Communicating with customers |
| <input type="checkbox"/> Working outdoors | <input type="checkbox"/> Recordkeeping |
| <input type="checkbox"/> Managing independently | |

To me, being “successful” in farming means: (check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Being a steward of the land | <input type="checkbox"/> Farming full-time |
| <input type="checkbox"/> Satisfying our family income goal | <input type="checkbox"/> Building new relationships outside my community |
| <input type="checkbox"/> Creating a place for the next generation to farm | <input type="checkbox"/> Learning about and using new farming practices |
| <input type="checkbox"/> Generating additional income | |

What would you like your farm to be known for? (check all that apply)

- | | | |
|--|--|---------------------------------------|
| <input type="checkbox"/> High quality products | <input type="checkbox"/> Stewardship | <input type="checkbox"/> Friendliness |
| <input type="checkbox"/> Consistent quality | <input type="checkbox"/> Competitive price | <input type="checkbox"/> Variety |
| <input type="checkbox"/> Food safety | <input type="checkbox"/> Reliability | <input type="checkbox"/> Innovation |
| <input type="checkbox"/> Organic | <input type="checkbox"/> Knowledgeability | |

How would you like to be known in your community? (check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Steward of the land | <input type="checkbox"/> Knowledgeable |
| <input type="checkbox"/> Fair employer | <input type="checkbox"/> Good manager |
| <input type="checkbox"/> Asset to community | <input type="checkbox"/> Humane caretaker |
| <input type="checkbox"/> Innovative | <input type="checkbox"/> Financially successful |

Why are you considering adding poultry to your farm?

TAKE STOCK

What is financially important to you?

- | | |
|--|--|
| <input type="checkbox"/> Year-round income/cash flow | <input type="checkbox"/> Equity growth |
| <input type="checkbox"/> Price stability | <input type="checkbox"/> Limited risk |
| <input type="checkbox"/> Limited debt | |
-

How much income do you want to generate from the poultry enterprise?

- Enough to pay all family living expenses
 - Some extra money to supplement off-farm income
 - Estimated net income (\$ value): _____
-

Of all the things you value and enjoy, which three are the most important?

1. _____

2. _____

3. _____

Background

Poultry nomenclature often sounds like a foreign language. Those new to poultry production may find themselves searching the dictionary to figure out, for example, just what industry terms like “capon,” “broiler,” and “squab” mean. Or they may find themselves wondering what the difference is between a pullet and a broiler.

If you are interested in marketing to specialty buyers it will be important to familiarize yourself with different poultry species and classes to ensure that you and your buyers are talking about the same kind of bird or product. Bird species and class will affect your marketing, processing, and, ultimately, your production management decisions.

Poultry Basics

The term “poultry” refers to domesticated birds raised for meat, eggs, and other products. Poultry are omnivores and non-ruminants. They have no teeth and, instead, use a muscular gland called the gizzard to grind their food.

Since 1946, the U.S. Department of Agriculture (USDA) has recognized six poultry species as defined in the Agricultural Marketing Act: chicken, duck, goose, Guinea fowl, pigeon, and turkey (USDA Agricultural Marketing Service, 2002). We add to this list captive game birds. Captive game birds, though not technically considered poultry, are “birds of a normally wild type, such as pheasants, quail, wild turkeys, migratory fowl, and exotic birds that are produced in captivity for slaughter and consumption” (Wisconsin Administrative Code, 2002). Many of today’s poultry producers are exploring captive game production.

All live poultry are further classified by weight, breed, and age. Traditional weight classes include bantam, lightweight, medium weight, heavyweight, and ornamental. Breeds reflect genetic origin and particular physical characteristics such as shape and size. And finally, live birds are classified by age as hatchlings, pullets (young female chickens), poults (young turkeys), layers, and broilers (young chickens raised for meat) to name a few.

A detailed description of individual poultry and captive game species follows. For more information about poultry classes and breeds, check out the American Poultry Association’s *American Standard of Perfection*, the American Livestock Breeds Conservancy website, and *Storey’s Guide to Raising Poultry* (see **Resources** under *Species/Class/Breed Information*).

Species Alternatives

Every poultry species has unique adaptations or advantages. Some birds are known for rapid growth and pest control while others are known for their ability to survive on forage and in extreme weather. When choosing a species and breed, most poultry growers recommend that you look for high-quality breeding stock and birds that are known for disease resistance and production/feed efficiency.

Figure 1, reproduced from *Storey’s Guide to Raising Ducks*, will give you a feel for the production advantages generally attributed to chicken, turkey, goose, duck, and captive game species. As an experienced producer, you may or may not have found these adaptations to be true for your flock. Remember, this is a general species comparison.

Figure 1: Comparison of Poultry Species

| SPECIES | RAISABILITY | DISEASE RESISTANCE | SPECIAL ADAPTATIONS |
|----------------|-------------|--------------------|---|
| Chicken | Fair-Good | Fair-Good | Eggs; meat; natural mothers; adapt to cages, houses or range. |
| Turkey | Poor-Fair | Poor-Fair | Heavy meat production |
| Goose | Excellent | Excellent | Meat; feathers; lawn mowers; "watchdogs;" aquatic plant control. Suited to cold, wet climates. |
| Duck | Excellent | Excellent | Eggs; meat; feathers; insect, snail, slug, aquatic plant control. Suited to cold, wet climates. |
| Pigeon | Good | Good | Message carriers; meat production in limited space. Quiet. |
| Guinea Fowl | Fair-Good | Excellent | Gamey-flavored meat; insect control, alarm. Thrive in hot climates. |
| Coturnix Quail | Good | Good | Egg and meat production in extremely limited space. |

Source: Holderread, 2001.

Chickens. Chickens can be managed for both meat and egg production. In 2003, the United States produced a total of 43,958 million pounds of broiler meat and 74,404 million table eggs. The Upper Midwest (Michigan, Minnesota and Wisconsin) accounted for less than one percent of total U.S. broiler production (measured in pounds) and almost seven percent of all U.S. table egg production reported in 2003 (National Agricultural Statistical Services, USDA, 2004).

Thanks to extensive breeding and selection, Upper Midwest chicken growers have the option of raising their birds in flocks of all sizes indoors, under confinement, and, outside, on pasture. Today more than 50 breeds in the heavyweight chicken class alone have been recognized by the American Poultry Association. Specialty broiler and layer breeds have been genetically selected for rapid growth, exceptional feed efficiency, and production capacity. Some breeds are considered "dual purpose." In other words, they are relatively good egg layers but have been bred for more meaty carcasses. They are not terribly efficient at either, but farmers with small flocks often select these dual purpose birds to diversify income through both egg and meat sales.

Hen weight, egg production, broodiness, feather color, and eggshell color all vary by breed. The most common breeds chosen for commercial white-shelled egg production are Leghorn-strain crosses and hybrids. Leghorns are lightweight, prolific layers. Other popular laying breeds include the Barred Plymouth Rock and Rhode Island Red sex-links. These birds fall in the "medium weight" class and produce brown-shelled eggs. They have been crossed with other breeds to produce a good laying stock. For a list of breeds and their laying records, see *Egg Productivity by Breed* from the Sand Hill Preservation Center (in **Resources** under *Species/Class/Breed Information*).

Broilers, roasters, and capons—otherwise known as meat birds—are classified by age, weight, and function. Broilers are young chickens (usually six to eight weeks old) that are sold in grocery stores throughout the country. Most large-scale broiler operations raise Cornish-and-White Rock Crosses (simply called the "Cornish Cross"). Roasters and capons on the other hand are finished longer than broilers—usually until eight to eighteen weeks of age. In some markets, these specialty meat birds are highly sought and command a higher price per pound (Mercia, 2001).

Turkeys. Turkey production is on the rise thanks to growing markets for year-round, ready-to-cook turkey products. In 2003, U.S. growers produced a total of 7,549 million pounds of turkey meat. Michigan and Minnesota accounted for almost 19 percent of total U.S. production (Wisconsin production was not reported separately). In fact, Minnesota ranked number one in the country for turkey production that same year (National Agricultural Statistical Services, USDA, 2004).

Turkeys can be reared in confinement (indoors) or outdoors on pasture or range (Mercia, 2001). The majority of these large birds are managed in confinement by growers who sign contracts with local integrators. In Minnesota, large-scale, commercial growers annually raise three flocks in barns that hold 15,000 birds each. Some smaller scale growers, however, still raise turkeys on pasture for very specialized, seasonal markets. In fact, heritage breed turkeys are making a comeback among gourmet customers (see Figure 2).

Turkeys can be purchased and raised as poults (day olds), starters, growers, and finishers. Commercial turkey growers typically choose Broad Breasted White turkey poults (called the Cornish Cross of turkeys). Broad Breasted White hens will reach a market weight of 18 to 22 pounds in about four months (Sustainable Agriculture Network [SAN], 2002). Toms will reach 28 to 32 pounds in the same time period and are usually finished out at 18 to 22 weeks when they weigh 36 to 44 pounds.

The age and weight at which turkeys are processed and marketed depends on the final product for which they will be used. Whole turkeys, for example, come mostly from hens and small toms that are processed when they reach 20 pounds. Large toms, on the other hand, are processed into meat products such as deli slices, breast meat roasts, and sausages.

Figure 2: Choosing a Breed

Breed selection is very important and will depend on your goals, management philosophy, and, most importantly, on your customers' preferences. Today, there is renewed interest in heirloom chicken and heritage turkey breeds for specialty markets. The American Livestock Breeds Conservancy is a nonprofit organization founded in 1977 to conserve rare breeds and genetic diversity among livestock. This organization houses a large collection of breed information on livestock breeds and genetics on its website: www.albc-usa.org. Be aware, however, that heirloom breeds grow more slowly than commercial breeds and, consequently, will require more feed to reach market weight.

Source: Polson and Fanatico, 2002.

Waterfowl. Domesticated waterfowl, namely geese and ducks, are considered easy to raise and have been widely praised for their ability to help out with pest management on orchards, nurseries, and cropland (particularly strawberry, blueberry, asparagus, onion, corn, potato, and sugar beet land).

All domesticated geese originally come from one of two species: the Asian Swan Goose and the European Graylag. According to waterfowl grower Dave Holderread, most purebred geese in North America belong to one of nine breeds. When it comes to domesticated ducks, there are 20 common breeds, nearly all of which can be traced back genetically to the Mallard. The exception is the Muscovy. Popular "heavy" duck breeds include: Pekin, Rouen, and Saxony (see Farm Profile: Alternative Species—Muscovy Duck).

In general, domesticated waterfowl are more hearty, disease resistant, and weather tolerant than chickens (Holderread, 1993). Because of their thick, well-oiled feathers and lack of exposed combs and wattles, most mature waterfowl are well suited to tolerate wet and cold weather (Geiger and Biellier, 1993a). Waterfowl require only minimal shelter, primarily from sun and extreme cold, and limited supplemental feed thanks to their natural foraging abilities.

Waterfowl, particularly geese, will eat anything from shattered grain (leftover in fields after harvest) to grasses, clovers, insects, and worms (Mercia, 2001). Weeder geese like the White Chinese and African are often turned out in orchards and newly planted fields to control insects and to weed. “These geese can eat grass and young weeds as quickly as they appear, but do not touch certain cultivated plants,” note University of Missouri-Columbia animal science specialists Glen Geiger and Harold Biellier (Geiger and Biellier, 1993b). Geese also consume weed seeds, slugs, snails, and other insects, (Holderread, 2001).

The major drawback of waterfowl production is the expense associated with processing. Because of their thick down and oily feathers, waterfowl are more difficult and time consuming to process (Salatin, 1999a).



Geese foraging in barnyard.

Captive Game and Other Specialty Birds. The University of Minnesota Extension Service defines game birds as all fowl for which there is an established hunting season (Noll, 1998). Technically, they are not part of the poultry family, but a growing number of poultry producers are looking at captive game birds as an alternative niche marketing opportunity that offers lucrative supplemental income. Pheasant and quail, for instance, can sell for three to four times the price of chicken in some markets (DiGiacomo, et al., 2004).



Oakwood Game Farm in Princeton, MN.

These newly domesticated birds may be sold live for exhibition, as hunting preserve stock, as egg layers, and, of course, dressed as “exotic” or “heritage” meat. Dine out at an upscale restaurant, for example, or visit the home of a Hmong family, and you may find yourself sitting down to a meal of quail, pigeon, or partridge.

Other specialty birds, particularly within Asian markets, include squab (young pigeon) and black skinned chicken (see chapter on Poultry Marketing Alternatives for more information).



Wild game products.

Poultry farmer Joel Salatin warns that captive game take longer to reach market weight than chickens and other poultry. Moreover, pheasant, quail, and chukar are expensive to purchase as chicks, require more space, are fragile, are prone to health problems, and are cannibalistic when compared with more domesticated poultry such as chickens (Salatin, 1999a).

Productivity

You're probably wondering about flock and species productivity: How many eggs will chickens and geese lay in a year? Or, how fast will broilers and turkeys reach their market weights? Figures 3 and 4 summarize species productivity. Commercial performance numbers are cited where available (broilers and turkeys). Commercial statistics come from breeding companies.

Layers. In many countries, duck eggs are preferred for table use. In the United States, however, chicken eggs are favored by consumers and growers. White Leghorn chickens, the most common breed used for table egg production, are efficient, prolific layers.

Figure 3: Comparative Egg Production

| SPECIES | AVERAGE EGG WEIGHT/DOZ. (OUNCES) | ANNUAL EGG PRODUCTION | | ANNUAL FEED CONSUMPTION (POUNDS) | | FEED TO PRODUCE ONE POUND OF EGG (POUNDS) | EFFICIENT PRODUCTION LIFE OF HENS (YEARS) |
|-------------------|----------------------------------|-----------------------|------|----------------------------------|----------|---|---|
| | | # | LBS. | FREE-ROAMING | CONFINED | | |
| Chicken, Leghorn | 24 | 240 | 30 | 85 | 95 | 2.8-3.2 | 1-2 |
| Turkey, White* | 38 | 90 | 17.8 | 180 | 200 | 10.1-11.2 | 1-2 |
| Goose, Chinese* | 66 | 72 | 24.8 | 130 | 185 | 5.2-7.5 | 4-8 |
| Duck, Campbell | 31 | 288 | 46.5 | 110 | 140 | 2.4-3.0 | 2-3 |
| Guinea Fowl* | 17 | 78 | 6.9 | 45 | 65 | 6.5-8.7 | 1-2 |
| Quail, Coturnix** | 5.5 | 306 | 8.8 | — | 22 | 2.5 | 1 |

Source: Holderread, 1993.

*Turkeys, geese and Guinea fowl are not typically raised for egg production

** Special strains for Coturnix quail (also known as Japanese quail) are selected for egg production.

Others are selected for meat production and do not lay as many eggs.

Timing for sexual maturity varies by breed, but on average female chickens take five months to mature and lay their first egg. They typically begin producing eggs around 18 to 24 weeks of age and, if well managed, will lay 250 to 300 eggs on average per laying cycle (Bell and Weaver, 2002; Mercia, 2001). Laying cycles typically last from 13 to 15 months. Hens will continue to lay productively (three to five eggs per week) for one to two years. Proper feed and lighting are two of the most important management factors.

Meat Birds. Typical commercial growth rates and feed conversion ratios are listed in Figure 4. Broilers, as noted earlier, are extremely efficient, fast growers that perform very well in confinement and on pasture. Housing and feed are the two most important management factors affecting the growth rate of broilers and other meat birds.

OVERVIEW

Commercial performance data applicable to U.S. conditions (breeds, climate, feeds, etc.) is not readily available for alternative species such as waterfowl and captive game. For this reason, we list alternative species performance from “home-flock” production information compiled by David Holderread (Figure 5) and note the difference in broiler performance and feed efficiency for the home-flock versus the commercial flock (Figure 4).

Figure 4: Commercial Productivity — Broilers and Turkeys

| SPECIES | AGE (WEEKS) | AVG. LIVE WT. (POUNDS) | FEED CONVERSION RATIO (POUNDS OF FEED/ ONE POUND OF GAIN) |
|--|-------------|------------------------|---|
| Chicken, broiler | 5 | 4.08 | 1.60 |
| | 6 | 5.30 | 1.73 |
| | 7 | 6.38 | 1.87 |
| Male Turkey, B.U.T. 8 (multi-purpose) | 5 | 3.64 | 1.59 |
| | 6 | 5.18 | 1.66 |
| | 16 | 27.76 | 2.42 |
| | 18 | 32.30 | 2.60 |
| | 20 | 36.71 | 2.81 |
| Female Turkey B.U.T. 8 (multi-purpose) | 5 | 3.06 | 1.64 |
| | 6 | 4.28 | 1.73 |
| | 12 | 13.29 | 2.31 |
| | 14 | 16.18 | 2.54 |
| | 16 | 18.71 | 2.79 |

Sources: Broiler performance from Arbor Acres (www.aa-na.aviagen.com). Turkey performance from British United Turkeys Limited, 2000 (www.butinfo.com).

Figure 5: Home Flock Productivity

| SPECIES | OPTIMUM BUTCHERING AGE (WEEKS) | AVERAGE LIVE WT. AT BUTCHERING (POUNDS) | FEED CONSUMPTION (POUNDS) | FEED TO PRODUCE 1 LB. OF BIRD (POUNDS) |
|------------------|--------------------------------|---|---------------------------|--|
| Chicken, broiler | 8 | 4 | 8.5 | 2.1 |
| Turkey, White | 16-20 | 17 | 55 | 3.2 |
| Goose, Embden | 10-12 | 12.2 | 35 | 2.9 |
| Duck, Pekin | 7 | 7 | 19 | 2.7 |
| Guinea fowl | 12-18 | 2.3 | 11 | 4.8 |
| Quail, Coturnix | 6 | 0.4 | 1.5 | 3.8 |

Source: Holderread, 1993.

Trenton and Gerald Dammann
Jeffers, Minnesota

Ducks That Don't Quack — Muscovy Ducks as an Alternate Enterprise

Trenton and Trina Dammann took an interest in poultry when participating in 4-H projects. Their father, Gerald, oversees the agricultural program at Red Rock High School in Lamberton, Minnesota, and the family farms near Jeffers, Minnesota. When Trenton was in eighth grade, he joined FFA and wanted a project that could compete nationally. “The kids took an interest in ducks because they like waterfowl more than chickens. Besides, everyone has chickens,” Gerald said. But they also wanted a different kind of duck. In the United States, the most popular breed of domestic duck is the White Pekin, a white duck that originated in China and grows to about eight to nine pounds. White Pekins are the primary duck used for retail grocery store sales. The Dammans looked into Muscovy, a species that originated in Brazil and grows up to fifteen pounds. They are primarily black and white in color and have a bright red crest around their head and beak. The Dammans learned from their customers that Hmong prefer the Muscovy (male) because of their larger size. “They kept asking us about the ducks that didn't quack,” Gerald said. “We thought they were talking about the male of every breed. About a year later, we found out they were talking about Muscovys. Muscovys don't quack, they hiss.” They picked up their first breeding stock of Muscovy that year. Trenton and Gerald started with 12 hens the first year, increasing to 24 hens the second year and 40 hens the third year.



Muscovy duck in Dammann barnyard.

Production

“Muscovys are prolific. They can hatch from 15 to 28 birds per nest. If you take their babies away, they'll take a small break, say a week, then turn around and start another nest. On the bad side, they're a late setter,” said Gerald. In an average year, Muscovys don't lay eggs until May. Muscovy eggs are also difficult to hatch in incubators. One method to promote hatching allows the mother to set for two weeks, then the eggs are finished in an incubator. Muscovy can also take 32 or more days to hatch while other breeds only take 28 days. For these reasons, few hatcheries offer Muscovy hatchlings.



Trenton feeding Muscovy ducklings in brooding pens.

Housing

Like most poultry, Muscovy require a warm environment during their first week. The Dammans start their flock in May and use heat lamps with infrared bulbs. They adjust lamp height based on duckling behavior: “Are they talking a lot? Are they huddling in a big mass under the light? Too cold. Are they circled around the lamp? Too hot. Let them tell you what they like,” Gerald advises.

Muscovy are slightly cannibalistic, so have to be provided sufficient room. Given adequate foraging space, Muscovy can grow to eleven pounds in twelve weeks. Gerald keeps the ducks in groups of 50 in 4 ft by 4 ft pens for the first week to week-and-a-half. Then, he doubles that space, moving them into long, narrow corn cribs until three weeks of age. Space is increased again at about six weeks of age, when he moves them



Muscovy ducks in fenced yard with pools.

to a standard old barn with a cement apron outside. Inexpensive plastic swimming pools (one for every 100 ducks) provide the ducks with a place to swim. “When they’ve been in that barn for two to three weeks, eight to nine weeks of age, we’ll take them back to a very large fenced area to roam at will. We don’t bother to round them up at night, or pen them up,” said Gerald. This fenced area is at least an acre in size and holds about 500 ducks at a time.

Muscovy also have a “bean” on the tip of their bill used for pecking out of their shell. When crowded, they use this to peck each other. “That’s what you watch for when you raise a flock of Muscovy. You either trim off the bean or get them into a larger space,” said Gerald. He supplies tallow from the meat locker where Trenton works, giving the ducks something to pick at. Larger producers use large, dark (red lamp lighting) buildings to lessen the pecking tendencies.

“This year (2004), we’ll start them in groups of 400 so we don’t tax the pens too much. We’re contemplating three groups of 400.” Last year, they kept back about 30 hens for hatching their own eggs.

Feed

Muscovys are omnivorous. “I’m a believer that to help cut [feed] costs you need to get them outside to hunt bugs,” said Gerald. Evening feeding is generally when they forage for bugs. For the last four weeks, the Dammanns let the ducks forage at will in the fenced area, and pour out feed on the apron outside the barn twice a day. Gerald starts them out on standard Land O’ Lakes “crumbles” at 22 percent protein. “Non-medicated,” he advises. You don’t want to feed ducks any medication [because it can lead to lameness or death].” After three weeks, the Dammanns grind corn into mash, then add poultry concentrate to bring the protein to 18 percent. At six to seven weeks, they reduce the protein level to 16 percent. At ten weeks, Gerald adds cracked corn. He only raises ducks during the summer so they can find extra nutrients by their own foraging. At the peak of production, the Dammanns feed 16 five-gallon pails of mash per day.

Mortality has been low. Gerald attributes much of the mortality this last season (2003) to having too little space. Of the 525 ducks he started with, he marketed 465. About 50 percent of this loss was in the first 48 hours. To lower this mortality rate, he advises starting them in small groups and, rather than one large waterer, have several waterers spaced out over your pen. Predation is not much of an issue, but Gerald sets live traps to capture predators like raccoons. According to Gerald, it doesn’t pay to keep the ducks through the winter because they don’t tolerate severe cold. “Minnesota winters and open range Muscovys are not a good combination,” Gerald said.



Mash time for Muscovy ducks.

Labor

Initially, ducklings need to be watched and taken care of, making sure their water is fresh and feed is plentiful. Once the ducks are foraging, the labor requirements decrease to about 30 minutes each morning and evening. “We did have to pinion the wings so they wouldn’t fly and de-bean them so they wouldn’t peck each other.” Hatcheries will de-bean the birds for a fee. There’s no need to pinion the males, which are too heavy to fly. The hens need pinioning since they are lighter and can get airborne.

Finances

In 2003 Trenton took out a \$2,000 operating loan to produce 500 ducks. He was able to feed them and pay off the loan with the proceeds from their sale in August. In 2004, feed costs are higher, so it’ll cost more to finish them off. They are planning on obtaining a \$5,000 loan for three batches of 400 ducks.



Trenton and Gerald starting with a new batch of ducklings.

Marketing

The Dammanns market their ducks to the Hmong community at an outlet in South St. Paul. There is no processing involved, since their customers buy the ducks live and do their own butchering. The Dammanns do not sell by the pound, but get paid \$8 per bird, a premium price. Gerald has researched other markets and found \$6 per bird a common price. “There’s no profit in \$6 per bird,” he concludes.

“The clientele who want these birds are interested in much more than just the meat. They use the poultry product more in depth than we do. In fact, they (the Hmong) think we’re wasteful!” Gerald adds. One reason the Hmong prefer Muscovy is these ducks have less fat than other breeds.

Gerald and Trenton haul about 150 Muscovy per trip in a livestock trailer, traveling three hours to reach the market before it opens at 6:00 a.m. The ethnic market for the Muscovy may increase, as more Hmong immigrants settle in Minnesota. Still, Dammann is cautious. “I’m a little skeptical how much this market can bear. If the income isn’t there, they are going to eat \$3 chicken over \$8 duck.” Gerald doesn’t think he’ll produce more than 1,200 birds. His customers are the urban Hmong population, since Hmong living in rural areas usually have access to the same production possibilities as the Dammanns.

Gerald does have a few Muscovy ducks butchered for himself at a plant in Ashby, Minnesota, about three hours north of the Dammann farm. Be forewarned: Most poultry processors won’t process waterfowl. It’s best to check for processing availability before you venture into waterfowl.

