

ROSS COUNTY 4-H POULTRY HANDBOOK

An Educational Collection



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THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

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4H Pledge

I Pledge

My head to greater thinking,

My heart to greater loyalty,

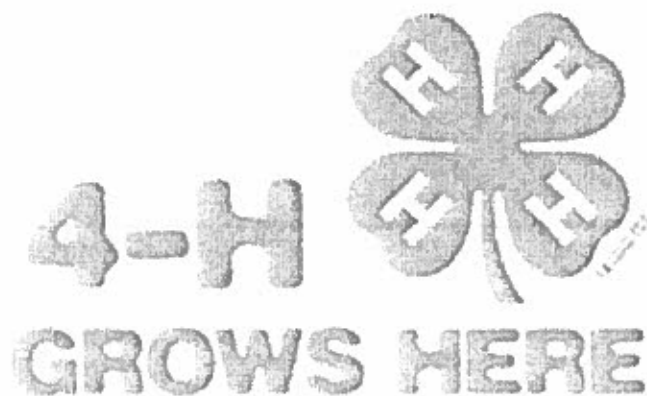
My hands to better service,

My health to better living,

For my club, my community, my country,
and my world.

4H Motto

To Make the Best Better



INDEX

Introduction and History	4
Objectives.....	7
Quality Assurance	8
Pillars of Character	13
Biosecurity	17
Management.....	18
Record Keeping	20
Medication	20
Brooding and Housing	23
Hatching Eggs.....	27
Sexing	29
Feed	31
Diseases and Parasites.....	47
Showmanship	42
Anatomy	51
Market Chickens	66
Production	71
Fancy	75
Waterfowl.....	80
Turkeys	88
Guinea Fowl	95
Terms and Study Material	99
Bibliography & Works Cited	109

Introduction and History

Poultry Options

Raising poultry as a 4H project can be a very educational experience and can grow into a wide variety of career opportunities. The poultry industry is eagerly searching for individuals who have the skills, dedication and knowledge to exceed in animal projects. Parents and adult leaders enjoy watching young people set and accomplish goals. Poultry projects offer great rewards, but require constant learning, daily chores and financial investment.

Choosing a Project

- Identify your objective Do you want: To have fun? To add to the family food supply? To make money? To explore a career? To have something different for show? To help keep a breed from becoming extinct?
- Determine if you want to raise "Standard" size birds, that lay eggs the size you see in the store or smaller birds called "Bantams", these chickens lay smaller eggs (which are still eatable) and use less coop space. Bantam size chickens come in most all the standard breeds; however, there are a few breeds that are a bantam only breed. Bantam size chickens come in most all the standard breeds; however, there are a few breeds that are a bantam only breed.
- Determine the space and equipment needed.
- How much money can you invest?
- What are the city and county ordinances where you live? Are there any restrictions?

Selecting Your Poultry Birds

- Buy from a reliable source. NPIP (National Poultry Improvement Plan) papers are required when you check in your birds at the fair. This is a US Department of Agriculture (USDA) program in which all breeders from NPIP flocks are tested for some of the important diseases of poultry. This assures that the animals you are receiving are not infected with diseases.
- You can order and pick up birds personally from a hatchery or you can order them through the mail
- A list of approved hatcheries is available from the Ohio Department of Agriculture. Be sure to purchase from producers that participate in NPIP and upon receiving your birds you get a copy of the NPIP paperwork stating that the hatchery participates in the plan to keep with your records.

Advantages

- Ohio's climate is favorable for poultry production.
- Poultry are easier to handle than larger animals.
- Only a small area is required.
- You will gain valuable knowledge of poultry production, which will be helpful if you decide to become a commercial poultry producer.
- There is a very large poultry industry in Ohio and the United States that is always looking for knowledgeable individuals to employ.
- You can help provide food for your family or you can sell eggs and/ or birds for income.

Some History

Initially poultry were brought to the New World as a source of food for the sailors and pioneers for their long boat ride. Those birds not consumed on the trip were raised on the newly established farms. These birds were "landraces" or animals without specific selective breeding.

During the 18th century, the idea of selective breeding using specific criterion was perfected by Sir Robert Bakewell of England. Bakewell developed distinctive breeds of cattle, horses, and sheep using this concept.

The "Golden Age of Purebreds" developed in the late 19th century and early 20th century when Nuevo rich industrialists and progressive farmers put their effort into improving all forms of livestock by forming breed associations and clubs. The American Poultry Association was the first such organization in the United States.

The economic value of a breed of poultry was weighed against its performance in the show coop. Not only did the breed need to produce eggs or meat, but also had to have the proper colored feathers, comb type or body shape as prescribed by the breeders in the Standard of Perfection.

Maintaining such criterion limited the productive characteristics of the bird. Until the 1950's and 60's farm-raised meat chickens were often 25-40 weeks old, extremely lean and slow growing, especially when allowed to run freely on the farm. Feed suppliers would often give farmers leghorn cockerels while selling an adequate supply of chick starter/grower ration for a batch of birds. By the time these chicks grew to an appropriate size to butcher (or when time was available) these male chickens will have developed sexually and thus very protective of their territory. This led to many frightful encounters with a zealous cockerel by youngsters unaware of the danger.

The practice of caponizing (castrating) chickens served two purposes. First, capons produce large carcasses and when properly fed, tender meat and an abundance of fat for flavoring. Second, without the presence of testosterone, males were docile and easily handled. Capons were highly prized in the markets through the late 1940's and the early 1950's.

With the success of hybrid corn, developed in the early 1900's, seed corn companies, Land Grant Colleges and other companies experimented with the development of hybrid chickens (and other livestock) during the 1940's.

With emphasis on egg production, the Wallace family of Pioneer Hi-Bred Corn Company began producing the Hy-Line of hybrid chickens. The DeKalb County Agriculture Association also began producing hybrid chickens. Others developed localized and nationally known lines of hybrid egg production birds. Today US production of eggs is nearing 91 billion eggs per year.

The meat chicken genetic industry dates back to numerous farms specializing first in standard breeds, primarily the White Plymouth Rock and the Cornish. Today, four major companies provide most of the genetic seed stock for the hybrid meat chickens world-wide. These companies are Aviagen, Cobb-Vantress, Hubbard Farms, and Hendrix Poultry Breeders. Over 36 billion pounds of broilers (8.8 billion head) are produced each year by US farmers. Over 16% of the broiler meat produced in the US is exported.

As American farms consolidated and specialized production, ever increasing sized broiler farms began to appear in the late 1950's and 1960's. Most of the production today is contracted to approximately 50 poultry companies by individual farmers. The five leading states in broiler production are Georgia, Arkansas, Alabama, Mississippi, and North Carolina. These five states currently produce more than 60% of all broilers.

The leading poultry companies are Tyson Foods, Pilgrim's Pride, Perdue Poultry, and Sanderson Farms.

Commercial chickens typically have white feathers. This produces desirable carcass characteristics and reduces the possibilities of undesirable black pin feathers (undeveloped feathers under the skin).

Most scientists agree that the Southeast Asian Red Junglefowl (*Gallus gallus*) is the primary wild ancestor of the chickens. However, because of DNA studies show that the Red Junglefowl lacks the gene for yellow skin (and shanks) it is believed that some point, hybridization with the Grey Junglefowl (*Gallus sonneratii*) of India has occurred. The body structure of the Indian Gamebird (Cornish) and the Brahmas of China gives physical evidence of Grey Junglefowl influence. The tail carriage of the breed Sumatra indicates genetic contributions of the Sri Lanka Junglefowl (*Gallus Lafayetti*). No doubt the Green Junglefowl (*Gallus varius*) has also contributed to modern chickens.

The classification of today's chickens (*Gallus Gallus Domesticus*) recognizes its primary origin, the Red Junglefowl. Domestication probably occurred 7,000 – 10,000 years ago in Southeast Asia and Oceania.



Red Junglefowl (*Gallus Gallus*)

Distribution of chickens occurred rapidly and was widespread because of their ability to provide meat and eggs without being competitive for human food sources. But it is believed that the sport of Cockfighting was the principal reason for dispersion of chickens.

The Auracana, originally found in Auracania region of the Chile continues to provide confusion. Some scientists believe that it was Pre-Columbian and originally from Polynesia. But DNA evidence disputes this theory.

It is interesting to note that Charles Darwin borrowed extensively from pigeon and chicken breeder of his time in order to formulate his *Origin of the Species*. Sir John Sebright developer of the Sebright Bantam was often quoted by Darwin in the mid-19th century.

Even the Punnett Square, that we all learned to use in Biology Class, was named for R.C. Punnett, who utilized chicken gene traits to prove Mendelian Genetics at the beginning of the 20th century. When, Hugo de Vries, Karl Correns, and Erich Tschermak "rediscovered" Gregor Mendel Laws of Genetics in 1900, the observation of poultry producers were rapidly proven by modern genetics.

		Father's Genes	
		B	b
Mother's Genes	b	Bb	bb
	b	Bb	bb

Scientific Classification

Fowl	Turkey	Chicken	Waterfowl	Guinea
Kingdom	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Chordata	Chordata
Class	Aves	Aves	Aves	Aves
Order	Galliformes	Galliformes	Anseriformes	Galliformes
Family	Phasianidae	Phasianidae	Anatidae	Numididae
Sub Family	Meleagridineae	Phasianae	Anatinae	-
Genus	Meleagris	Gallus	Depends	Aglastes
Species	M. Gallopavo	G. gallus	Depends on which kind of bird	N. Meleagris (domesticated helmeted)
	M. Ocellata			

OBJECTIVES

Objectives For This Project

- To provide learning material which will enhance knowledge of poultry
- To help youth feel more comfortable communicating with adults and others
- To gain self-confidence and skills in one-on-one communication
- To develop responsibility and accountability
- To develop critical thinking and problem-solving skills
- To provide a basis of proper care and management to achieve completion of project

Exhibitors Will Learn

- About selection
- Feeding and Housing
- About their selected variety of poultry and what they may require
- Showmanship techniques
- Record keeping
- The importance of raising a quality bird

Quality Assurance

QA – Quality Assurance

This program teaches 4H youth how to use best practices that guarantee producing quality and safe animal products for consumers, as well as responsible animal handling, care and welfare in not only farm animal production, but also with companion and performance animals.

Quality assurance is a pledge or promise to 1) provide a food animal product preferred by consumers, and 2) provide a safe, wholesome food animal product. Food animals are those whose products (meat, milk, and eggs) have the potential to become part of the food chain.

Food safety is paramount to animal agriculture, assuring consumer acceptance and confidence in a market where compelling proteins and other alternatives are emerging, rivaling food products of animal origin. Furthermore, issues surrounding animal welfare in agricultural livestock production have surfaced that must be addressed at all levels of the food animal production, including youth participation in food animal projects.

Youth involved in food animal exhibitions, by definition, are food animal producers. Youth food animal producers, at the culmination of the project, will sell their animal(s) and food products which are intended for human consumption.

Knowledge and mastery of the science of genetics, nutrition, management, handling, and environment in relation to the youth's food animal projects play a critical role in the success of producing safe and wholesome food products for consumers. Therefore, the Ohio Department of Agriculture (ODA) mandates that all youth exhibiting food animal projects participate annually in quality assurance programming. OSU Extension provides the leadership for implementing quality assurance programs, in partnership with agricultural education and agricultural societies.

Youth who take food animal projects, by participating in science-based experiential learning activities, learn how to ensure that the products from their 4H food animals are safe for consumers, and that their actions inspire general public and consumer confidence in assuring well-cared-for animals and quality products.

Every Youth Livestock Exhibitor Should Follow

Good Production Practices

1. Use an appropriate veterinarian/client/patient relationship (VCPR) as the basis for medication decision-making
2. Establish and implement an efficient and effective health management plan
3. Use antibiotics responsibly
4. Properly store and administer animal health products
5. Follow proper feed processing protocols
6. Establish effective animal identification, medication records and withdrawal times
7. Practice good environmental stewardship
8. Maintain proper workplace safety
9. Provide proper animal handling and care
10. Utilize tools for continuous improvement

Practices

GPP#1 - Use an Appropriate Veterinarian/Client/Patient Relationship (VCPR)

As the Basis for medication decision-making, responsible medication decision-making is established through a current Veterinarian/Client/ Patient Relationship (VCPR). This importance is based on the health of the project animal(s) as well as preventing drug residue violations, thus providing a safe and wholesome food product for consumers. Veterinarian/Client/Patient Relationship (VCPR): This relationship requires that the veterinarian has seen and has knowledge of the animal and has discussed a health plan or any treatments with the owner. This relationship is required in order for a producer to use prescription drugs or a drug that is not specifically labeled for the animal (extra-label use).

Label Use: Using the drug EXACTLY as stated on the label.

Extra-Label: Extra-label drug use means using an animal drug in a manner not in accordance with the approved drug labeling.

- When labeled drugs are not available to maintain adequate animal care, a veterinarian has the ability to prescribe extra-label drug use.
- Only a veterinarian with a valid Veterinarian/Client/Patient Relationship (VCPR) for the operation can direct extra-label drug use.

Prescription (Rx): Drugs that require a veterinarian's written permission for use.

Feed Directive (VFD): The VFD is a category specifically for new antimicrobial drugs used in the feed to treat disease.

DRUG RESIDUE TEST: A drug residue test can be conducted by a veterinarian and sent to the Ohio Department of Agriculture for analysis

*All animals that have been treated should be identified and documentation kept reducing the chance of drug residue entering the food chain.

Residue: is the portion of a medication that remains in the animal's tissue. *If a drug residue is found in meat or milk, the product will be condemned (thrown away, unfit for human consumption) *Identification and documentation of all treated animals will reduce the chance for a drug residue to enter the food chain.

GPP #2- Establish and Implement an Efficient and Effective Health Management Plan

Animal health is a key to food safety. Healthier animals grow more quickly and efficiently, and generally require less medical care. Developing and implementing an efficient and effective health management plan can have beneficial impacts on animals' health through the use of measures such as vaccination plans, biosecurity protocols, and emergency preparedness.

Herd health plan: A plan that is designed to address potential and current health challenges and to help prevent diseases from entering your herd or flock

Internal biosecurity: Keeping diseases of the herd or flock from spreading to other sections

- Work with your veterinarian to survey your herd or flock

When possible, operate all-in/all-out when disinfecting between groups of animals.

- Establish a traffic pattern for both animals and people

External biosecurity: Keeping diseases out of a herd, flock, or from an animal.

- Consider supplying disposable plastic boots to all visitors.
- Require everyone to wash hands before entry into animal areas.
- Change clothes and boots after visiting other farms, livestock markets, or exhibitions before entering your facility.

Rodent and pest control: Include controlling rodents and pests as a part of animal, herd, and flock internal and external biosecurity plans.

GPP#3 - Use Antibiotics Responsibly

The responsible use of antibiotics assures that food animal producers deliver a safe, wholesome product to the retail case. Understanding what is acceptable and what is not will assure that your herd/flock health program will maintain efficiency of production without over use of antibiotics.

Food animal producers use antibiotics for the following three purposes:

- To treat animals for clinical illness
Administered through injections (IM, SubQ or IV) or Orally in feed or in water. Antibiotics are used as sub-therapeutic doses, administered in the feed or water.
- As a preventative
In animals that have been or are currently exposed to infections (bacterial), or; if there is a clinical outbreak pattern of disease in operations at a given time of year or a given production stage
- As a feed ration supplement
to improve feed efficiency, accelerate growth and muscle development. A result of overcrowding animals in unsanitary conditions could increase the need for antibiotic use that we would like to avoid.

GPP #4 - Properly Store and Administer Animal Health Products

Freedom from drug residue violations is a component of food safety. Everyone responsible for the care of animals must be instructed on methods used to follow label directions, identify treated animals, and record treated animals. Accurate recordkeeping will allow anyone to quickly determine the correct withdrawal time has elapsed before animals leave a location.

Methods of Administering Medication:

Oral: Medications given through the mouth. Medication can also be administered through the water and/or feed, which is a more common method for poultry.

Topical: Medications administered by applying them to the skin or on the mucous membranes of the eyes, ears, or nasal passages

Injectable medication: A medication that is given using an infusion method, typically via a syringe and hollow needle

Drug Storage:

- Follow proper drug storage instructions indicated on the label.
- Always check the drug label for proper storage instructions.
- Temperature extremes or exposure to sunlight may decrease the strength of a stored drug.
Most vaccines and some antibiotics should be refrigerated at 40° F – 45° F.

Dosage: Measured portion of medication to be administered at a given time

Withdrawal times: Amount of time that must pass after the medication is administered before harvest. The time should be found on a Medication or Medicated Feed label.

Expiration date: Date the medication should be discarded.

Sharps: Used needles, knife blades and syringes are disposed in container called a Sharps.

For Veterinary Use Only: a drug can only be used for animals Administering Medications

When drugs are administered properly and recorded, exhibitors will avoid drug residues. Record any medication give to exhibition animals on your Drug Use Notification Form (DUNF).

GPP #5 Follow Proper Feed Processing Protocols

What an animal eats will affect growth, health, economic return and food safety. Accidental contamination or mistakes made while mixing feeds can cause health problems in animals. These contaminants could also be found in the meat, milk, or egg products. To produce a high-quality product and prevent contamination, proper feed processing and feeding practices should be followed.

Reading Feed Tags are very important to both the animals and the care takers. Note the parts of the feed tag:

- Brand and/or Product Name
- Intended Species and Production Phase (Never Feed to a Species if it's not listed)
- Medicated Statement
- Guaranteed Analysis
- Ingredients
- Feeding Directions or Mixing Directions
- Warning or Caution Statement
- Manufacturer's Name and Address
- Net Weight

Read the feed label before feeding your animals! Know the age and type of animal being fed and its nutrient needs, which may change throughout its life cycle. Look closely to see if there is an active drug ingredient and what the withdrawal time is

Feed Storage - Design workspaces and storage areas to avoid accidental contamination of feed. If mixing medicated and non-medicated feeds at the same location, ensure that non-medicated feed work areas, equipment and storage areas are physically separated from medicated feed work areas.

GPP#6 Establish Effective Animal Identification, Medication Records and Withdrawal Times

Record keeping is a management tool that has become increasingly important. It is the first and most reliable method of disease surveillance for the food animal industry. Consumers gain confidence in their food supply when food animal producers document management practices that provide a safe and wholesome food supply. This process begins with identifying all animals. An identification system allows an animal to be tracked from Birth through Harvest. Youth exhibitors who show sheep and goats are required by law to identify their animals. Pending laws will require all food animals and poultry flocks to have identification.

Animal Identification: The process by which animals are officially identified individually or as part of a group. **Animal Tracing:** Animal Disease traceability is knowing where diseased and at-risk animals are located.

Medical and Treatment Records: Are documents that record the health history of an individual animal. What should be included in a treatment record?

- Individual animal ID or ID of groups/pens of animals if all treated

- Date treated
- Name of product administered
- Amount of drug administered (dosage)
- Route and location of administration
- Withdrawal period
- Earliest date the animal(s) will have cleared the withdrawal period
- Identity of the person who administered the product

Identification and Medical Records - Youth exhibitors are required by Ohio Law to keep records for 1 year. Sheep/Goat exhibitors are required by federal law to keep records for 5 years.

GPP #7 - Practice Good Environmental Stewardship

Good environmental management practices help protect our natural resources. The goal of environmental stewardship is to protect our natural resources (water, air and land) in all of our production practices. Good stewardship means good business.

Stewardship: The act of caring for or improving over time. Good Environmental Livestock Production Practices (GELPPs)

GPP #8 - Maintain Proper Workplace Safety

Safety is everyone's responsibility including exhibitors, family members, friends, and so on. Controlling exposures to hazards is the fundamental method of protecting caretakers. The basic strategies for controlling workplace hazards, in order of preference per OSHA guidelines. Have an Emergency Action Plan (EAP) that contains who to notify, what to say, and what actions need to be taken in case of an emergency.

GPP #9 - Provide Proper Animal Handling and Care

Providing proper quality care of your animals can help reduce production costs, increase performance, improve product quality, and improve safety to humans and animals. Animals have three basic needs – water, food, and shelter.

GPP #10 - Utilize Tools for Continuous Improvement

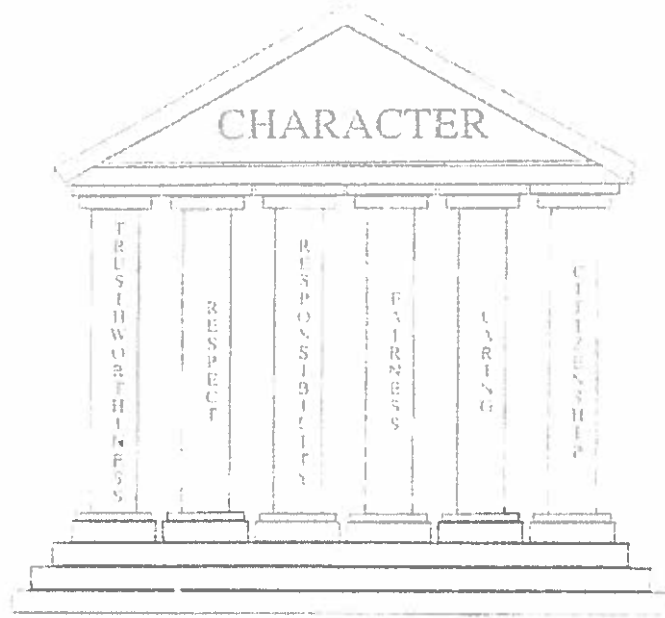
The foundation of the Youth Quality Assurance program is continuous improvement. All new animal caretakers must be trained in their duties, whether caring for one or 100+ animals. Conducting site assessments on a regular basis is an excellent way to benchmark how the animal care practices are implemented and measure the animals' well-being.

There are three core areas that should be evaluated when measuring and benchmarking the well-being of your animals:

1. Records
2. Facilities
3. Animal observations

Using only one of these alone to evaluate well-being can be misleading.

Pillars Of Character



Pillars of Character

Adapted from materials developed
by the Josephson Institute of Ethics

- Trustworthiness – being honest, standing for what is right.
- Respect – judging people on their merits or the good things they do.
- Responsibility – doing your best, being a good example.
- Fairness – using the same rules or standards for everyone.
- Caring – treating others as you want them to treat you.
- Citizenship – being committed to the welfare of your community, state, country, or world.

Youth are 27% of our population, but 100% of our future. The purpose of character development is to strengthen the character of young people today and thereby safeguarding tomorrow for all. The pillars help youth to develop positive character traits, such as honesty and truthfulness. It makes sense that our communities benefit when youths and adults understand the importance of being involved and caring citizens, and “doing the right thing” by incorporating these core ethical values in their daily lives:

- Trustworthiness
- Respect
- Responsibility
- Fairness
- Caring
- Citizenship

These six pillars describe character and ethical behavior in ways that understand how a person of character thinks and behaves. By teaching and demonstrating these six values, youth learn the importance youth of being a person character.

Trustworthiness

People with good character are people we can trust. Trust is not automatic. Earning trust takes time, losing trust can happen quickly. Honesty, promise keeping, loyalty and integrity are four elements that are key to building trustworthiness. Use these guidelines for earning and maintaining trust.

Honesty means saying things that are true.

- Tell the truth.
- Be sincere. Say what you mean and mean what you say.
- If you find something that doesn't belong to you, return it.

Promise Keeping is doing what you say you will do. Only make promises that you can keep and that you plan on fulfilling.

- Keep your word
- Be reliable
- Return things that you borrowed

Loyalty is protecting and promoting the interests of people who are important to you.

- Keep private information private
- Do not gossip
- Help prevent a friend from doing something that is harmful to him or her.
- Do not ask a friend to do something wrong to keep your friendship.

Integrity is being what you say you are.

- Standing up for what you believe
- Acting on what you believe
- Doing the right thing no matter what you lose in the process

Think about the two or three people you trust the most. What qualities do they display? What have you done lately to demonstrate to your family or friends that you can be trusted? Give the following some thought and how you would handle the situation.

- When receiving change from the cashier you notice they gave you an extra dollar. Do you tell the cashier or go on about your way?
- Your old cell phone is listed in the want ads and you really need the money. Do you tell potential buyers everything that is wrong with it or do you not tell everything and try to get it sold?
- Your teacher has mistakenly given you credit for someone else's project work. Do you tell the teacher and give the credit to the classmate that did the work?

Respect

People of good character are respectful of others. People of good character show respect by recognizing and honoring everyone's right to be themselves, to make decisions, and to have privacy and dignity.

Everyone wants to be treated with respect. People have become a little careless with respect. We do not always treat others like we want to be treated. Ethical people deal with others under the Principle of Autonomy and the Principle of Acceptance. Principle of Autonomy is giving others the information they need to make wise decisions about their lives. Principle of Acceptance is accepting individual differences without prejudice.

Use these guidelines to strengthen your character.

- Be courteous and polite
- Be kind and appreciative
- Accept individual differences and don't insist that everyone be like you

- Judge people on their merits, not on race, religion, nationality, age, sex, physical or mental condition, or socio-economic status

Consider the following situations and how you would react.

- You have a friend over for dinner. You are caught taking cookies from the cookie jar before dinner. You know it was wrong, and get into trouble by your parent. Do you complain about how stupid the rule is and how you think your parents are dumb for enforcing it, or do you accept the consequences of your actions?
- You are a teen with a job at a fast food restaurant and lunchtime is the busiest time of the day. You are doing your best to keep up with the orders. An outspoken customer is being rude and making comments that you shouldn't be working the register. Do you treat the customer like any other customer and ignore their comments or do you return the insults?

Respect or Disrespect?

- A friend borrows a toy and won't return it.
- A classmate pushes you out of line and takes your place.
- A classmate takes time to help you understand a math problem.
- You tell a friend a secret and they tell a few of your other friends
- A friend says "pardon me" before going around you to hang up their coat in the closet.
- A classmate teases you about your new haircut.
- You are at a meeting, during refreshments someone spills juice on you and they do not apologize.
- You raise your hand to answer a question and everyone is quiet while you are talking.
- You are cursing loudly in the lunchroom because your friends think it is funny.
- You are playing baseball and accidentally throw the ball through a neighbor's window.
- Several people are pushing to be first to get on the bus.

Responsibility

Taking responsibility is a way to show we are people of character. It means doing our part, controlling our thoughts and actions, doing our best.

When we are acting responsibly, we take the blame when it is due and do not claim credit for other's work. We accept responsibility for our decisions.

Being responsible means...

- Think before you act
- Think about how your actions affect others
- Think before you speak
- Be accountable. Take responsibility for the results of what you do and don't do. Act as if someone your respect is always watching
- Fix your own mistakes
- Keep trying. Stick to duties even when they are difficult
- Be reliable. Always to your job
- Clean up your own messes
- Show perseverance by demonstrating a commitment to finish what you started

What are responsible reactions in the following situations?

- You are sitting at your desk, ready for a test. You were told to bring a No. 2 pencil, and you forgot. What would you do?

- You are at a fast food restaurant. You just paid for your food and you noticed that you were shorted change. What would you do?
- You've worked really long and hard on writing a special story. When you get your paper back from the teacher, the grade is lower than you think you deserve. What do you do?

Fairness

Fairness is one of the most difficult Pillars of Character to define clearly. People often see decisions that help them as being "fair" and those that do not as being "unfair".

Fairness is often a matter of perception. Although some decisions are clearly unfair, the fact is there is usually more than one fair choice. How can one be fair? One can use the same rules for everyone so no one has an unfair advantage. Being fair means you:

- Listen to others and try to understand what they are feeling and saying
- Consider all the facts, including opposing views
- Use the same standards for everyone in the same situation
- Correct your mistakes

Have you ever thought about the following?

- I worked twice as hard on the group project for school and someone else got all the credit.
It's not fair!
- I made a decision and thought it was best for all, but later I found out I didn't have all the information.
So, I'm being questioned. It's not fair.

How do you deal with fairness issues? What are you modeling to others around you?

Sometimes decisions are made because of a perceived need that someone else cannot see.

People cry "unfair" when they simply don't have all the information.

Caring

Caring is a word that implies action, not just empty emotion. Caring people love, help, give, and are kind. They are caretakers of people, pets, plants, possessions, and even the planet. Caring people show their concerns for others in an active way.

Genuine concern for others is a sign of growing up. A big part of growing up is the ability to think and care about someone besides yourself. A guideline is to help others do "more good" and less harm to others. Caring people are:

- Show kindness and compassion to others
- Think about your decisions, words, and actions and what they will do to others
- Put concern for others into action

Who cares? How rude? When was the last time you made one of these statements?

Sometimes we are guilty of forgetting other's feeling. If people around you were to evaluate your caring behaviors, would the most of the responses be reflective of caring? Are your behaviors genuine or phony?

What would compassion look like if:

- Your dog was caught up in their leash
- Someone was sad because their father was sick and, in the hospital
- Your mother seemed so tired after work
- A friend was confused about what a teacher said

Citizenship

In practice, good citizenship is understanding and doing things that make life better for yourself and other people. True citizenship means participation, involvement and contribution.

No one can make a difference without being involved. Good citizenship is not just doing the thing that "looks good".

Good citizenship means helping others. A citizen is a member of a family, a community, a nation, and a world. Being a good citizen means more than knowing how the government works. It means working to make our community and world a better place to live.

All communities are built by people working together. The well-being of every citizen depends on everyone in the community. Community members organize to improve living for everyone. A good citizen:

- Obeys laws
- Helps others/volunteers
- Protect the environment
- Participates decision making when needed
- Respects the flag and other national symbols

Take a personal inventory of your citizenship behaviors.

- Do you volunteer on a regular basis for your community, friends, and or family?
- Do you reduce, reuse, recycle? Are you careful of what you are throwing away?
- Do you show respect for national symbols as well as other cultural symbols?

Good citizenship begins with you. Ask yourself these questions.

- Do you think you are a good citizen?
- Do you do anything at school that shows good citizenship?
- How do you think young people can show citizenship?
- Do you volunteer at club meeting, church, school, or in the community?

Biosecurity

- A good sanitization program is essential to a successful 4H poultry project.
- Thoroughly clean and disinfect the place in which the chicks are to be brooded at least 1 week before they arrive or picked up.
- Remove all old litter and manure from the previous brood.
- Scrape or sweep bits of manure and other debris from the sidewalls and floor.
- Sweep the dust from the sidewalls and ceiling. This is important because one tiny bit of manure can harbor millions of disease-causing organisms for months.
- Thoroughly wash the brooding area with water and a good detergent. After the area has dried, disinfect the area with an approved disinfectant.
- Thoroughly wash and rinse all waterers and feeders and set them in the sun. The sun is one of the best disinfectants available, but it must strike all surfaces. Turn the equipment for complete coverage.
- Place a pan of disinfectant near the door and always step in it when entering or leaving the brooding/living area.
- During the brooding period, one of the messiest areas in the house will be around the waterers. Lesson this problem by placing the waterers on raised platforms. Such platforms can be made using 2x4s. Cut four pieces of 2x4-inch boards into 30-inch lengths. Place the pieces on edge to form a square and nail the corners. This makes a platform 4 inches high and 30 by 30 inches square. Cover with 1-inch hardware cloth or welded wire fabric.

- When bringing in new adult birds or returning birds to your flock after showing, it is a good idea to quarantine them for about 2 weeks prior to returning them to the flock.
- Birds that have come into contact with other birds or areas where other birds have been, such as a show, may appear healthy but may be carrying disease organisms from contact.
- A quarantine area consists of several small pens that are a distance from your main flock. Care for the quarantined birds after caring for the rest of your flock. If the birds in quarantine are infected, they will show signs of disease in 2 to 3 weeks.

Management

Preparation

Before starting a poultry flock, you must check local zoning regulations to make sure that raising poultry is permitted. This is particularly important when raising guinea fowl because they will range and cross the boundaries of small lots and can be very noisy.

Daily

- Clean waterers and refill with fresh water
- Fill feed trough
- Gather eggs, several times a day
- Keep light bulbs clean and see that hens get 16 hours of light daily if wanting year-round production
- Ventilate the house in relation to the weather
- Remove sick or unthrifty birds
- Remember, confined hens are easier to manage. You will have fewer dirty eggs and more uniform yolk color

Remember

- The majority of bird feed on a daily basis must be prepared ration
- Today, almost all feed is available in crumble or pellet form. This is the ground feed (formerly called mash) that is formed into pellets, and sometimes crushed into crumbles
- It is not advisable, and usually not successful, for 4H members to mix their own feed. Poultry requires additional sources of grains and protein because their diets require vitamin and trace mineral premixes. You also must own a grinder and mixer to mix your own feed

Important

- Raising turkeys and chickens together may lead to problems with sinusitis and blackhead
- Never raise turkey poults on bedding that has been used for chickens
- Clean and disinfect turkey areas before housing birds as they are sensitive to diseases
- Chickens can carry organisms that do not make them ill but can be fatal to turkeys

Light

Light is required for all poultry. One part of lighting is the brightness, and the other part is the hours of light per day. Light does not have to be very bright to be effective. If it is bright enough for you to see easily, it is bright enough for the birds. Very bright lights sometimes may lead to

behavioral problems in which the birds will pick on each other and pull feathers. Using a dimmer or red-light bulb may ease the problem.

The number of hours of light each day is also important. To promote fast growth, continuous light should be used so the birds will eat and drink at all times. If natural daylight is used, it varies from 8 or 9 hours in December to 15 or 16 hours in June in Ohio.

Air

Air quality is also important in order to grow healthy birds. One part of air quality is temperature, which is important early in the growth cycle. Another part is gases that are added to air as a result of animal production. Manure from the animals contain microorganisms that produce gases that we can smell, such as ammonia and hydrogen sulfide. Air that has gases must be exchanged for fresh air that doesn't. This is done by opening windows or turning on a fan. When the outside air is cold, air exchange should be fast enough to remove odors but slow enough so that as little heat as possible is wasted.

There are several ways to manage air quality. Keeping the litter dry is important. Microorganisms can't grow very well in dry conditions. So, remove wet litter, which removes water, manure, and microorganisms, and add new litter to replace it. The humidity in the air affects how fast moisture from the birds and the litter will evaporate into the air.

Cooling Devices

Evaporative coolers – These are very efficient, but only when the building is completely enclosed. If your coop has several windows, or open sides, these types of coolers will not work well.

Air movement – Fans that will turn to blow directly into the chicken flock are an advantage in any type of coop. Fans that cause air turbulence in the pen, combined with slatted floors that give them free air flow from below, can do a lot for a suffering chicken. Fans work especially well in open-sided coops situated in areas that have high- humidity.

Roof sprinklers – If you have a generous supply of water on hand, and do not mind an excessive water bill, this method is extremely effective. It works by spraying water on the coop roofs and walls, and evaporation carries away the heat with the moisture.

Foggers – These are similar to evaporative coolers and only work in buildings that are completely enclosed. They are also not as practical as other cooling methods due to the fact that they have a tendency to wet the ground and create a mess.

Heat Stress Preventive Measures

- Before it gets hot, take preventative measures! Spare waterers should be ready and on hand. When the weather starts to warm up, act quickly to bring relief to the chickens before the heat causes excessive stress. After a couple days in higher temperatures, the flock will slowly become accustomed to the hot conditions and will not need as much help. However, if you do not react rapidly, your flock could suffer dire consequences.
- Your coop's litter can act as an insulator and may trap heat. To prevent this, decrease the litter volume and height to no more than 2 inches above the floor.
- For waterers, a fast cost-effective and simple way to supply more birds with more water is to use pans (and buckets, pails, pitchers, etc.) and fill them with water. Placed strategically around the chicken house, it can cool down the environment and provide refreshment to your birds.

- If the humidity becomes too high for evaporative coolers and foggers to work effectively, use fans! Place them so that they blow directly into the flock, thereby helping displace heat.
- Keep the water cool! This means checking and changing it several times during the day if needed.

Record Keeping

Record Keeping Will:

- Help with setting goals
- Teach you to better communicate and summarize
- Make you more responsible in completing tasks
- Help you evaluate strengths and weaknesses within your project

The purpose of 4H record keeping is to teach how to keep records, which is an important life skill. Record keeping is an ongoing process that does not end when the 4H year ends. You are encouraged to try a variety of alternative ways of record keeping to meet their individual record keeping needs and learning styles.

In animal projects, record keeping is important for a number of reasons. The cost of a project is always important in planning for resources needed, and management changes that could be made. Health records are critical not only for management purposes but also to meet health requirements of various events. Growth results relate to the success of some projects, while training time has impact on others. Pedigrees and performance records are important for planning future breeding and determining success of your breeding project.

As part of your animal record notebook, you may want to include the following in it:

- | | |
|-------------------------------|--|
| 1. Breed | 6. Inventory (animals and equipment) |
| 2. Performance records | 7. Birth date |
| 3. Production, such as eggs | 8. Identification number(s) |
| 4. Breeding info | 9. Veterinary information |
| 5. Medication use
Testing) | 10. Testing papers on birds (i.e. Pullorum |

Medication

Safety

4H'ers are among the people who produce food. Doing so in a safe way gives consumers confidence that the food they buy is wholesome and safe to eat. Exhibitors must follow label instructions on all animal drugs, including those given to livestock that are brought to the fair.

People expect food to be pure and free of harmful residues. A residue is a substance that remains in an animal's body tissue after the animal has been exposed to that substance. The substance can enter the animal's body as a feed or water additive, as an injection or external treatment, or simply by accident. Some substances leave an animal's body tissue a few hours after exposure, but other may remain several months, some may never entirely leave certain tissues.

To protect our food supply, the Food and Drug Administration (FDA) establishes and enforces rules about acceptable levels of particular residues. For some substances, no amount of residue is acceptable. The FDA also establishes withdrawal times for products to ensure that unacceptable residues are not in a product when it is marketed. It is illegal to sell animal or animal products (such as milk and eggs) that contain residue exceeding FDA limits.

Avoidance

- Use approved animal drugs according to their label
- Record who administered drug, time and date drug was administered, for what drug was administered for, and the withdraw time for that drug
- Follow withdraw time for drug
- Note that a drug may have a shorter withdraw time when administered differently (i.e. Orally verses injection)
- Note and record if animal products need discarded during withdraw time, milk and egg
- Ensure sufficient time to complete withdraw before animal goes to market or fair
- Use veterinary/client relationship and record visits and medications issued by them

Veterinary Feed Directive (VFD) for Youth Livestock Producers

What is a VFD? A VFD is a written (nonverbal) statement issued by a licensed veterinarian that authorizes the use of an approved VFD drug or combination VFD drug in or on an animal feed. This written statement authorizes the client (owner of the animal) to obtain and use animal feed bearing or containing a VFD drug or combination VFD drug to treat the client's animals only in accordance with the conditions for use approved by the FDA (Food and Drug Administration). The client (youth producer) must establish a veterinarian-client-patient relationship (VCPR) to be able to get a VFD. This is true whether the 4-H member has one food-producing animal or several.

When must the VFD be implemented? January 1, 2017. Starting January 1, 2017, you can no longer stop by a feed store and buy a bag of medicated feed containing certain types of antibiotics that were previously classified as over-the-counter (OTC) drugs. As of January 1, 2017, the FDA requires that clients have a VFD to be able to purchase animal feeds containing these antibiotics.

What is a VFD drug? Antibiotic drugs required to have a VFD order to be added on or in the feed are those deemed by the FDA to be medically important for human medicine. The FDA is concerned that improper or overuse of these antibiotics may contribute to antibiotic-resistant bacteria making it harder to treat human illnesses. Examples include Aureomycin®, Lincomix®, Neo-Terramycin®, penicillin, and tylosin. For a complete list refer to the "Drugs Transitioning from OTC to VFD Status" link at the end of this document. These antibiotics are no longer allowed to be used for production uses to enhance growth or improve feed efficiency. They are still allowed for therapeutic uses under veterinary supervision to (1) treat animals diagnosed with an illness; (2) control the spread of illness in a herd; and (3) prevent illness in healthy animals when exposure is likely.

Drugs that do not require a VFD are those that are not deemed medically important to humans. Examples include Rumensin®, Bovatec®, Medacox®, monensin, amprolium, and dewormers. These types of medications can still be used over-the-counter (OTC) for production uses to enhance growth or improve feed efficiency, as well as for therapeutic uses (treatment, control and prevention).

What species of animals require a VFD? Cattle, swine, sheep, goats, poultry, honey bees and fish, as well as other food-producing species, even if they are not intended for food production.

For example, backyard chickens kept as pets still require a VFD for certain antibiotics to be legally added to their feed, and a prescription for certain antibiotics to be added to water.

What is a veterinarian-client-patient relationship (VCPR)? Most states have a definition of what constitutes a valid VCPR written in current law, including Ohio. Ohio law and related regulations are designed to ensure that a veterinarian does not prescribe drugs or recommend treatment without actually seeing the animal or animals in question. To establish a VCPR in order to obtain a VFD, you need to first identify a veterinarian who you wish to work with if you do not already have one. To write a VFD and otherwise treat your animals, the veterinarian must personally see your animal(s), become acquainted with their care, and have done so recently enough that he/she can make medical judgements. To write a VFD, this likely means the veterinarian will have had to examine your animals in the last six months, as that is the longest period of time for which a VFD can be written.

While all licensed veterinarians in Ohio can write a VFD or a prescription for water-based antibiotic drugs, all may not choose to work with food-producing animals, as they may elect to practice veterinary medicine only in their clinic or on specific species.

Why do I need a VCPR? The veterinarian is the person most qualified to determine when an animal needs a specific medicine, how much of that medicine it needs each day, and how long it should be administered. By being involved in this process the veterinarian can ensure appropriate drug use, minimize the chance of bacterial resistance developing, and keep antibiotic residues out of our food supply.

How can I establish a VCPR? The first step is to find a veterinarian who is willing to treat your 4-H project animals. It is up to you to initiate a VCPR, and should be done before you get your 4-H animals. You can look for veterinarians in your area at the Ohio Veterinary Medical Association website (www.ohiovma.org) under the public tab and search by city. If you already have a veterinarian, but he/she has not seen your animals in over a year, you may wish to contact him/her to ensure he/she can work with you on obtaining a VFD if and when you need one. Think of a VCPR as a relationship similar to what you would have with your family doctor. (1) The veterinarian writing the VFD or prescribing medications must be licensed within the state where the animals are being treated. Am I going to be able to get medicated feed? YES. The steps and process are more involved because you can no longer just go to a feed store and buy certain medications to mix in with your feed or buy medicated feeds containing medically important antibiotics. Producers must get a VFD order from their veterinarian and then send or take the VFD order to a feed distributor to get the VFD feed. Your veterinarian may send the VFD directly to where you buy feed.

When I buy my show pigs (for example), will I still be able to get a couple bags of medicated feed from that producer? If the medicated feed contains an approved VFD drug, you must have a VFD before getting that feed. Your veterinarian must see these pigs to be able to write a VFD. Plus, the producer must be a distributor complying with FDA's distributor requirements to be able to distribute a VFD feed to you once you provide them with a VFD order.

What about feeding water soluble medications? Beginning January 1, 2017, all antibiotics important to humans that are administered through drinking water will require a written prescription from your veterinarian. You must have established a VCPR to be able get a prescription to buy these drugs or products. Although a VFD and a prescription are not the same, you need to have a VCPR to obtain both. The VFD rules only apply to medically important antibiotics fed on or in feed products, while a prescription applies to many products including medically important antibiotics administered through drinking water. For a list of drugs transitioning from over-the-counter to prescription status, refer to the "Drugs Transitioning from OTC to Prescription Status" link at the end of this document.

What about feeding milk replacer? Milk replacers are considered feeds. If using medicated milk replacer containing an approved FDA drug mixed with water or mixed with feed, you must

have a VFD. Medicated milk replacers will no longer be labeled for continuous feeding and therefore will not be allowed to be used continuously.

How often do I have to get a VFD? There will be a VFD expiration date that defines the period of time for which the authorization to feed an animal feed containing a VFD drug is lawful. The expiration date specifies the last day the VFD feed can be fed to an animal or group of animals and under the regulations cannot be longer than six months.

A VFD feed or combination VFD feed must not be fed to animals after the expiration date on the VFD. You must contact your veterinarian to request a new VFD order.

A VFD feed or combination VFD feed must not be fed to animals after the expiration date on the VFD. You must contact your veterinarian to request a new VFD order.

What are my responsibilities as the client (youth producer) when using antibiotics important to humans in feed? (1) Only feed animal feed bearing or containing an approved VFD drug or a combination VFD drug to animals based on a VFD issued by a licensed veterinarian. (2) Do not feed a VFD feed or combination VFD feed to animals after the expiration date on the VFD. (3) Provide a copy of the VFD order to the feed distributor if the issuing veterinarian gives you the distributor's copy of the VFD. The veterinarian may send the VFD order directly to your feed distributor. (4) Keep a copy of the VFD order for a minimum of 2 years. (5) Provide a VFD order for inspection and copying by the FDA upon request.

Brooding and Housing

Getting Started

- Thoroughly clean and disinfect house and equipment. Do this before the chicks arrive.
- Sweep down the walls, ceiling, and floor to remove all the dust and cob webs. Use a water spray from a garden hose to help with the work.
- After cleaning use a disinfectant on the house. A solution of 1 tablespoon of chlorine bleach in one gallon of water can be used to disinfect clean waterers and feeders.
- Cover the house floor with 3 to 5 inches of dry wood shavings or sawdust.

Environment

- Brooding houses and brooding boxes should be isolated from other houses containing older birds. It is recommended that birds of different ages be kept separately.
- Brooders must be set up in a draft free environment.
- Heat lamps must be checked to ensure that they are working properly before the arrival of your birds. Check lamps daily and have back up bulbs on hand to replace immediately if one happens to go out.
- Ventilation should be adequate to remove undesirable gases such as ammonia and provide clean air but not so much to remove heat or create drafts.
- The brooding area should be heated to 95-98 degrees before the arrival of the chicks. Be careful to always check the temperature level of the birds.
- A hatched chick cannot maintain a proper body temperature without your help. Exposing a chick to cool temperatures in the first three weeks of life makes the bird uncomfortable and less likely to eat the feed and drink the water needed for a good start. Exposing the young birds to cool 70 degrees for the first day or two on the farm can cause the bird to die from heart problems later. Heat is definitely needed for brooding.
- Turn the heat on a minimum of 1 day before the birds arrive. The temperature ½ inch below the litter should be at least 80 degrees. Even if the air is the current temperature, the birds can be chilled by the cold floor under them. Temperature 2 ½ inches above the litter should

be 95 degrees. put the feed and water in the brooder in separate places, keeping the water away from the heat source.

- Pine shavings are the ideal bedding choice for brooding and rearing of your poultry. Meat birds need at least 1 inch of clean fresh bedding for each week of age. A three-week-old bird should be on 3 inches of bedding.
- Bedding is used to conserve heat and must be leveled and compacted to prevent chick crowding.
- Bedding should not contain too much dust as it can cause your birds to have breathing problems.
- Cedar and hard-wood chips should not be used as it will stain your birds.
- It is important to keep your bedding clean and dry at all times. Dirty bedding can cause health problems for your birds.
- Always remove damp, wet, or caked bedding and replace it with dry fresh shavings.

Average Temperature for Brooding Chicks

Age of Chicks (weeks)	Temperature
1	95
2	90
3	85
4	80
5	75
6	70

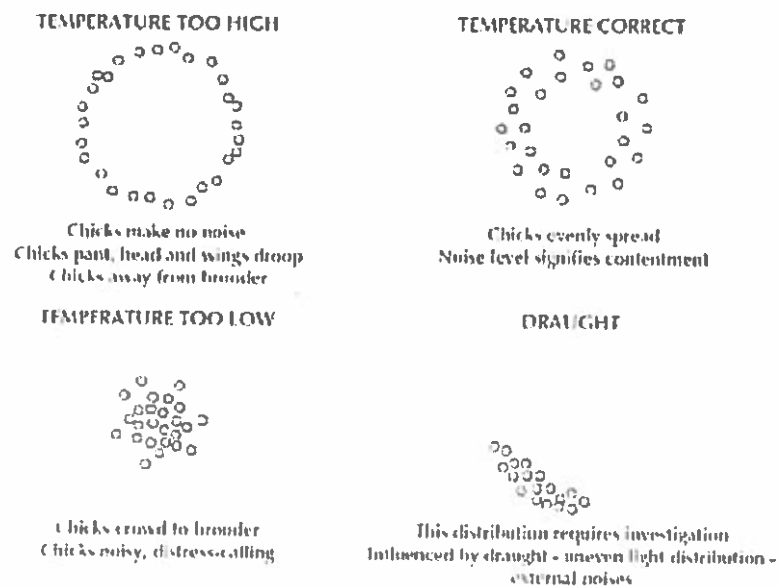
Brooding Guide

Age	Floor Space	Feeder Space	Waterer Space	Ventilation/ Room Temp	Management Practices
1 st week	1 sq. ft per chick	1 linear inch per chick	Two 1-gallon waterers per 100 chicks	Keep air fresh. Ventilate moderately 70 - 100 degrees F	Place waterers near edge of brooder. Dip beaks in water when placed in brooder. Sprinkle feed on paper towels for 1 st day. Fill feeders full.

2 – 6 weeks	Same	2 linear inch per chick	Two 3-gallon waterers per 100 chicks	Increase ventilation to keep room cool and chicks comfortable. 70 – 100 degrees F	Keep area around waterers dry.
6 – 8 weeks	Same	3 linear Inches per chick	Two 5-gallon waterers per 100 chicks	Same 70 – 80 degrees F	Keep bedding dry. Remove wet areas and replace with dry.

Judging Birds Comfort (all poultry)

The behavior and sounds of the chicks will indicate their comfort level. Comfortable birds will form a circle under the lamp, and make soft “cheeping” noises; cold birds will huddle and pile, and make sharp noises. If birds are too hot, they will crowd as far from the lamps as possible. Some birds will pant if the temperature is too high. Your birds will do a better job than a thermometer of telling you if they are comfortable. The diagram below shows how birds will move away or towards the heat lamp if they are hot or cold.



Brooding /Housing Turkeys

Turkeys require considerably more space to grow than chickens. An adult turkey will exercise its powerful wings during the day. With a wing span of 6 feet, they must be given space to stretch!

The building space required per bird for small flocks is considerably greater than a large building. Young turkeys that are housed indoors should have 4-6 square feet per bird, while fully grown birds must have 12-16 square feet per bird. An 8' x 12' building would only house 5-6 large turkeys.

Plenty of outdoor ranging area will allow them the opportunity to keep their feathers neat and clean, while grazing for grass and plant minerals, bugs, small rodents, frogs, grit, and other organisms. Exhibition birds will typically stay close to the buildings where they know their food supply is located. Turkeys may roost in trees and may fly several hundred yards if scared.

The temperature in the brooder at the turkey poult's height should be 95 degrees F for the first week and decrease it 5 degrees for each week after that.

Brooding/Housing Waterfowl

Ducks and geese after hatching are kept in a brooder. The heat should be 95 degrees F for the first week, decrease the temperature by 10 degrees F every week after that. By the 21st day they are comfortable at a temperature of 65 degrees F. After they are covered with feathers and down, they grow well at a temperature of 55 degrees F.

Large breeds of ducks and geese may get uncomfortable in temperatures above 80 degrees F. Being able to splash and swim in water makes it easier for them to be comfortable on a hot day.

Most ducks and geese are grown on the floor. If they are kept in a building all of the time, it is referred to as confinement rearing. Waterfowl that do not have parents to watch over them should be kept in confinement until they are several weeks old. They can be released into an outside pen during the day if the weather is nice, beginning the third week.

Cover the floor of the house with dry clean litter (wood chips). If the litter gets too wet or dirty remove it and replace it with dry clean litter. Ducks and geese need more space as they grow. Ducks can also be raised on wire floors until they are about 5 weeks old. The wire should be no more than 1 x 1-inch squares. Plastic covered wire is preferred, but galvanized wire is acceptable. Do not raise older ducks on wire for they can develop infections from the wire irritating the bottoms of their feet.

When ducklings/goslings are one day old, they need at least 0.5 square feet of floor space. By the time a duckling is seven weeks old they will need 3 square feet of space. The space needed increases about 0.5 square feet per week. This is for ducks that weigh 6 to 8 pounds at seven weeks of age. Smaller ducks (such as call ducks- but as adults will fly) won't need quite as much space.

Ducks and geese like to alternate between feed and water during feeding time. The area between the waterer and feed may become very wet and dirty. Raising the waterer up slightly onto a wire grate with a gutter or drain to help carry the spilled water away may aide in this problem. It is not necessary for ducks and geese to swim; however, occasional swimming will improve feather quality.

Hatching Eggs

Fertile Eggs

The first thing you'll need to hatch chicks is, of course, eggs. For hatching to occur, the eggs must be fertile. Fertile eggs can be collected from hens who are housed with a rooster.

Eggs sold in the grocery stores are not fertile; therefore, they will not grow into baby chicks if placed in an incubator. Fertilized eggs usually need to be ordered from a hatchery or from poultry farmers with roosters in their flocks. Either way, make sure your fertile eggs are coming from a National Poultry Improvement Plan (NPIP)-certified flock to help reduce the risk of disease.

Prior to incubation, a fertilized egg can be stored for a maximum of 7 days in a cool room, kept at a steady temperature of 55-60 degrees F (**Not** in the refrigerator – it's too cold!). Once the fertilized eggs are placed in the warm incubator, they may develop over the course of 21 days (more for turkeys, ducks, and Muscovy ducks), with the proper incubator set-up and care.

Getting Ready

Before your baby chicks hatch, be sure to stock up on chick starter feed. A newly hatched chick will need free choice access to complete feed immediately once they hatch and are placed in the brooder. Choosing a chick starter feed depends on your flock goals and if your chicks have been vaccinated for coccidiosis. It is wise to use a probiotic and or electrolytes (vitamin and digestive) in the chick's water once they are in the brooder. Some brands can be used together in the same gallon.

Incubator Set Up

Fertile eggs can be hatched by using an egg incubator. An incubator is an enclosed structure with a fan and heater to keep eggs warm during the incubation period. When determining which incubator to purchase, we recommend using an incubator with some automatic features, such as egg turning (which is critical to chick development and to keep the chick from sticking to the inside surface of the shell) and a fan to facilitate even heat distribution.

Prepare the incubator about one week prior to the arrival of fertilized eggs. Wash it with a 10 percent bleach solution, followed by warm soapy water and a thorough rinse to ensure you've started with a sanitized environment. Once the incubator is clean and dry, turn it on and check to be sure a constant temperature and humidity level will be maintained. Then, place the incubator in an area where ambient temperatures are steady, with no risk to drafts.

Temperature and humidity inside the incubator are critical factors for successfully hatching eggs. Suggested guidelines are as follows:

- Optimum temperature: 100.5 degrees F
- Temperature range: 99-102 degrees F
 - Don't let the temperature drop below 99 degrees F
 - Do not allow temps of 102 degrees F to last more than a few hours
 - Double check the incubator's thermometer with a medical thermometer placed near to ensure the gauge is working properly
- Relative humidity, day 1–17: 50-55 %
 - Equivalent to a wet bulb temperature of 85-87 degrees F
 - Keep water channels in the incubator full to facilitate proper humidity
- Relative humidity, day 18-21: On day 18, raise the relative humidity to 70 %
- Only open the incubator when necessary – doing so can let heat and humidity escape and can affect the success of the hatch
- Increase ventilation as embryos grow bigger, especially from days 18-21

Keep in mind these are recommendations for hatching chicken eggs. If you are hatching eggs of other species, the specifications and incubation times will be different, adjust the incubation time accordingly. It is advised to incubate eggs of different species separately.

Day 1: Setting Eggs

Once you have the incubator set-up and have analyzed the settings to ensure accuracy, you are ready to place the eggs inside the incubator. This process is called “setting the eggs”.

Plan to set a minimum of six eggs at one time. Setting fewer eggs, especially if the eggs were shipped, often results in one or no hatching. The number of chicks that hatch together is especially important for the newborn chicks because chickens are flock animals and need companions to be happy. Place the eggs in the egg tray of the incubator, with the larger end facing up and the narrow end facing down in the incubator. Set the temperature to 100.5 degrees F with 50-55% humidity.

Day 1-18: Turning the Eggs

After setting the eggs, the incubator process begins. An important part of this process is turning, or rotating, the eggs.

Eggs must be physically turned to prevent the developing chick from sticking to the shell. More scientifically, the embryo should be resting on top of the yolk. The yolk tends to float upward, on top of the albumen (egg white) towards the shell if the egg is not turned. As a result, the developing embryo can be squeezed between the yolk and the shell, causing potentially fatal damage. By turning the eggs, the yolk turns within the albumen, once again moving the yolk away from the shell and making it safe for the embryo on top until it is time to turn again.

Eggs will need to be turned a minimum of 3 times per day, and 5 times is even better. If you are turning the eggs manually, it is advised to gently make a mark with a pencil (never a pen or marker, egg shells are porous and are absorbent) that will help you keep track of which eggs have been turned. If you have an automatic incubator, it should turn the eggs for you and will eliminate the need to repeatedly open the incubator.

Be sure to wash your hands or wear clean gloves before you touch the eggs to prevent the transfer of skin oils or germs to the developing chicks.

Day 7-10: Candling Eggs

Towards the middle of the incubation period at 7 to 10 days, eggs can be candled to determine if the embryos are growing properly.

Candling is the act of simply shining a light through an egg. White and light-colored shells are the easiest to candle, while darker shells will require a brighter light. The simplest way to candle an egg is with a basic flashlight, but there are specialized pieces of equipment designed specifically for the job. Do not keep the egg out of the incubator for more than 5-10 minutes and don't candle the eggs all at once. To allow the eggs to stay inside the incubator, plan to candle a few times.

To understand what you are looking for while candling eggs, refer to the following descriptions:

- If the inside of the egg is clear - that is, free from visible structures or dark areas – the egg is infertile, or the embryo died very early. Remove this egg from the incubator.
- If a ring of red is visible within the egg, there was an embryo at some point, but it has died. Remove this egg from the incubator.
- If you can see blood vessels within the egg, there is live embryo inside. Blood vessels in chicken eggs are normally observable within 7 to 10 days of an egg's incubation. By 18 days of incubation, the embryo takes up most of the egg and appears as a dark area within the egg. You can sometimes see movement inside the egg.

If you notice broken or leaking eggs, remove them from the incubator as they are not likely to be viable and may contaminate the incubator. After candling, return eggs to the incubator and return to the 1-18 day turning schedule.

Day 18-21: Pre-Hatching

By day 18, the embryo has developed into a chick and will take up most of the space in the egg. The chick is preparing to hatch. You can do a few things to best help the baby chick prepare:

- Stop egg-turning at day 18 with the larger end of the egg facing up. At this point, the chicks will position itself for hatching inside the egg.
- Maintain a temperature of 100.5 degrees F but increase humidity to 70%.

Day 21: Hatching Begins

Chicks will typically hatch at day 21. If the fertilized eggs were cooled prior to incubation, the more days it may take to hatch.

When the big day comes, let the chick hatch on its own. Do not attempt to help. Blood vessels that haven't dried up yet may still attach the shell to the chick, and prematurely pulling of the shell can cause excessive, potentially fatal, bleeding. A chick can take up to 24 hours to completely hatch, although 5-7 hours is common.

The peeping of the new baby chicks will encourage unhatched eggs to also start hatching. When the chicks have all hatched, the incubator temperature can be lowered to 95 degrees F. Once the chicks have dried, they can be moved into the brooder, which should already be up and running with a temperature of 90-95 degrees F. Food and water should be in place as well.

If there are still unhatched eggs at day 21, don't despair. It is possible that timing or temperature went slightly awry, so give the eggs until day 23. Candle any unhatched eggs to see if they are still alive before discarding them.

Keep in mind that when hatching eggs, you will likely end up with roosters. There is a 50/50 chance that a chick will be born a rooster. There is no good way to determine if a male or female chick is developing inside the egg. Some town ordinances do not allow backyard roosters, so have a plan for re-homing a rooster if you can't keep him. If you decided to keep a rooster, it is suggested to only have one. In addition, one rooster per 10 hens is typical for continued breeding. Any more than that can put hens at risk overbreeding and injury.

Hatching eggs can be very rewarding experience with proper planning and equipment. Remember to test all equipment before all fertilized eggs arrive and set up the brooder as hatch day approaches.

Keep a watchful eye on temperature and humidity inside the incubator and invite friends, club members, and family over to watch the hatch. Everyone will be enthralled! Best of all, enjoy the new flock members you have had the privilege of raising from birth.

Sexing

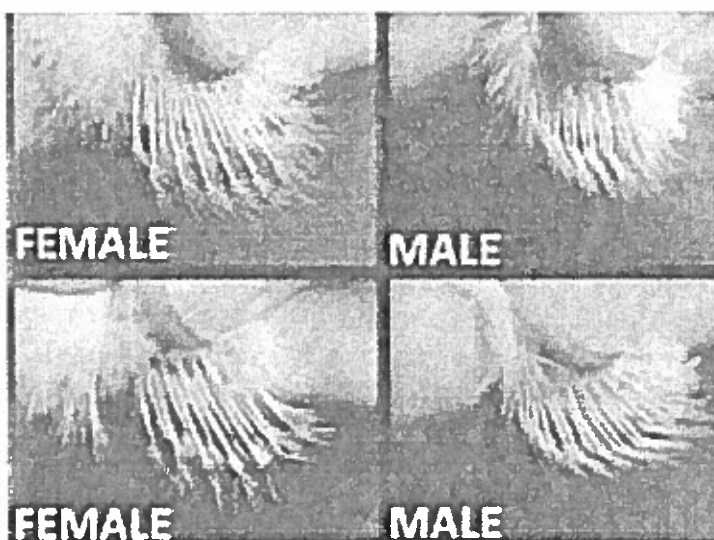
Chicks

It is always a tough job to determine the sex of hatchlings. It is usually let to professionals that are called "chicken sexers". These professionals "vent sex" the chicks at a day old and their processes is extremely fast.

There are a few ways that it can be done by the exhibitor and farmer.

Wing Feathers

Look at the chick's wing feathers. While baby chicks are covered in down, the ends of their wings will have a light feather fringe. To view the wing feathers, grasp the chick firmly in one hand. Use your other hand to extend the wing out until the feathers are somewhat separated and visible. A male (cockerel) chick will have wing feathers of roughly the same length. A female (pullet) chick will have wing feathers featuring two varied lengths. Wing sexing chicks is fairly accurate, up to 1 to 3 days after hatching. This is when the best results are yielded. If you wait longer than this, the wing feather development will accelerate too much to read.



Wing Sexing 1 to 3-day old chick

Chick Coloring

Look at the chick's down color. A chick is covered with downy, soft, small feathers until it develops past 6 weeks of age. Male chicks usually have light-colored heads, whereas females often have dark brown ones. If a female has down spots or stripes, they are typically brown or black. In contrast, a male's accent marks are generally white or yellow. An example is the male Rhode Island Red or New Hampshire, chicks will have almost golden down coloring. In some situations, you can estimate the sex of a day-old chick using down color reading. But this is determined by the breed. Certain breeds will have sex-unique down patterns. For example, male Barred Plymouth Rocks chicks will have yellow spots on their heads.

Hatching or raising a "sex link" breed is the easiest way to determine the males from the females. Sex link chicks are chicks that are bred to exhibit a sex-specific color pattern at hatching. This means the sex of the chicks can be determined almost immediately with a high degree of accuracy. Red Stars, for example, are a sex link breed. Males are yellow golden, whereas females are reddish gold. Similarly, Red Stars are a sex-linked breed, so the male and female are different colors. Males hatch buttery gold, while females hatch reddish-gold.

Saddle Feathers on the chicks can be examined if the chick is **between 8 and 10 weeks old**. Hold the chick firmly in the hand and look where its back meets its tail. That is where the saddle feathers lie. Notice that male chicks have jagged and sharp saddle feathers, whereas the feathers on females look rounder and softer.

Size

Look at the chick's size. At about 3 to 4 weeks old, signs of difference between male and female chicks based on their body size will start to become noticeable. Male chicks will generally have larger bodies and heads. Female chicks will appear a bit more petite.

Vent Sexing

A warning in advance, it's usually best to hire a professional to perform this procedure. However, if choosing to do it, make sure to be gentle with the chicks. Hold the chick in the hand and apply light pressure to its abdomen until the chick defecates. Look into the now clear anal vent. If there is a bump, then the chick is likely male. No bump indicates a female. In some breeds, both males and females will have what looks like a series of small beads in their anal vent. In these cases, the male will have a larger, round center bead. The female center bead will be flat in appearance.

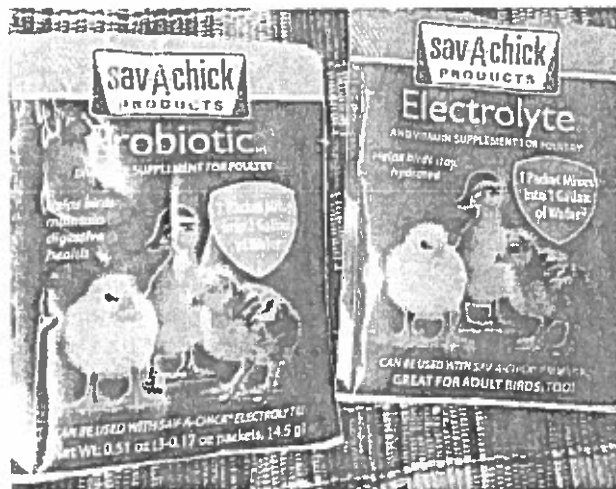
Wait on Maturity

Wait until the chicks are 6 weeks old. This does seem like a lengthy time to wait in determining the sex of the chicks; however, the odds of success increase quite a bit. The physical changes, such as waddle and comb development will be easier to see. Behavioral changes, like the startle response, will also be clearer and more consistent. By also waiting the young cockerels will be likely, trying to crowing.

Feed

Feed & Water

- Fresh food and water should be available on arrival of day-old chicks
- chick waterers, not open trays and do not place them directly under the light source
- Fresh water should be available at all times. The waterers need to be cleaned on a routine basis
- It is helpful to dip the chick's beaks into the water when you first place them into the brooder
- Feed should be provided continuously. Never restrict feed during the brooding stage of chick development
- Water is the most important nutrient you can provide for your birds. If the water is not clean, your birds may not drink enough thus limiting their feed intake and their growth rate.
- A probiotic and or electrolyte supplement can be added to the chick's water while in the brooding stage. Some can be added to the same gallon of water and used for multiple bird species.



This probiotic and electrolyte can be used in the same gallon, used for multiple bird species and can be found at the local feed store.

Chickens

- Begin feeding your day-old chicks a balanced chick starter ration
- Starter feed is usually between 18-24% protein
- Starter feed sometimes comes medicated. This helps prevent coccidiosis in your birds
- At 8 weeks of age you can switch your flock over to grower if you wish or continue the starter feed until the birds start to lay eggs.
- Once the birds start to laying eggs change to a layer pellet or crumble. Layer rations are typically about 16% protein and contain extra calcium for strong egg shells
- Extra calcium should not be given to young birds that are not yet laying eggs because it can cause bone or kidney problems
- Hens that are of laying age need 16 hours of daylight in order to produce eggs
- Start meat birds on a good starter ration with a very high percentage of protein 21-24%. Do not feed grains with starter feed.

Turkeys

- Feed your turkey poults a balanced turkey starter ration of at least 26-28% protein
- Make sure they have feed at all times
- Because turkeys are fast-growing, protein requirements are higher for a longer period of time.
- Protein percentages for turkeys will start out high and will decrease as the birds mature
- You may choose to switch your birds to grower-finisher before the show
- Make sure there is a light on at night so the turkeys can see the water and feed

Ducks/Geese

- Make sure they have feed and water at all times
- Ducklings and goslings will like to "play" in the water in the brooder. Be diligent and keep the bedding clean and dry.
- Never feed medicated chicken feed to young waterfowl, this can be fatal.
- Feed your newly hatched waterfowl starter crumble feed to 6 weeks of age. Switch to pellet shaped feed as they mature

- Scratch is not a balanced feed for waterfowl because it usually contains cracked corn and wheat and these are considered supplements for waterfowl

Water is the most important thing you can give your chicks. Chicks need about twice as much water by weight as feed. They cannot live without water and will not feed without having a water source. Chicks and maturing birds will not drink enough water if the waterer is allowed to become dirty. Keep waterers clean.

Food Chickens Shouldn't/Won't Eat

<u>Food</u>	<u>Reason</u>
Orange Peel	Too tough to chew on. Chickens will play with them if they are bored.
Watermelon Rinds	Too thick/tough for chickens to chew on
Rye Kernel	Chickens don't like them
Chicken	Because they are chickens. Although chickens will happily eat chicken
	and other meat products. If a chicken passes and not removed from the pen immediately, the chickens will pick the bones clean. If this happens on a larger scale, and the chickens feed on the brain and spinal cord, this can lead to an outbreak of a similar disease to mad cow disease.
Carrots	Chickens can't eat large hard chunks, but will eat carrot peels
Curry.....	They like it, but it has bad effects on their droppings
Banana.....	They just don't like them
Potato Peels	Chickens normally don't like very many root plants, so they will not usually eat potato peels
Tomato	Not a problem in small quantities. In excess reduces the droppings

Parts of Feed

Proteins –

- Protein is a nutrient the must be present in adequate amounts in poultry food.
- Proteins are broken down into amino acids during the digestive process.
- Amino acids are classified as “nonessential”.
- The “essential” amino acids are those that cannot be produced in sufficient quantities in digestion to meet a bird's nutritive requirements. They must be supplied in the diet.
- Since most protein sources individually will not supply all essential amino acids, it is common to use combinations of materials containing protein.
- Common protein sources include meat, fishmeal, soybean meal, alfalfa meal, and corn gluten meal.
- All feed manufacturers are required to list the percentage of protein contained in their feed on a tag attached to the bag.
- The amount of protein required in a ration varies by species, and in some cases changes as the bird grows.

- Turkey rations are higher in protein than they are in fancy poultry due to their quick rate of growth.
- Starter feeds help build strong skeletal systems and grower/finisher feeds help put the meat on the bird.

Vitamins –

- Vitamins are required in small amounts for normal health, growth, and reproduction.
- Vitamins essential for viability and growth of chicks include among others Vitamin A, Vitamin B12, Vitamin D, Riboflavin, and Pantothenic Acid. As with minerals, a vitamin premix is added to nearly all poultry diets to meet basic needs.

Minerals –

- Minerals are essential inorganic elements, and unless provided in sufficient supply, both egg production and hatchability may drop.
- Grains, their byproducts, and other vegetable feed stuffs are low in minerals and must be supplemented with ingredients of higher mineral content. In nearly all poultry diets, a trace mineral premix is added to meet the birds' mineral requirements.

Carbohydrates & Fats –

- Both carbohydrates and fats serve as sources of energy for the birds.
- Most grains supply carbohydrates in large amounts but do not contain enough protein, minerals, or vitamins in amounts or quality to produce strong, vigorous birds.
- Carbohydrates also are found in other ingredients of vegetable origin, such as soybean meal. The most common carbohydrate source in typical poultry diets is corn.
- Usually, when fats must be added to poultry diets, they are added as either vegetable oils or tallow (rendered animal fat).

Feed Tags and Medication

Look at the following feed tags and determine if there is medication in it. Also notice the amount of protein the feed has and what the main ingredient is in each example. Also note if there is a withdrawal or any steps to take (discard eggs), if the feed is medicated.

001906

DUMOR POULTRY LAYER 16% CRUMBLE

FEED FOR EGG PRODUCING POULTRY

GUARANTEED ANALYSIS		DIRECTIONS FOR USE
Crude Protein (Min)	16.0 %	For hens producing eggs for human consumption, begin feeding this product as sole ration at approximately 18 weeks of age (prior to onset of laying).
Lysine, (Min)	0.70 %	For breeding hens, begin feeding as sole ration this product one (1) month prior to egg production.
Methionine, (Min)	0.35 %	
Crude Fat, (Min)	2.5 %	
Crude Fiber, (Max)	7.0 %	
Calcium (Ca), (Min)	3.5 %	
Calcium (Ca), (Max)	4.5 %	
Phosphorus (P), (Min)	0.50 %	
Salt (NaCl), (Min)	0.25 %	
Salt (NaCl), (Max)	0.75 %	

IMPORTANT

A feeding program is only as effective as the management practices followed.

CAUTION

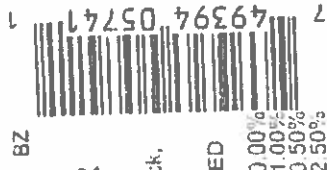
Store in dry, well ventilated area protected from rodents and insects. Do not feed moldy or insect-infested feed to animals as it may cause illness, abortion or death.

INGREDIENTS

Grain Products, Processed Grain By-products, Plant Protein Products, Calcium Carbonate, Animal Products, Molasses Products, Calcium Lignin Sulfonate, Methionine Supplement, Salt, Choline Chloride, Lysine, Pyridoxin Hydrochloride, Calcium Pantothenate, Riboflavin Supplement, Biotin, Menadione Dimethylpyrimidinol Bisulfite, Vitamin E Supplement, Vitamin B-12 Supplement, Vitamin A Supplement, Thiamine Mononitrate, Nicotin Supplement, Folic Acid, Vitamin D3

IMMEDIATE

60Y0-MSL-1



BZ

DUMOR CHICK STARTER/GROWER 20%-20#

For Starling/Growing Chickens, Duck,
Geese, Quail, Turkey,
Pheasant and Chukar

CAUTION: USE ONLY AS DIRECTED

GUARANTEED ANALYSIS	
Crude protein (min.)	20.00%
Lysine (min.)	1.00%
Methionine (min.)	0.50%
Crude fat (min.)	2.50%
Crude fiber (max.)	4.50%
Calcium (Ca) (min.)	0.70%
Calcium (Ca) (max.)	1.20%
Phosphorus (P) (min.)	0.65%
Phosphorus (P) (max.)	0.25%
Salt (NaCl) (min.)	0.25%
Salt (NaCl) (max.)	0.75%

INGREDIENTS

Grain products, processed grain by-products, plant protein products, animal protein products, calcium carbonate monocalcium phosphate, dicalcium phosphate, salt, L-lysine DL-methionine, choline chloride, vitamin E supplement, riboflavin supplement, niacin supplement, menadione dimethylpyrimidinol bisulfite, vitamin B-12 supplement, calcium pantothenate, vitamin A supplement, folic acid, thiamine, pyridoxine hydrochloride, biotin, vitamin D 3 supplement, manganese oxide, zinc oxide, copper sulfate, calcium iodate, sodium selenite

Ruminant Meat and Bone Meal Free
10BZG-60W7

DIRECTIONS

Feed as sole ration as a starter diet to chickens, ducks and geese 0-10 weeks of age. Feed as sole ration as a grower diet for Turkey, quail, pheasant, chukar 6-12 weeks of age.

IMPORTANT

A feeding program is only as effective as the management practices followed.

CAUTION

Store in a dry well ventilated area protected from rodents and insects. Do not feed moldy or insect-infested feed to animals as it may cause illness, abortion or death.

NET WEIGHT 20 LBS (9.07 KG.)

DUMOR CHICK STARTER/GROWER 20%-20#

60W



19446

1051A KALMBACH 19% BROILER/CHICK GROWER FINISHER CRUMBLE

Medicated

A complete medicated feed formulated for growing layer replacement and broiler chicks, medicated for use as an aid in the prevention of coccidiosis in broiler chicks, and as an aid in the prevention of coccidiosis where immunity to coccidiosis is not desired in layer replacement chicks

Active Drug Ingredients	
Amprolium	0.0125%
Guaranteed Analysis	
Crude Protein (Min.)	19%
Lysine (Min.)	1%
Methionine (Min.)	0.4%
Crude Fat (Min.)	2.5%
Crude Fiber (Max.)	5%
Calcium (Ca) (Min.)	0.75%
Calcium (Ca) (Max.)	1.25%
Phosphorus (P) (Min.)	0.25%
Phosphorus (P) (Max.)	0.7%
Salt (NaCl) (Min.)	0.25%
Salt (NaCl) (Max.)	0.7%

Ingredients
Corn, Dehulled Soybean Meal, Corn Gluten Meal, Wheat Flour, Wheat Middlings, Animal and Vegetable Fat, Salt, Dicalcium and Mono-calcium Phosphate, Calcium Carbonate, dl-Methionine, L-Lysine, Potassium Sulfate, Magnesium Sulfate, Choline Chloride, Vitamin A Supplement, Vitamin E Supplement, D-Acetylated Anhydrous Sterol (Source of Vitamin D-3), Niacin, Vitamin B-12 Supplement, Riboflavin, dl-Calcium Pantothenate, Ethoxyquin (preservative), Nicotinic Dimethylpyrimidinol Bisulfite (Source of Vitamin K), Activated Vitamin, Folic Acid, Thiamine Mononitrate, Pyridoxine Hydrochloride, Zinc Sulfate, Ferrous Sulfate, Manganese Sulfate, Copper Sulfate, Ethylene Diamine Dihydrochloride, Cobalt Sulfate, and Sodium Selenate.

WARNING: USE AS THE SOLE SOURCE OF AMPROLIUM

DO NOT USE WITH FEEDS CONTAINING BENTONITE

Feeding Directions
Feed continuously as the sole ration from three weeks to approximately 16 weeks of age.

Manufactured by
KALMBACH FEEDS, INC.
UPPER SANDUSKY, OHIO 43551

Net Weight - 50 LBS (22.7 Kg.) - BULK - Show on Invoice

301180

Feed Tag Questions

Poultry Feed Tag Example

BROILER STARTER MEDICATED

COMPLETE FEED FOR STARTING BROILERS

For the prevention of coccidiosis in poultry flocks; growth promotion and feed efficiency, and improving pigmentation.

ACTIVE DRUG INGREDIENT

Nicarbazin 0.0125%
Oxibacacin Methylene Disilicylate 50 G/TON
Bovarsone 0.005% 45.4 G/TON

GUARANTEED ANALYSIS

CRUDE PROTEIN MIN 22.00%
LYSINE MIN 1.13%
METHIONINE MIN 0.54%
CRUDE FAT MIN 3.90%
CRUDE FIBER MAX 5.00%
CALCIUM MIN 0.75%
CALCIUM MAX 1.25%
PHOSPHORUS MIN 0.60%
SALT MIN 0.30%
SALT MAX 0.80%

INGREDIENTS

GRAIN PRODUCTS, PLANT PROTEIN PRODUCTS, ANIMAL PROTEIN PRODUCTS, HYDROLYZED ANIMAL AND VEGETABLE FAT, CALCIUM PHOSPHATE, GROUND LIMESTONE, SALT, METHIONINE SUPPLEMENT, PROPIONIC ACID (ADDED TO RETARD MOLD GROWTH), VITAMIN A ACETATE, VITAMIN D-3 SUPPLEMENT, VITAMIN E SUPPLEMENT, MENADIONE DIMEHYLPYRIMIDINOL BISULPHITE, CHOLINE CHLORIDE, RIBOFLAVIN SUPPLEMENT, CALCIUM PANTOTHENATE, NIACIN, VITAMIN B-12 SUPPLEMENT, PYRIDOXINE HYDROCHLORIDE, THIAMINE MONONITRATE, FOLIC ACID, BIOTIN, ZINC OXIDE, MANGANOUS OXIDE, MANGANESE SULFATE, FERROUS SULFATE, COBALT CARBONATE, CALCIUM IODATE, SODIUM SELENITE.

FEEDING DIRECTIONS

For broilers and fryer chickens only, feed continuously as the sole ration.

SEE BACK OF TAG FOR WARNING

MANUFACTURED BY:
SKILLATHON FEEDS

NET WEIGHT 50 POUNDS (22.7 KILOGRAMS)
OR AS SHOWN ON WHIPPING DOCUMENT

WARNING

Do not feed to laying hens. Withdraw 5 days before slaughter. Use as the sole source of organic arsenic. Feed continuously as the sole ration from time the chicks are placed on litter until past the time when coccidiosis is ordinarily a hazard; do not use as a treatment for coccidiosis; do not use in flushing meshes.

DO NOT FEED TO CATTLE OR OTHER RUMINANTS.

FEED TAG QUESTIONS

1. What is the main ingredient in this feed?

2. What is the crude protein level?

3. For how many days prior to slaughter should this feed be removed?

4. How many pounds of ingredients are included in this bag?

5. Should this diet be fed to laying hens?

6. What is the crude fat level of this diet?

Diseases & Parasites

Preventing Problems

It is better to prevent rather than try to cure poultry diseases. You can prevent nearly all poultry diseases by following a strict sanitation, feeding, and management program. Always remove sick birds from the flock and give them special attention or kill them. If you suspect a disease outbreak, check with a local veterinarian.

If your flock becomes sick, it is important to obtain an accurate diagnosis. The problem can be poor nutrition, poor management, or an infectious disease. You need to know the source of the problem in order to treat the birds properly and prevent future losses. Check your flock daily to spot diseases or parasites so you can start treatment right away.

Be vigilant in keeping feeders and waters clean. Remove any caked feed and never use moldy feed. Wash your waterer often and disinfect them. Diseases can often be transmitted from older birds to younger ones.

Proper ventilation in the brooder and coop will reduce moisture and disease organisms. Caked and or wet litter should be removed and replaced with clean dry litter.

Summer Stress

Summer rolls in, and with it the merciless heat of the noonday sun. This is a big concern for exhibitors' conscious of the welfare of their animals. As the summer heat gets hotter and hotter, you begin to wonder how well your flock is handling the heat. They may not die, but the problems arising from heat-induced stress can be potentially catastrophic if not dealt with quickly. It has been known to get so hot and the birds so stressed that they stopped laying. Stress such as this can cause the birds to not lay for months. Overheated birds may strut around with their beaks wide open and pant like a dog. Stress and dehydration are very serious, and can have lasting consequences. It is best to keep clean cool water available for your chickens. Ventilation of the coop is necessary. Use fans to keep air moving around the pen.

Parasites

- Most common poultry parasites are lice and mites
- Feed stores stock insecticide dusting powders that are effective in reducing or eliminating the louse and mite problem.

Observation

- Watch for bloody dropping, one of the first indications of cecal coccidiosis. Infected chicks will have ruffled, ragged looking feathers, will lack energy and will go off feed. At the first sign of these symptoms, get drugs from your veterinarian and treat immediately.
- Cannibalism (feather picking) is caused by several things. The most serious cause is not giving birds enough room. Another cause is letting your birds be without feed for a long period of time. To stop feather picking, allow birds more room and debeak if necessary. This is done by removing half the top beak with an electric debeaker. Using green feed to keep them busy will help.

Respiratory

Respiratory diseases are the most common cause of death in poultry flocks. Knowledge of avian respiratory system is essential for developing a health monitoring plan for a poultry flock, recognizing problems that may occur, and taking action to correct them. Parts of the respiratory system can be found in the anatomy part of this booklet.

The avian respiratory system is involved in the following functions:

- Absorption of oxygen (O₂)
- Release of carbon dioxide (CO₂)
- Detoxification of certain chemicals
- Rapid adjustments of acid/base balance
- Vocalization

Dangers to the Respiratory System

As part of the avian immune system, the chicken respiratory tract normally is equipped with defense mechanisms to prevent or limit infection by airborne disease agents, to remove inhaled particles, and to keep the airways clean. Specifically, chicken respiratory health is protected by the function of three defense mechanisms: cilia, mucus secretions, and the presence of scavenging cells that consume bacteria. Cilia are tiny hair like structures in the trachea that are responsible for propelling entrapped particles for disposal. Mucus is produced in the trachea. Mucus secretions and movement of cilia are well developed in chickens. The consistency of the mucus produced is important for the efficiency of the ciliary activity. Cilia cannot function when the mucus is too thick. Scavenging cells in the lungs actively scavenge inhaled particles and bacteria that gain entrance to the lower respiratory tract. These cells consume bacteria and kill them, thus preventing their further spread. The integration of cilia, mucus, and scavenging cells keeps chickens' airways free of disease-producing organisms. The impairment of even one of these components permits an accumulation of disease agents in the respiratory tract and may result in disease.

The defense mechanisms of the chicken respiratory system are important because with each breath, a chicken's respiratory tract is exposed to the inside environment of a poultry house. Poor environments normally do not cause disease directly, but they do reduce chickens' defenses, making them more susceptible to infection from existing viruses and pathogens. The air of poultry houses can contain aerosol particles – dust originating from the floor litter, feed, dried manure, and skin and feathers of the chickens. These aerosol particles can have a range of adverse effects on poultry. They act as an irritant to the respiratory system, and coughing is a physiological response designed to remove them. However, excessive coughing lowers a chicken's resistance to disease. Aerosol particles often collect inside chickens and can increase carcass condemnation at the processing plant. Excessive dust in the air also is believed to result in the formation of caseous tracheal plugs, which adversely affects chickens' health.

In addition to the aerosol particles in a poultry house, gases are generated from decomposing poultry waste, emissions from the chickens and improperly maintained or installed equipment, such as gas burners. Harmful gases most often found in poultry houses are ammonia (NH₃) and carbon dioxide (CO₂). Research has shown that as little as 10 ppm of ammonia causes excessive mucus production and damages the cilia. Research also has revealed that ammonia levels of 10 to 40 ppm reduce the clearance of *E. coli* from a chicken's air sacs, lungs and trachea.

Another danger to the chicken respiratory system has nothing to do with what the bird takes into its system. Because birds do not have a diaphragm, they depend on some movement of the

sternum and rib cage to breathe. Holding a bird too tightly restricts movement of the rib cage and can suffocate the bird, this often happens when young children hold baby chicks.

There is an excellent booklet on poultry diseases put out by MSD Animal Health called “Important Poultry Diseases, Keep Up the Defense”. This booklet has signs, symptoms, diagnosis, treatments, and preventative measures to take to avoid disease. It also has color pictures that are helpful in comparing a sick bird. It is strongly recommended that you download it and reference it when you think you have a sick bird.

<http://cpif.org/wp-content/uploads/2014/04/Booklet-Poultry-Diseases-interactiv-1-copy.pdf>

Poultry Diseases & Parasites

Diseases

Disease	Symptom	Transmission	Treatment
Avian Influenza (All Poultry)	usually no symptoms, (sometimes respiratory problems), sudden death	viral, transmission from wild birds (esp. waterfowl), bird droppings, bird to bird	eradication (to prevent, practice strict biosecurity measures)
Blackhead (All Poultry)	decreased appetite, increased thirst, droopiness, diarrhea, death	protozoan parasites in worms; birds eat infected worms or soil that contains it	sanitation, medication
Blue Comb or Turkey Coronavirus (Turkeys)	low appetite, lethargy, diarrhea, death	viral; bird droppings	eradication (to prevent, keep birds warm and dry)
Bumblefoot (All poultry)	hot swollen footpads, black or brown scabs on bottom of foot	bacterial; enters the foot through a cut or scrape in skin then walking on dirty wet bedding	sanitation, medication
Botulism (All Poultry)	weakness, limp neck muscles, paralysis, death	bacterial; consumption of decaying matter like old, wet food or decaying food scraps	clean/disinfect water & feed bowls regularly, remove rotten food, feed only clean, dry food
Coccidiosis (All Poultry)	pale droopy birds, diarrhea, huddling, foul odor	protozoan parasites; contact with droppings	sanitation, medication
Duck Virus Enteritis or Duck Plague	diarrhea, thirst, hemorrhages	bird to bird, contaminated	vaccination

(Ducks)	throughout body, death	water/food, infected litter	
Duck Virus Hepatitis (Ducks)	sudden death	viral; bird dropping or in brooder, affect ducks 2 days – 4 weeks of age	vaccination
Fowl Cholera (All Poultry)	swollen wattles, darkening of head & unfeathered parts, difficulty breathing, lethargy, sudden death	bacterial; bird dropping and contaminated bedding, feed, or water	eradication of infected birds & strict sanitation
Fowl Pox, Avian Pox (All Poultry)	Lesions on comb, wattles, mouth, throat; drop in egg production	viral; bird to bird and by infected mosquitoes	vaccination
Infectious Bronchitis (All Poultry)	respiratory distress like coughing & gasping	viral: bird to bird	vaccination
Infectious Sinusitis (Turkeys)	swelling under the eye, will swell shut, coughing, sneezing, stunted growth	bacterial (mycoplasma gallisepticum); bird to bird, droppings, contaminated materials, transmitted into eggs from infected hens	eradication (to prevent, vaccination & practice strict biosecurity measures)
Fowl Typhoid (now mostly chickens, has been found in ducks/turkeys)	lethargy, yellow diarrhea, sporadic mortality	bacterial (salmonella gallinarum); affects adult birds, transmitted into eggs from infected hens or if adult chicken eats eggs	strict sanitation, (to prevent, practice strict biosecurity measures)
Pullorum/Bacillary White Diarrhea (now mostly chickens, has been found in ducks/turkeys)	droopiness, white diarrhea, pasted vent	bacterial (salmonella pullorum); affects birds up to 3 weeks old, transmitted into eggs from infected hens or cannibalism	eradication (to prevent, practice strict biosecurity measures)

Note: Fowl typhoid are closely related; you may see the names interchangeably

Parasites

Parasites	Symptoms	Transmission	Treatment
Ascarid, round worm	droopiness, diarrhea, worms 1 ½ - 3 inches long	birds eat worm eggs passed through bird droppings; worms live in the intestine but may migrate into oviduct and become incorporated into hen's egg	medication, (preventive measure to worm chickens regularly)
Cecal worms (all poultry)	small white worms up to ½ inch, normally do not affect bird's health themselves, but are carriers of bacteria	birds eat worms in droppings or earthworms; cecal worms can contain bacteria that causes blackhead	medication (levamisole & fenbendazole)
Lice (All poultry)	small insects, 6 legs, larger than mites; look along shaft of feather for insect, will lay eggs in clusters	bird to bird	dust or spray, strict sanitation
Mites (All Poultry)	very small insects, usually first around the vent, then spreading to comb, wattle, rest of bird	bird to bird	dust or spray, strict sanitation
Thread worms, capillaria worms (All Poultry)	reduced growth, reduced egg production, death; found in crop/esophagus	worms lay eggs in esophagus and are passed in droppings	preventative measures (clean bedding, strict sanitation)

Showmanship

Showmanship Steps

Procedure	How It Is Done	Reason
1. Remove the bird from the coop or pen	Always remove the bird head first with one hand over the back, and the other under the body, with your fingers around the legs.	This prevents the bird from struggling to get away and overly excited.
2. Pick up and hold the bird. (Remain standing at attention until the judge releases you.)	Pick up your bird by spreading your fingers and placing your hand, palm up under the bird's breast as it faces you. As your palm touches the breast, you will find the legs will be placed between your fingers. As you lift the bird, gently grasp the legs by closing your fingers.	This makes the bird feel at ease. It isn't so likely to struggle and it is easier to handle.
3. The judge may ask you to pose your bird on the show table.	Set the bird on the table and set up the bird's legs straight. You should take a step back and stand at attention, ready for the judge.	Your bird should not move, walk or fly. If it moves both legs, you can pick it up and set it back down, but don't re- pose legs.
4. Examination section follows the posing in most shows. When instructed start with the head.	Hold the bird alert and point at eye, look and touch comb, feel wattles, examine beak, and point to ears.	You are noting the eyes, comb, wattles, shape of head, beak, and ears; and any defects present.
5. Examine wings. (Different guides have multiple ways of doing this step and the following ones. You may choose another order, but be sure to include each area of the bird.)	Open the left wing and check the primary and secondary feathers for signs of molting. Take a closer look at the skin on the inside for mites. Repeat for the right wing.	You are noting the color, absence of feathers, slipped wings, split wings and twisted feathers.
6. Examine the body plumage.	Run your fingers over the neck, back and breast area to feel for smoothness.	Note the color and quality of feathers. Look for presence of lice.
7. Examine the tail.	Run your hand down the tail. Press the tail feathers toward you. You may count the feathers.	You are looking for color and feather quality and determining any sign of molting.

8.Examine shanks and feet	Place fee hand on back of bird and turn upside down. Look at the color on front and back of shanks and feet, counting each toe.	Noting color cleanliness, and any defects. Look at the feet of a hen for pigment loss.
9.Examine body.	While still holding bird upside down, in the palm of your hand, note width of body, check abdomen, and vent area.	You are measuring a hen's egg production, amount of meat present on the bird, and for signs of parasites.
10. Return the bird to the upright position and hand to the judge.	You always do this head first.	The judge will check and verify the points you mentioned and check points they are interested in.

Bathing

To give your bird a bath, use a large laundry tub or two large totes (one should contain lukewarm, soapy water and the other should contain lukewarm rinse water). Make sure the water level is below the bird's head, you do not want to get water in the bird's ears. Use a soft cloth to wash the feathers and a toothbrush to scrub the bird's shanks, toes, and feet. Be sure to rinse the bird thoroughly. Remember that giving your bird a bath ahead of time, the bird has time to recondition its feathers by preening. During the winter, keep the bird in a warm area to dry. You may want to use a blow dryer to dry the bird. **Caution:** keep the blow dryer away from any contact with water.

If the bird is not really dirty and doesn't require a bath, you may just need to clean some of its feathers. You can clean the feathers of white birds by gently working cornmeal through the feathers from the bird's head to its tail. To clean the feathers of colored birds, use mild soap and warm water. Be sure to rinse the bird.

Do Not go against the feathers when washing a bird.

Turkeys

Handling turkeys is not an easy task. Work with your bird on a regular basis. The size of your bird in relation to your size is important. There are several ways to handle moving a turkey from one place to another.

Step 1 Open the door of the cage.

Step 2 Turn the bird so it is sideways to you.

Step 3 Hold both legs firmly at the shank area with the hand opposite the bird's head

Step 4 Put your other hand over the bird and wing under the breast area

Step 5 Bring the bird to your chest and "cuddle" it and walk to the show table.

Step 6 Slowly place the bird on the show table, and release the bird.

Posing/Examining the turkey is similar to the chicken, size is the difference. You want to show the judge all the same parts you do the chicken, but you will not flip the bird. Show and touch the parts to be inspected and make verbal notes to the judge what you are looking for and what characteristics your bird has or lacks.

Ducks/Geese

Step 1 The legs of waterfowl should be handled with extreme care. Hold the duck with one hand under the breast giving support to its weight and at the same time grasping the legs together. Your thumb should be outside one leg and your index finger should be between the bird's legs. Use your remaining fingers to grasp the other leg of the bird at the thigh area.

Step 2 Hold your other hand over the back of the duck to prevent it from trying to escape.

Step 3 Hold the bird right in front of you. Do not hold it sideways so the crop is touching your belly. The head should be close to your body and the tail away from your body.

Note: If the bird is too big for you to handle, example would be an African goose, use the turkey method is moving the bird.

Posing/Examining waterfowl again is similar to chickens. You will tilt the bird downwards to inspect the tail area, vent, and legs. Again, making notes verbally to the judge as to what you are seeing and any positives about the bird or defects the bird may have.

Selection Non-Market Birds

Make a preliminary selection from your entire flock a week or two before the show. When making your final decision on which chickens are in the best "condition". There are a few things to consider.

- Feather quality
- Best coloring for breed
- Best comb for breed (chickens only)
- How close does it match the Standard of Perfection?
- Does the bird have any disqualifications as listed in the Standard of Perfection?
- Turkeys can bruise easily especially on the wings, breast or legs, these are down gradable points that you want to avoid
- Turkeys need to have a large breast and be firm

Exhibitor's Appearance

The exhibitor's appearance is just as important as the bird's when it comes to show day. Most fitting and showmanship contests have a dress code for contestants. This code can vary from county to county and from county to state. The primary goal is to look neat and clean. No hats are to be worn, and no cell phones. Wear appropriate shoes and conservative clothing when choosing an outfit for show day. Be sure to check with your county or show ahead of time so you're dressed appropriately.

During the show every eye in the crowd will be on the exhibitors. It is necessary for the exhibitor to act properly. Be alert and smile while you are completing the various steps of showmanship. Remain looking at the judge even when you think you are done. The judge may give you indication to exchange places with another exhibitor or move you and your bird to another table. If you are unsure of an answer do not be shy to tell the judge you do not know; however, be sure to tell the judge that you will look up the answer after the show.

A.P.A. Standard of Perfection

American Poultry Association, Standard of Perfection. This is a book that if taking a non-market poultry project, you will hear about a lot. This is a book that all poultry judges reference, when judging and grading birds. This is the bible of show requirements in the US. It has requirements for all poultry exhibits. It also has a nice glossary of terms, disqualifications, as well as color pattern descriptions. This book contains information on all show poultry breeds:

chickens, ducks, geese, turkeys, and bantams. Color paintings of the breeds and varieties are included.

This is an excellent book for studying disqualifications of certain breeds and to learn desired traits when showing, purchasing, and breeding poultry.

Showmanship

The showmanship part focuses on your ability to handle your bird, knowledge of your bird and how you took care of it. Your will be evaluated on your skills, attitude, and appearance. A large part of showmanship is your knowledge about poultry, so studying about all the kinds of poultry is a good idea. Each project has numerous questions that can be asked, once the judge has determined which contestants have made "the cut", he broadens his question base to determine a showmanship winner. A judge may also ask about your 4H leadership and citizenship activities which are an integral part of the 4H experience. These questions are to aide in studying for showmanship, the judge may ask specific questions about your breed of bird or about other breeds or varieties. He may especially ask questions on the others kinds of birds that other exhibitors have brought into the arena.

Questions

- What is the 4H pledge?
 - My head to clearer thinking.
 - My heart to greater loyalty.
 - My hands to larger service.
 - My health to better living,
 - For my club, my community, my country, and my world.
- What is the 4H motto?
 - To Make the Best Better
- Who is the founder of 4H?
 - A.B. Graham
- In what Ohio county was 4H founded?
 - Clark County. 4H was founded in Springfield Township, Ohio, in 1902
- Explain how you would get ready for your chicks?
 - Thoroughly clean and sanitize the chicken house/brooder. Sweep walls and ceiling or clean brooder box. Remove cobwebs and dust, and wash everything with warm water and detergent. Remove old litter. Disinfect the entire building or brooder and all waterers and feeders. Set thermostat at 100 degrees.
- What should the temperature be under the brooder during the poults first week of life?
 - 95 degrees
- How will you calm your bird if it becomes excited?
 - Hold one hand on breast bone with your fingers around the bird's legs, with the other hand on its back, holding wings down. Keep the bird close to you so it feels secure.
- Name some parts of your bird.
 - Answers will vary
- How would you prepare your bird for show?

- Wash the bird (go into detail how)
- What breed(s) did you select? Why? What is the age of your bird(s)?
Answers will vary
- Where did you purchase your birds?
Answers will vary
- When visiting a breeder, what should you look for?
Clean pens, healthy birds, and a knowledgeable and proud owner
- Describe the color, size, and condition of your birds.
Answers will vary
- How is the bird identified? These breeds are broken into varieties based on what physical characteristics of the bird?
The breed is identified by a particular body shape or style. Breeds are divided into varieties based on differences in color pattern or other special features.
- About what percent of protein should be given to baby chicks until they are six weeks old?
18% to 20%
- Briefly explain how to properly remove your bird from a coop/cage?
Always remove the bird head first, with a hand under the bird and one securing the wings
- What is meant by the term "condition" when selecting which bird to bring to show?
Condition refers to the bird's health and feather quality
- How do you teach poults to drink water?
Dip their beak in water
- Turkeys should be raised away from chickens and other birds. Why?
To prevent disease. Sinusitis and blackhead can be serious problems when turkeys and chickens are raised together.
- Name two diseases of turkeys?
Pullorum, Sinusitis, Blackhead, and fowl pox
- Name a way to control cannibalism in chickens or turkeys?
Beak remodeling, increase floor space, improve nutrition, or improve lighting
- Name two breeds of ducks for meat production?
Heavy Class – Appleyard, Aylesbury, Muscovy, Rouen, Pekin, or Saxony
- Name two breeds of ducks that are good egg producers?
Light Class – Runner, Campbell, or Magpie
- Name two breeds of ornamental ducks?
Call, East Indie, and Mallards
- Waterfowl are organized into categories by class, breed, and variety. What defines a class? What defines a breed? What does variety refer too?
A class categorizes birds by weight. A breed is based on the type of the bird. Varieties are based on the different color patterns in a breed.
- Is swimming water necessary for growing ducks or geese?
No
- What is an essential feed ingredient needed when poultry start laying eggs?
They need enough calcium to make eggshells
- What defines the class of geese?
Weight

- What is the name for a very young goose?
Gosling
- Sometimes eggs of other chickens or ducks are given to a broody hen to incubate. How can you spot a broody hen?
A broody hen remains on the nest even though she no longer laying an egg and has a characteristic clucking sound.
- A goose will lay how many eggs in a clutch and incubate them for how long?
4 to 6 eggs and 30 days
- Name three uses for Guinea Fowl?
Meat, guard animal (they are very vocal when someone or something approaches the area), and tick control
- Why is it important to select an alternate bird for a show?
In case something happens to your first-choice bird
- What is down?
Down is a layer of fine feathers found under the tougher exterior feathers
- What defines a breed?
A breed is based on the type of bird
- What does variety refer to?
Varieties are based on the different color patterns in a breed
- Why might Guinea Fowl be a good guard or watch animal?
They become very vocal when anything enters their area
- What variety of turkey is the heaviest?
Bronze
- What do you call an adult female guinea fowl?
Hen
- What do you call a Guinea fowl chick?
Keet
- What breed of duck does not quack?
Muscovy
- Name a way to distinguish the sex of a Guinea Fowl.
By their sound. Female sounds like it is saying "buck-wheat, buck-wheat, buck-wheat"
Males sound "Chit, Chit, Chit"
- What are three varieties of Guinea Fowl?
Lavender, Pearl, and White
- How many breeds of turkeys are there?
There is only one breed of turkeys, but there are several varieties. Many people call the varieties "breeds"
- What causes the red and blue coloration on a tom turkey's head and neck when it is strutting to impress a hen?
The red color is caused by oxygenated blood and the blue color by venous blood
- The color of turkey eggs varies, but what characteristic do they all have in common besides content and shape?
They all have brown speckles
- What is the name of a male goose?
Gander
- What Percentage of protein is in your chicken feed?

Answers will vary

- Why should you not store hatching eggs in the refrigerator?
The cold temperatures will kill the embryos
- Name two very deadly viral diseases that can affect flocks of ducks?
Duck Virus Hepatitis and Duck Virus Enteritis
- Name three geese in the Heavy Class.
African, Embden and Toulouse
- What is the most popular chicken for white egg production?
Leghorn
- When brooding chicks how should you lower the temperature in the brooder as the chicks grow?
Lower the temperature by 5 degrees every week until the temperature reaches 70 degrees, at about five to six weeks old
- What happens to laying hens as a result of a decrease in day length during lay?
A decrease in day length will cause the hens to go out of production and into a feather molt
- What are two general defects you should check for, when selecting which meat birds to omit taking to the fair?
Cuts and tears, broken or disjointed bones, skin or flesh bruises anywhere other than on the wing tip, breast blisters or cysts
- What is the function of the vent? Is it common to all poultry?
It is the uro-genital opening of the bird, the external portion of the cloaca. All poultry have one. It is where the egg, uric acid and feces all exit
- In order for a female to lay eggs, does she need the presence of a male bird?
No, only for fertile eggs to be produced, do you need a rooster
- In what part of the hen's reproductive tract is the shell produced?
Uterus or shell gland
- Other than feathers what other anatomical features are unique to the male chicken?
Larger comb and wattles, coloring and spurs
- What are two types of external parasites that affect poultry?
Lice and mites
- What is another name for the breast bone?
Sternum or Keel
- How many eggs can a hen potentially lay in a year?
365, one a day
- What nutrient do all poultry require each day?
Protein, carbohydrates, fat, minerals, vitamins, water, and oxygen
- It is said that the egg is an almost perfect food however it is missing one vitamin, what is it?
Vitamin C
- What does "Molt" mean?
Loss of feathers, reproduction stops, renews the bird for another reproduction cycle
- Why do you remove and replace birds into cages head first?
To prevent possible damage to wings and to maintain control
- What is the function of the uropygial (preen) gland?
Produces an oily substance the bird wipes onto its feathers with its beak, for preening. In

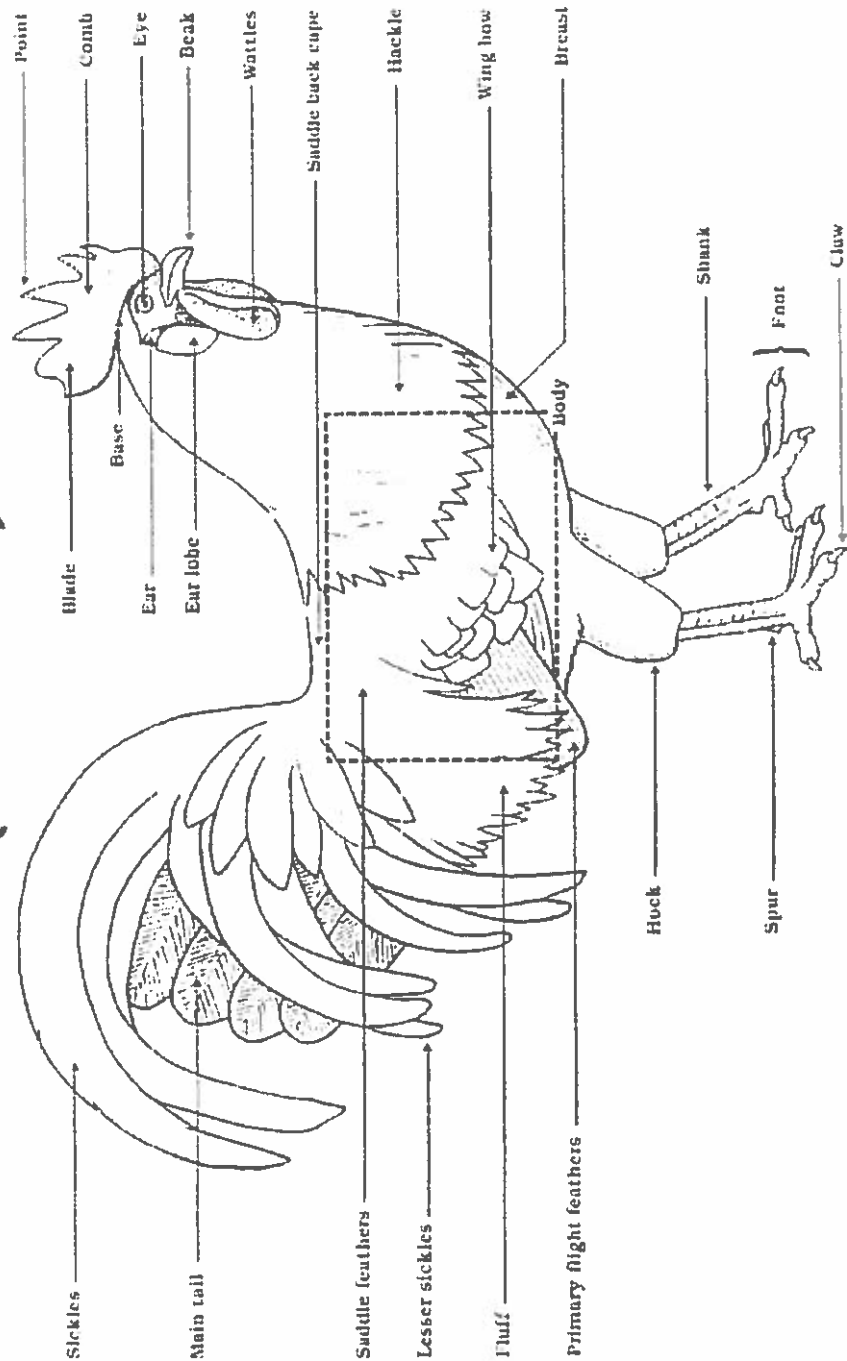
waterfowl it helps to waterproof their feathers. There is one preen gland and it is located at the base of the bird's tail

- Do chickens have teeth?
Yes, an egg tooth at hatch to help break through the shell
- What does "Dual Purpose" mean in a chicken?
The chicken can be used for both meat and egg production, some breeds are Rhode Island Red, New Hampshire, White and Barred Plymouth Rock, and Brahma
- What breed(s) of chicken lay blue-green eggs?
Araucana and Americana
- What needs to be supplied in an artificial incubator to hatch eggs (3 things)?
Heat, Humidity, and Turning
- How long is the incubation period for chickens, turkeys, ducks and geese?
Chickens - 21 days
Turkeys - 28 days
Ducks - 28 days, Note - Muscovy duck is 33 to 35 days
Geese - 30 to 32 days
- What is the purpose of turning the eggs in the incubator?
Keep embryo from sticking to membranes and causing malformations of the embryo
- How many eyelids does a chicken have?
3, upper, lower, and nictating membrane which moves from front to rear of the eye and is clear
- How many feather tracts does a chicken have?
10, head, neck, shoulder, wings, breast, back, abdomen, rump, thigh, and legs
- How many primary and secondary flight feathers does a chicken have?
10 primary and 14 to 18 secondaries on each wing
- What are covert feathers?
Found on the wings, they are small feathers to fill in the spaces
- What is the function of the comb and wattles on a chicken?
Sex differentiation, identification, and thermoregulation, to regulate temperature of the bird's body
- Where is the axial feather found on the chicken and how many do they have?
They have 2. Located on the wings between the primary and secondary flight feathers.
There is one on each wing
- What disease does all poultry be tested for before going to a show?
Salmonella Pullorum
- How is Salmonella Pullorum transmitted?
Through the egg, either by organisms from the ovary or from shell contamination from contact with manure in coop or nest box
- If checking the legs of a chicken and find that there are scales on the shank are all crusty and bumpy, and swollen, what might be the problem?
Scaly leg mites
- Where is the crop of the chicken and what is its function?
The crop is an enlargement of the esophagus and it is located on the neck just above the junction with the body cavity. It holds the food the bird eats and slowly releases it to the rest of the digestive tract

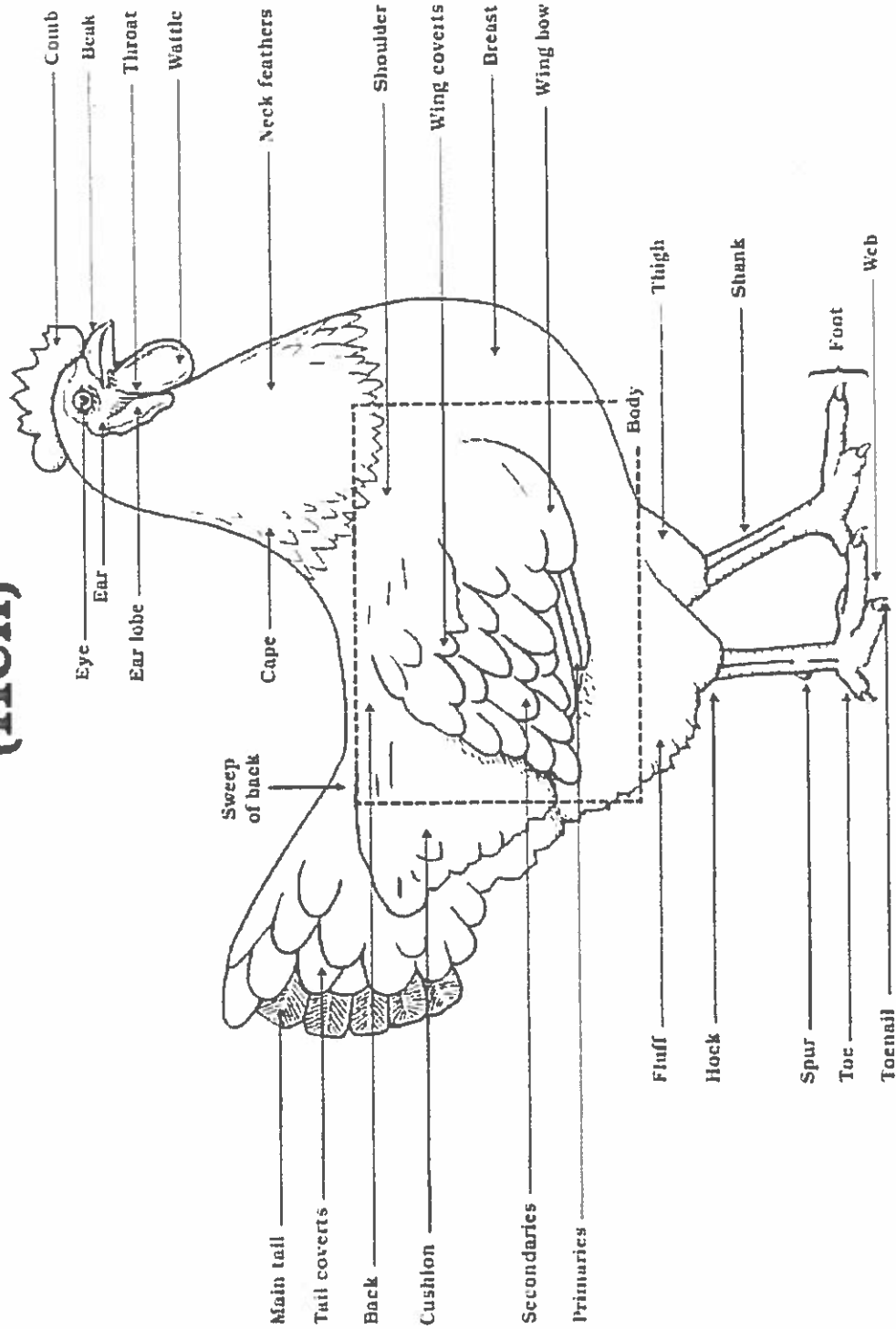
- What ratio of males to females that will provide the best fertility for a laying flock?
1 male for every 10 females
- How many nest boxes do you need for a flock of laying hens?
1 for every 5 hens
- How can you tell if the chicks are comfortable under the brooding light?
They are spread under the light and not all bunched up or far away from the heat source
- What is the gizzard and what is its function?
The gizzard is also known as the ventriculus a part of the digestive system just behind the proventriculus (true stomach), and it's where the food is ground up by the chicken to aid in digestion and absorption
- To keep a flock of laying hens producing year-round, what is needed?
Light maintained 16 hours per day for the entire year
- How can you tell an adult male turkey from a female?
Beard and size of the bird
- What is the most common feed ingredient in poultry diets in the US?
Corn and soybean meal
- Why is it important to keep the flock house and brooder clean, pest free, and without accumulation of manure?
Poultry in unsanitary conditions are prone to disease and stress. Eggs can also be Contaminated
- Name two predators from which poultry must be protected from?
Foxes, skunks, dogs, racoons, coyotes, hawks, and owls are a few
- What does APA and ABA stand for?
American Poultry Association and American Bantam Association
- How can you usually tell the color of egg a chicken will lay?
The general rule is the color of earlobe of the chicken is related to the color of egg the chicken will lay. White ear lobes – white eggs, red earlobes – brown or tinted egg color. There are some exceptions, such as the Easter Eggers, Ameraucana and Araucana breeds
- What kind of comb does your chicken have?
Answer will vary
- What color legs should your bird have?
Answer will vary
- What do you call a group of Guinea Fowl?
A confusion
- What gas is harmful to chickens that is produced in manure?
Ammonia
- What is a young male and female chicken called?
Cockerel and pullet
- Name a "Bantam-only" breed?
Silver Sebright, Golden Sebright, Japanese Bantam, Silkie, and Dutch

Anatomy

Parts of a Chicken (Cockerel)

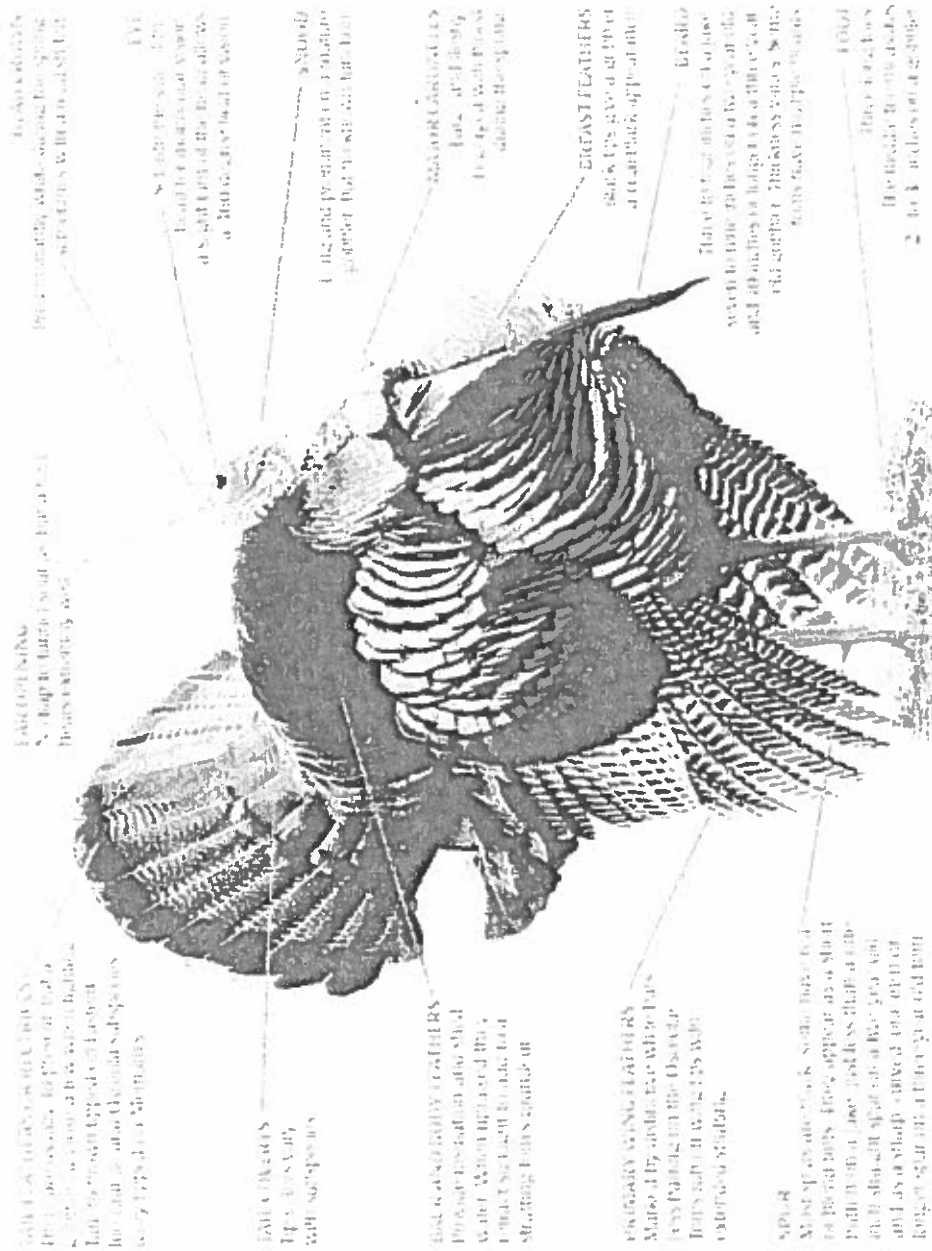


Parts of a Chicken (Hen)



Turkey

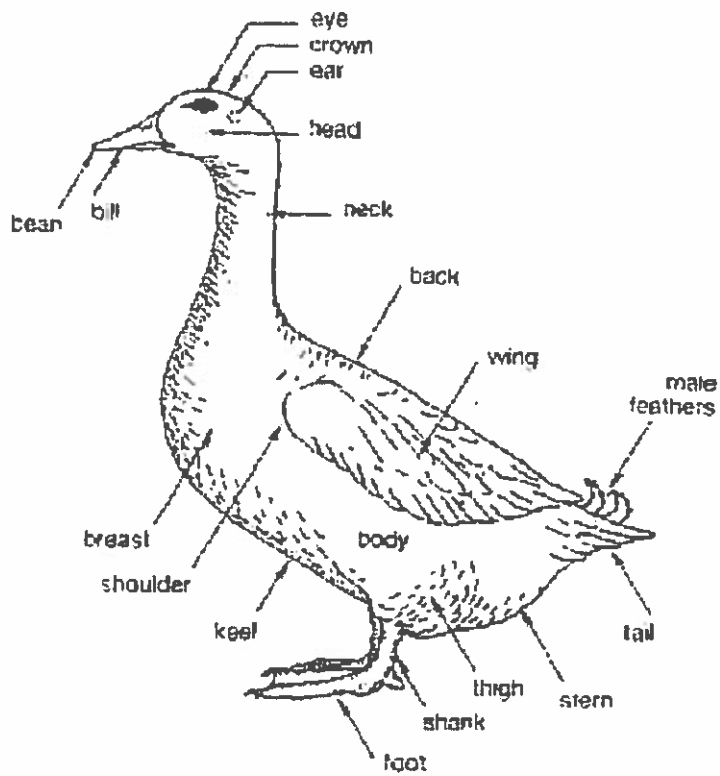
External Anatomy of the Turkey



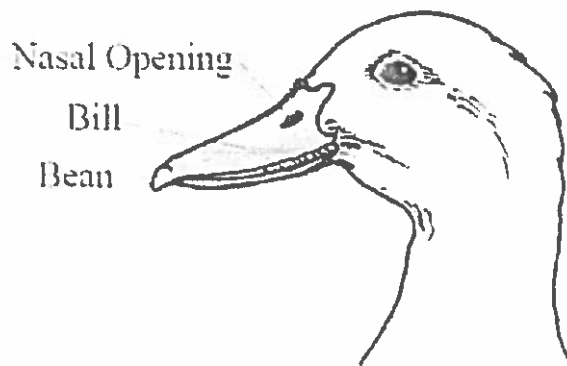
Know the Difference Between Hens & Cobblers

It's easy to distinguish a Cobbler from a hen by differences in their size, color, beak, and other traits.

Duck



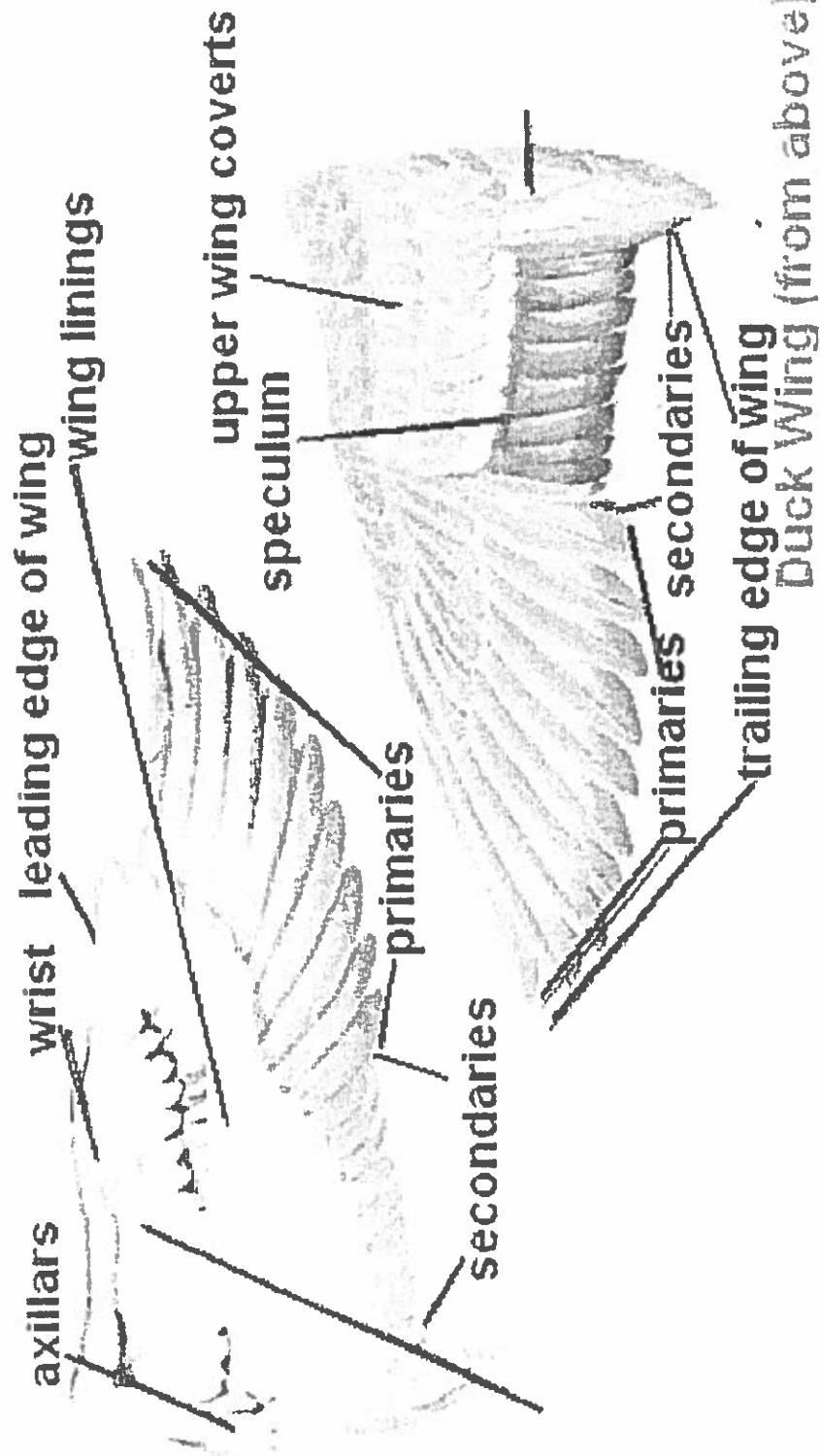
Parts of a Ducks Head



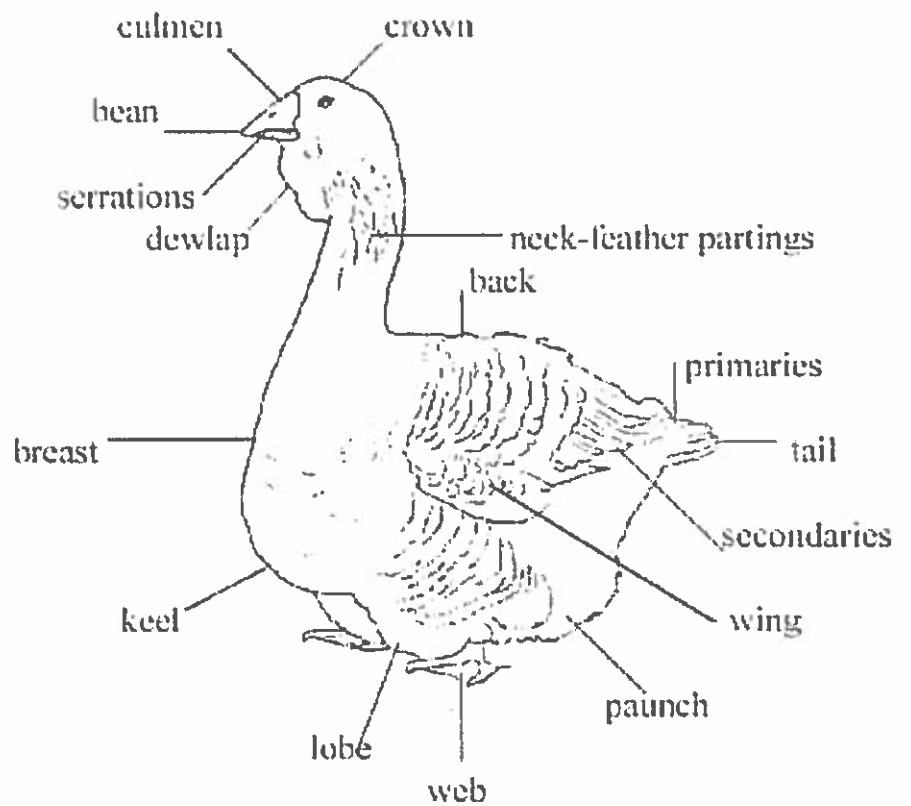
Duck

Parts of a Wing

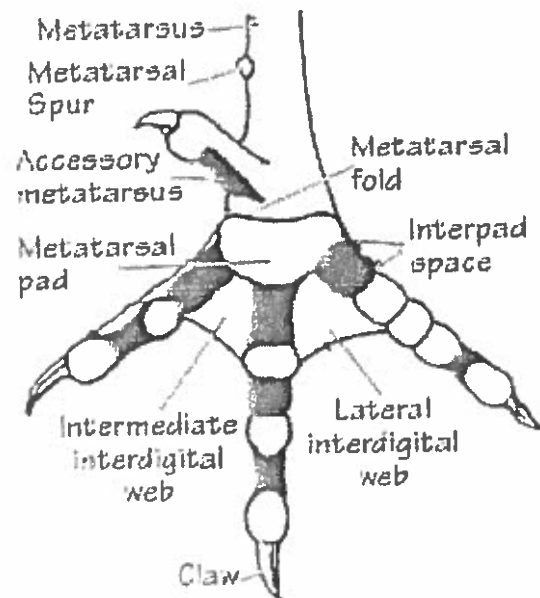
Duck Wing (from below)



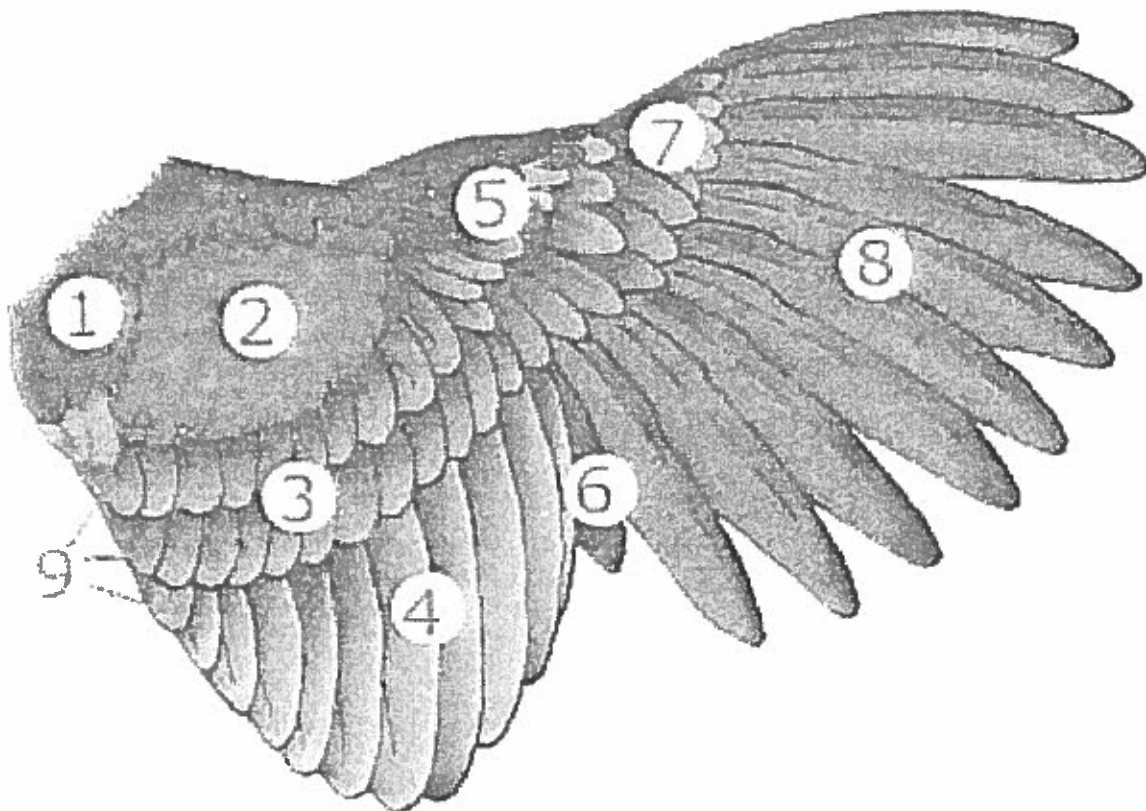
Goose



Parts of a Chicken Foot



Wing Feather Identification



1. Shoulder butt or scapulars
2. Wing bow coverts
3. Wing bar or speculum (lower wing coverts)
4. Secondaries
5. Wing bow coverts
6. Axial feather
7. Primary Coverts
8. Primaries
9. Flight coverts

Chicken Combs



Single

A moderately thin, fleshy formation of smooth soft surface texture, firmly attached from the beak along the top of skull with a strong base, the top portion showing five or six rather deep serrations or distinct points, the middle points being higher than the front or back. The comb always erect and much larger and thicker in male than female, may be lopped or erect in female, depending on breed.



Rose

A solid, broad, nearly flat on top, low fleshy comb, ending in a well developed spike, which may turn upward as in Hamburgs; is nearly horizontal as in Rose Comb Leghorns; or follow the contour of the head in Wyandottes. Top surface of the main part should be slightly convex and studded with small rounded protuberances. General shape varies in different breeds.



Pea

A medium length, low comb, the top of which is marked with three low lengthwise ridges, the center one slightly higher than the outer ones, the top of which are either undulated or marked with small rounded serrations; a breed characteristic found in Ameraucanas, Brahmas, Buckeyes, Cornish, Cubalayas and Sumatras.



Cushion

A low, compact comb of relatively small size, it should be quite smooth, possess no depressions or no spikes and not extend beyond the mid point of the skull.



Buttercup

Consists of a single blade arising at the juncture of the head and beak rising up to the cup shaped crown, set squarely on the center of the skull. The rim of the cup shall bear an evenly spaced circle of points and be closed at the back. Points emerging from the center of the cup are a serious defect



V - Shaped

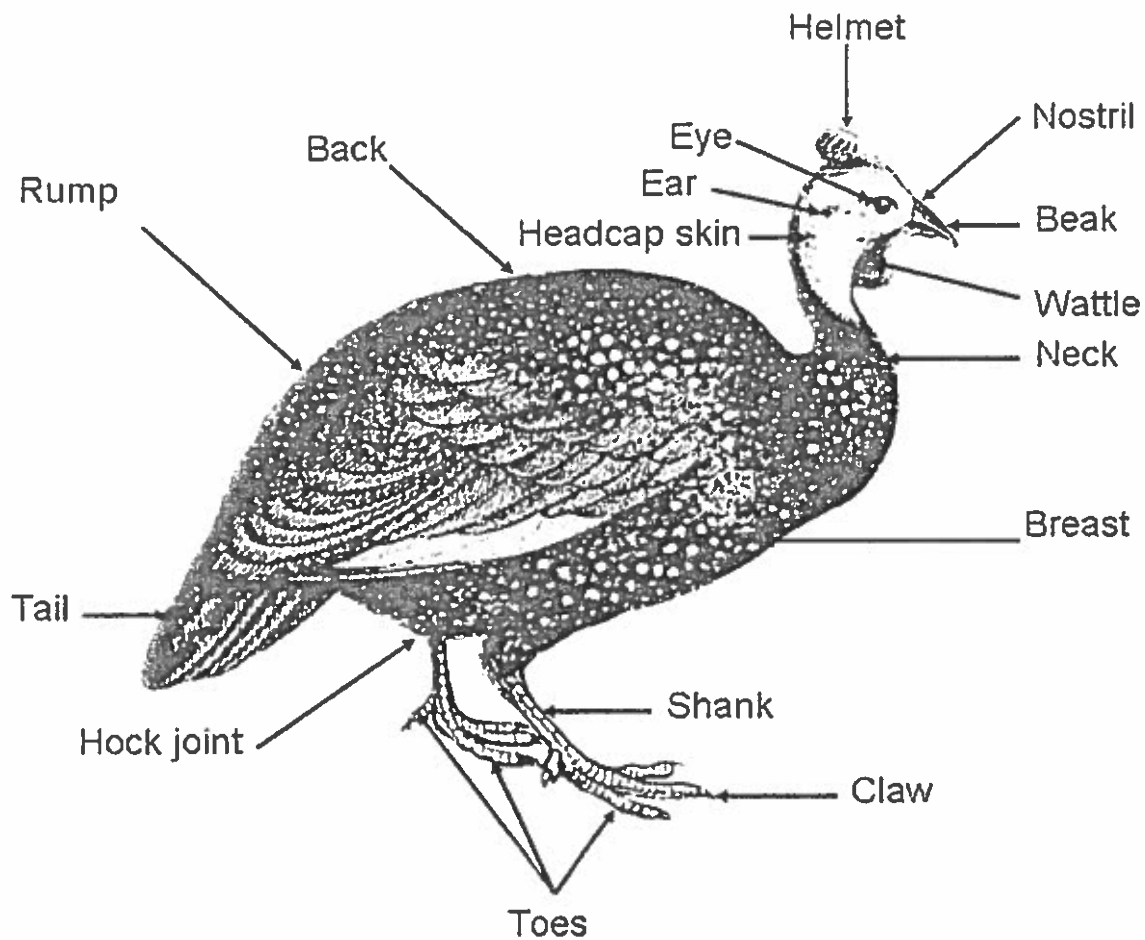
A comb formed of two well defined, hornlike sections joined at their base, as in Houdans, Polish, Crevecoeurs, La Fleche and Sultans.



Strawberry

A low set, compact comb of somewhat egg or strawberry shape with the larger end near the beak and the rear extending no further than the midpoint of the skull.

Guinea Fowl



Body Part	Description
Helmet	Pale, waxy appendage protruding from the top of the head. Hard and curves away from the body. In young keets: blackish color; in adults, brown. Also called topknot, comb, or casque.
Wattles	Fleshy, coral red appendages, flat, stiff, and free from wrinkles, hang from either side of the head. The lower edge of the wattles curve from the beak, is much larger and has a cupped appearance.
Head	Wedge-shaped and short, tapering toward the beak. Head is covered with white skin, with a line of very fine hair-like feathers down the back of the head, which stick out and grow upwards.
Eyes	Alert, large, round and dark
Neck	Rounded with down-like feathers

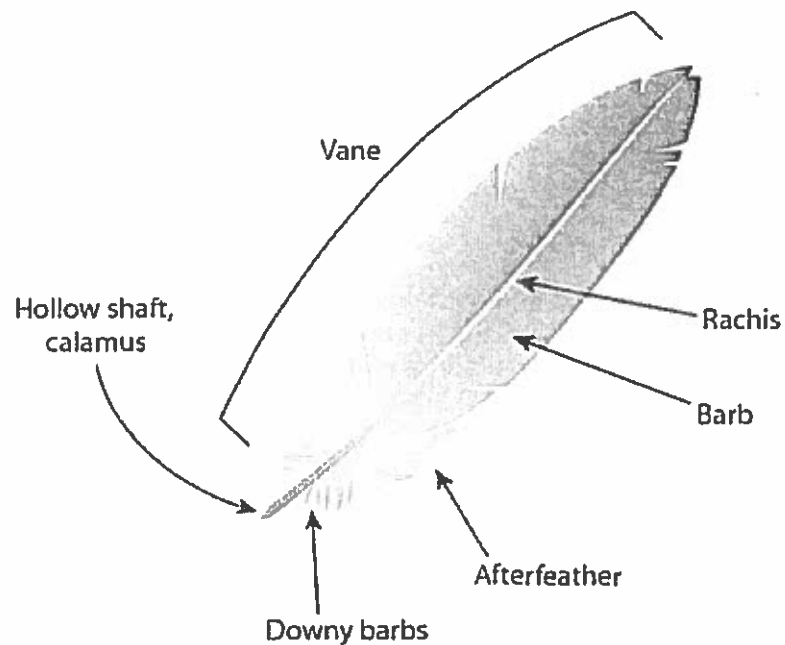
Shanks	Bright orange in keets; changes to mottled orange with brown when matured, older adults, they are black
Toes	Strong and straight
Beak	Short, strong and curved
Wings	Large and carried horizontally
Back	Broad, curves from the neck descending gradually to the tail
Body	Carried low to the ground and rather short

Biology of the Fowl

Let's look at the internal and external biology of a chicken. The chicken is an interesting creature when observed from a biological standpoint. The chicken has a comb, which is unique. It has a high rate of metabolism, is a rapid breather and digests its food relatively quickly. The body temperature varies, but averages around 106 degrees F.

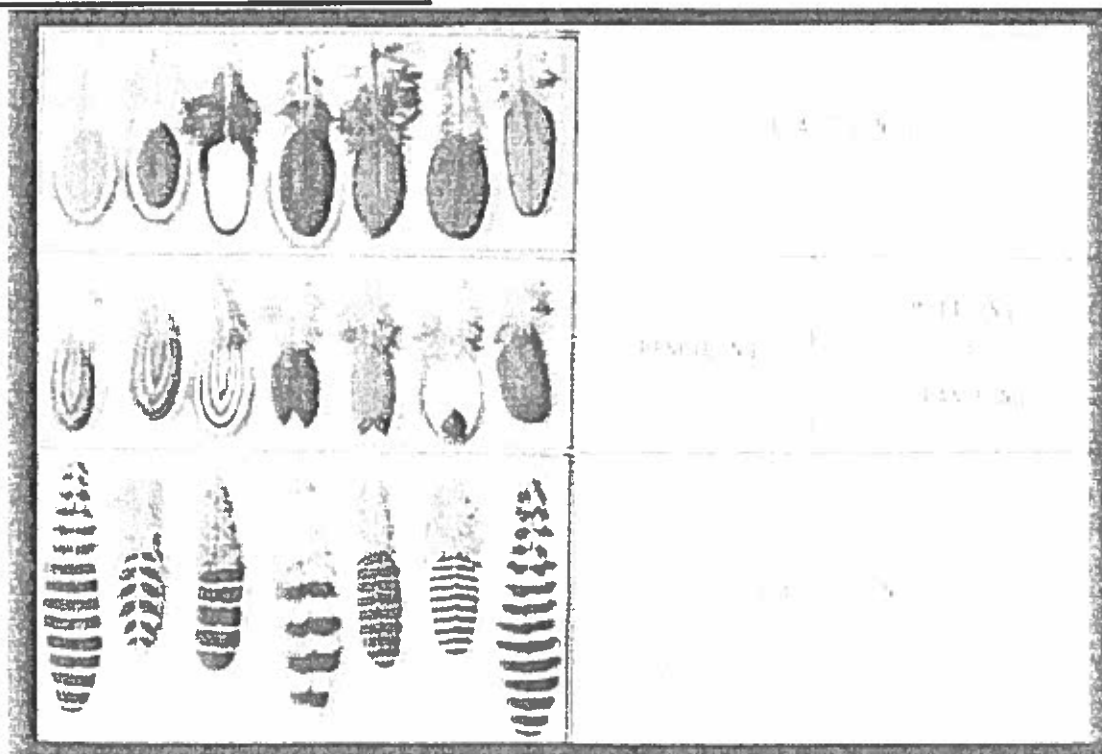
The comb of a chicken acts as a cooling system. Chickens do not sweat like humans. The chicken cools itself by circulating its blood throughout its comb and wattles. The comb operates similar to how a radiator works in a car. There are seven types of combs in chickens. Comb shapes are breed specific and other combs on that breed (bred in, such as cross breeding) are undesirable show trait.

Birds come in different shapes and sizes, but one thing they have in common is feathers. Feathers are unique to birds; that is, everything that has feathers is bird. Feathers of various sizes, shapes, colors, and purposes on an adult male rooster play different roles. Feathers play three main roles in birds' lives: 1) Feathers provide insulation, allowing birds to maintain their body temperature in a wide variety of environmental conditions. They insulate from the cold, protect the bird's skin from getting wet. 2) Certain feathers are instrumental in allowing birds to fly. They help the bird to glide and to safely land and take off. 3) Because they come in different shapes and colors, feathers provide individual plumage that can serve to camouflage a bird or attract a mate. Feathers on a bird grow from defined areas of the bird's skin called "feather tracts". The first indication of feather tracts, appear during the fifth day of embryonic development when feather papillae appear. Papillae is Latin for "pimples" and that is what they look like on a developing embryo.



By observing the Hackle (neck) and Saddle (back) feathers of an adult chicken, you can determine its sex. Male hackle and saddle feathers come to a distinctly pointed tip and are shinier. Female hackle and saddle feathers have rounded ends. The breeds of "Sebright" and "Campine" are the only exceptions. In these two "hen-feathered" breeds, the feathers are alike in both sexes.

Feather Identification



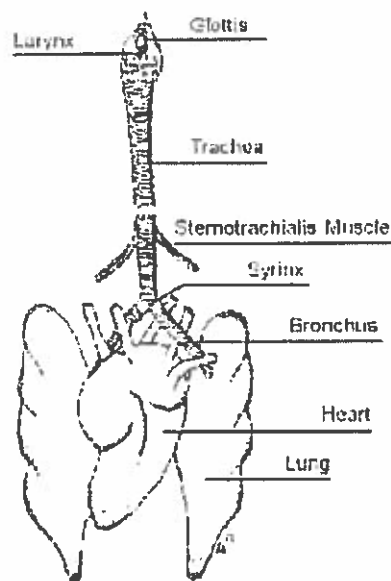
The earlobe color can tell you what color egg the chicken will lay. If the chicken has white earlobes, it will lay white shelled eggs. If it has red earlobes, it will lay a brown shelled egg. There are exceptions however such as the breed "Araucana and Americana", Easter eggers, lay blue and green shelled eggs.

Respiratory System

As with any avian respiratory system, the chicken respiratory system begins at the head region. Parts of the respiratory system in this region include the nasal openings and nasal cavities and the pharyngeal region of the mouth. The cranial larynx (sometimes referred to as the superior larynx or glottis), located in this pharyngeal region, is the opening to the trachea (windpipe). The pharyngeal region also has the openings of the esophagus. The cranial larynx is normally open to allow air passage, but closes when feed is passing down the throat so that the feed goes down the esophagus and does not enter the trachea.

After air passes through the cranial larynx, it continues through the trachea. The trachea is made up of cartilaginous rings that keep it from collapsing due to the negative pressure present when a chicken breathes in air.

Chicken Respiratory System



The syrinx (or caudal larynx), located near the end of the trachea, is the chicken's voice box. A chicken does not have vocal cords to produce sound. Instead, a chicken's voice is produced by air pressure on a valve and modified by muscle tension. It is not possible to remove the syrinx to prevent chickens from crowing.

After the syrinx, the trachea divides into two much narrower tubes called the bronchi. In some respiratory diseases, tracheal plugs form and physically block the respiratory tract at the junction of the bronchi, thus suffocating the chicken.

Each bronchus (singular for bronchi) enters a lung. Chicken lungs are relatively small, are firmly attached to the ribs, and do not expand. Birds have an incomplete diaphragm and chest muscles and sternum (keel) that do not lend themselves to expansion in the way that a

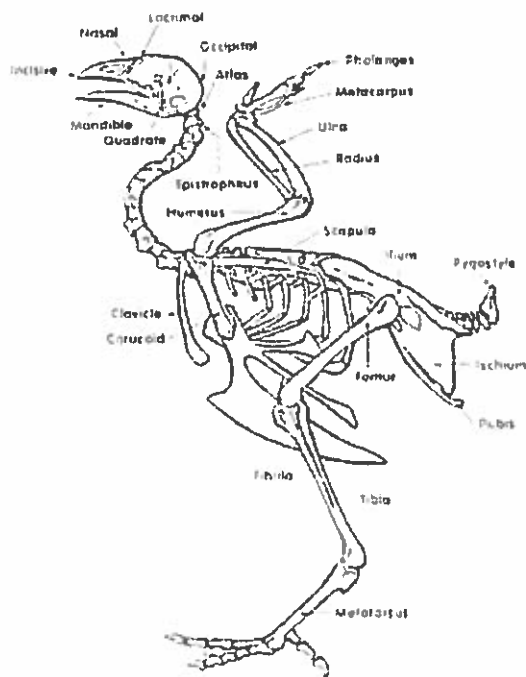
mammal's chest muscles and sternum do. Consequently, a bird's lungs operate differently from those of a mammal. Mammalian lungs contain many bronchi that lead to small sacs called alveoli. Because alveolus (singular of alveoli) has only one opening, air flows into and out of alveolus but not through it to the outside of the lung. In comparison, air passes through a bird's lungs in one direction. A mammal's respiratory system is described as system is described as nontidal.

A bird's lungs contain parabronchi, which are continuous tubes that allow air to pass through the lung in one direction, are air sacs. The parabronchi are laced with blood capillaries, and it is here that gas exchange occurs. The air sacs, which fill a large portion of the chest and abdominal cavity of a bird, are balloon-like structures at the ends of the airway system. The key to the avian respiratory system is that air moves in and out through distention and compression of the air sacs, not the lungs. The air sacs act as bellows to suck air in and blow it out and to hold part of the total air volume. At any given moment, air may be flowing into and out of the lung and being "parked" in the air sacs. Air sacs are somewhat unique to avian species, found elsewhere only in certain reptiles. In the chicken, there are nine such sacs: an unpaired one in the cervical area, two interclavicular air sacs, two abdominal air sacs, two anterior thoracic air sacs, and two posterior thoracic air sacs.

Another important feature of the avian respiratory system is also part of the avian skeletal system. Some of a bird's bones are hollow. The air sacs in a bird's lungs connect to the air spaces in these bones and the bones then act as part of the avian respiratory system. They are called pneumatic bones and include the skull, humerus, clavicle, keel, pelvic, girdle, and lumbar and sacral vertebrae. An injured or broken pneumatic bone can cause a bird to have difficulty breathing.

The skeleton of the fowl is compact, lightweight, and strong. Birds have many hollow bones that are connected to the respiratory system. Chicken have another interesting feature in the bone category, it is called the medullary bone. This bone fills the narrowing cavity with a readily available source of calcium for eggshell formation when calcium intake is not sufficient.

Chicken Skeleton



Digestion System

The chicken has simple digestive system, with few to no microorganisms living in the digestive system to help digest food like in ruminants such as cattle. Chickens depend on enzymes to aid in breaking down food so it can be absorbed much like humans.

The beak of the bird replaces the mouth and lips. The crop is a pouch formed to serve as a storage area for food until it can be passed along for digestion in the gizzard and intestines. The proventriculus is the true stomach of the bird from which hydrochloric acid and pepsin (an enzyme) is secreted to aid in digestion. The gizzard is the oval organ composed of two pairs of thick red muscles. These muscles are extremely strong and are used to grind or crush food particles. This process is aided by the presence of grit and gravel picked up by the bird. The digestion and absorption of food takes place primarily in the small intestine. It usually takes about 2 ½ hours for food to pass through the digestive tract from beak to cloaca.

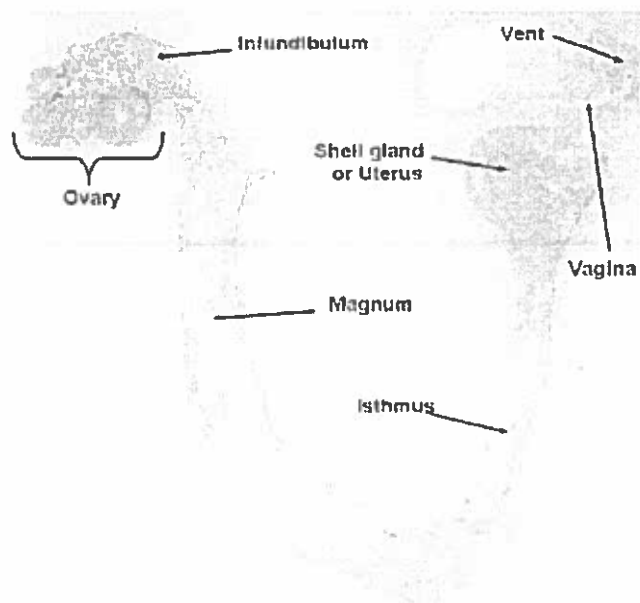
Egg Formation

The egg is formed in the reproductive tract of the hen. All components necessary for the embryological development of the chick must be included inside the shell. Once the egg is laid, incubation or “pregnancy” takes place entirely outside the female’s body. The proper temperature, humidity, air and rotation of the egg is all that is necessary for the egg to develop.

The female reproductive system has two functions: reproduction (egg laying) and sex hormone secretion. The reproductive system is made up of two distinct sections: the ovary and the oviduct. Unlike mammals, birds have one complete reproductive tract and a rudimentary tract.

The ovary, about the size of an almond, produces hormones that cause puberty (sexual maturity) and female characteristics such as plumage colors and feminine body type. Ovarian hormones also control the cyclical production of eggs. The ovary consists of a large mass of tissue that contains immature and yolks in varying stages of development. The number of eggs to be laid is determined by the number of follicles. The follicle contains an ovum (the gamete cell and undeveloped yolk) surrounded by a vascular membrane.

When a pullet has reached maturity, the yolks grow by adding nutrients (dudoplasm). Typically, one yolk reaches its maximum size each day. The follicular membrane thins and ruptures, allowing the yolk and the gamete cell to drop into the oviduct. The chicken’s oviduct is about 30 inches long. It contains the infundibulum, magnum, isthmus, uterus, and vagina.

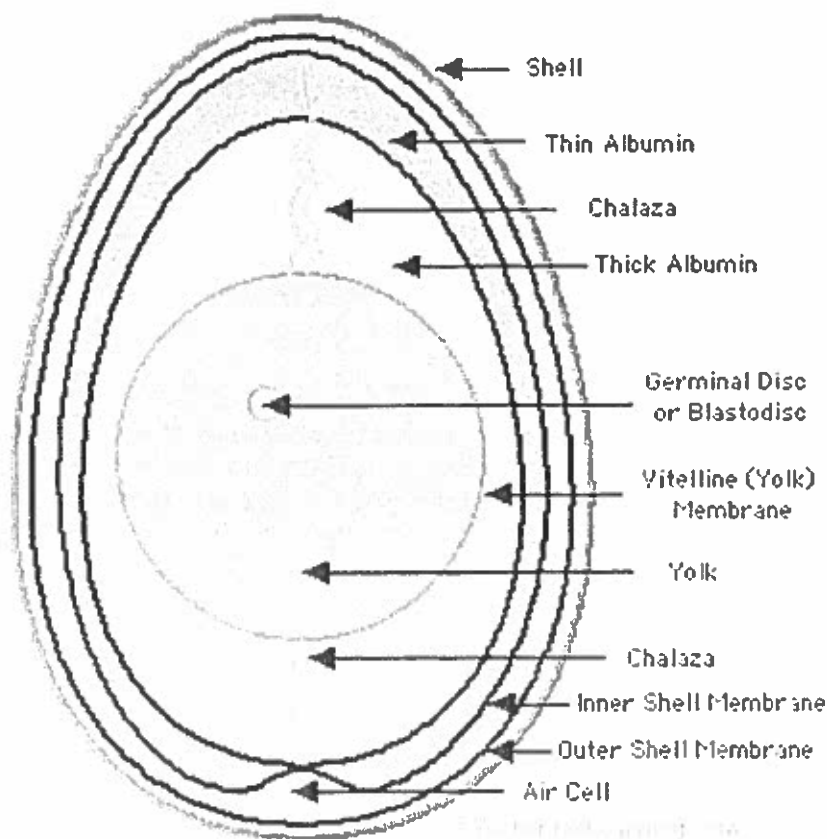


Hen's Reproductive System

The yolk is drawn into the oviduct by the infundibulum (funnel). The yolk begins to spiral in the magnum. The egg white (albumen) is secreted and spun onto the yolk. This spinning action produces the chalazas, tightly wound strands of egg white that assist in holding the yolk center of the egg. The thin and thick egg white (albumen) will be added in 1-2 hours. The yolk surrounded by egg white enters into the isthmus where the shell membrane is added over the next 2 hours.

If fertilization is to occur, sperm that are stored (up to three weeks after mating) in folds of the magnum (called sperm nests) mobilize toward the germ cell on the yolk as it is in the infundibulum. If the female germ cell and the sperm cell merge, cellular division will occur at a rapid rate over the next 24 hours in the hen. The yolk and egg white enter the shell gland or uterus and this is where the shell is developed, the egg will stay here for 20 or more hours before it moves on to the vagina. It is here that the pigment melanin is added if the egg is to be brown. The pigment is added about a half hour before the egg is laid. The vagina does not really play a part in egg formation but is important in the laying of the egg. The vagina is made of muscle that helps push the egg out of the hen's body. The **bloom**, or **cuticle**, forms on the egg in the vagina prior to **oviposition** (the laying of the fully formed egg). The egg travels through the oviduct small end first but turns in the cloaca and comes out large end first. The egg is expelled by the cloaca through the vent to the outside. The embryo stops developing after the egg is laid (as the temperature drops) until incubation begins again later. As the egg cools in temperature the contents condense, allowing the shell membrane to pull away from the shell on the blunt end of the egg, creating the air cell.

Parts of an Egg



Market Chickens

Getting Started

The first step in a market project is to make sure that the municipal ordinances where you live will allow you to raise chickens of any kind. Property that is zoned "Agricultural" will have no restrictions on raising a small poultry project. Many cities now have variances that allow residents to raise a small number of birds. Suburban subdivisions may also have deed restrictions on the number and kind of animals that residents may have. Check with your local officials, this is a good lesson in citizenship as well as being a good neighbor.

Equipment

The equipment needed to raise broilers or roaster are the same for any poultry. An adequate water supply, typically a one quart at first and then a gallon-sized or larger waterer is appropriate as the birds mature. Fresh clean water is essential for proper chick health and growth. Simple chick feeders are used at first but larger feeders will be needed as the birds grow and compete for feed. Keep in mind that these birds will double their size in only a couple of days and will continue to grow rapidly through their first six weeks. Have the brooder set up with feed, water and heat lamp turned on prior to the baby chick arrive. After getting the chicks home give them a drink, by dipping their beak into a small bowl of water. Place chicks by the waterer in the brooder, they will find their way to the heat source to get warm from there.

Brooding may be done in a petitioned off part of a barn or coop or a tote or box with ventilation holes made in it will do. Suspend the heat lamp about two feet above the floor. Remember the heat lamp gets very hot, keep it away for anything flammable. Wood shaving may be used as bedding, but must be kept clean and dry. Again, it is important to remember that these birds are bred to grow very rapidly and cleaning their brooder area will be necessary quite often. The temperature at chick level in the brooder should be 95 degrees F and should be decreases 5 degrees F for each week after that.

Since most county fairs occur during the summertime, very little supplemental heat will be necessary for brooding. However, baby chicks do not tolerate drafts. It is suggested that they are not kept in air conditioning, because of the chance of there being a draft. Adequate fresh air and ventilation is required to prevent respiratory diseases.

As the birds grow, additional space will need to be provided. Remember that they will need a place to go out of the weather, protection from predators, they will need shade from the sun. Today's fast-growing hybrid birds cannot tolerate over heating for long. Suppling fresh cool water and shade is essential. Environmental factors (such as extremely hot summer temperatures) could affect the growth of the birds.

Feed

A crumble feed with high protein will maximize the growth and feed efficiency of the broiler/roaster chicken. Some project members remove feeders at night, returning them very early the next morning. Through growth might be slowed slightly, evidence shows that the birds, especially males, will be structurally "more sound" at show time due to growth while standing, rather than sleeping. Commercial growers provide distinctly different rations for males and females to encourage growth and structural soundness. A bird is less likely to eat if there isn't water available, be sure to provide clean fresh water at all times for the birds. Typically, it will only take about 2 pounds of feed per pound of growth for broiler-type chickens. Keep in mind that your broilers will eat about 10 pounds of feed (per bird) from start to finish, so you don't want to purchase extra feed. The feed efficiency of roasters is less than broilers. Some project members are surprised to find that the chicks eat a lot of feed in a short period of time and grow so rapidly. This means that they will also produce a lot of manure that should be cleaned frequently to maximize growth. Cleanliness during the entire growing period is essential to having a clean-white bird on show day.

Growing Period

Because of their genetics, rapid growth and warm summer-time weather, the chicks will seem to grow faster than their feathers. Often, they will appear “half naked” for most of their growing period. This is normal there is no need for concern. The birds are bred and fed for meat production, a full cover of feathers would reduce feed efficiency and might indicate cooler than normal growing temperatures or some other decreased growth factor. Weighing the birds and charting their growth is a good way of understanding the growth cycle of the market project. Broilers will typically double their weight in their first couple of days of life and will gain as much as one and a half to two pounds in the last week. The last two weeks of the project before fair time is when weight needs to be looked at the most. Altering feeding patterns may need to be implemented at this time to ensure the target weight is obtained without being under or over. Feed may need to be limited for some of the birds and increased for others. Separating some of the birds may need to be done to ensure that all the birds are getting an opportunity to feed. If pushed out of the way enough times, a bird will eventually become the last to eat and get what is left after the more aggressive birds eat.

Fair Time

If the birds have been managed properly from the start through the growth period, the birds should be in great shape for the fair. When selecting the pen of birds for the fair remember to match up the birds. The judge is looking for birds that match in weight, sex, and especially breast size. Cleanliness is important also, it is recommended to wash birds a day ahead of the show to give the birds time to groom “preen” themselves. The market exhibit is intended to determine if the exhibitor understands the basic principles of meat chickens.

Must Watch Video

The following YouTube video is a must watch. It will help in determining which birds to select in taking to the fair. Remember that different fairs require different number of birds to bring; but all birds should be matching and uniform.

<https://www.youtube.com/watch?v=-N2ynGG4yPU>

General Points

General appearance – As in other meat animal species, female chickens tend to offer more “eye appeal” than males because estrogen causes a “rounder” body structure, thus a “meatier” and “youthful” appearance in the live animal. With that being said, a project with female birds can do just as well as a project with male birds when cared for properly.

Conformation – Like all animals, meat chickens should be structurally sound. They need to walk on proper set of feet and legs and move freely and easily. Obvious extremes in body shape and structure are undesirable and lack “eye appeal”.

Finish – Fat provides flavor and tenderness to meat. Adequate fat is desirable, yet excessive fat reduces feed efficiency, overall yield and dressing percentage. Pullets tend to fatten faster than cockerels due to the effects of the sex hormones estrogen and testosterone.

Fleshing – The amount of muscling is determined by feeling the width of the breast and back particularly over the loin region. The breast meat is the most valuable cut of meat on the meat chicken because it yields “white meat” which commands the highest market price. The width of the loin is an indicator of muscling throughout the carcass much like the loin eye area of a beef steer or market hog. The thickness of bone also indicates muscling due to the fact that the more muscling an animal has the larger the bone must be to hold the muscle. Excessive bone is not desirable because of decreased dressing percentage.

Judging

Criteria used for judging meat chickens is based on USDA Standards for Grading Poultry and animal husbandry practices.

Disqualifications – These factors would prevent the birds from being slaughtered for food purposes. Crippled, unable to stand and move normally, blind, crooked breast bone, breast blisters, broken bones, skin cuts, bruised flesh, illness, and parasites, absence of fleshing and finish (fat), objectionable dirt, staining and filth.

Properly fitted and groomed meat chickens are raised in immaculately clean conditions and are bathed prior to the show with oil applied to the combs, wattles, feet and legs prior to judging.

Most fairs establish a desirable weight. County fair projects typically give more range of weight and age than industry standards, this is to allow the wide number of uncontrollable factors for youth projects such as climatic conditions, date of delivery of chicks and population density. Broilers should exhibit “youthfulness” determined by appearance and the lack of molting of juvenile primary feathers. Chickens have 10 primary flight feathers. The juvenile feathers are pointed at the ends. Molting typically begins at 42 days and continues with 2 – 3 feathers per week until all have been replaced with adult feathers. Birds that are slaughtered prior to molting primary flight feathers produce the greatest amount of meat per pound of feed consumed. Larger roaster chickens tend to suffer leg problems. A roaster's combs and wattles will be redder in color and will still have numerous juvenile primary flight feathers. These birds will have a lower dressing percentage due to the loss of inedible large reproductive organs and excessively large bones.

Identification

It is important to identify the market chickens. Being that the group is all the same color, it can become hard to tell which bird is which. Identification also helps in tracking the bird's weight and medication history. There are many ways to distinguish or tag the birds. There are leg bands that have numbers, there is also plain ones that can be written on, and loosely applied colored zip ties will work.

Marketing

Though the market chicken is grown to produce large, firm and desirable breast meat that is used here in the United States, much of the chicken is used and utilized in other markets around the world.

Wings – Top importer, China. Total US exports, 118,960 tons. Wing tips have been favorites in Asia but a bump in US consumption is due almost entirely to the popularity of Buffalo chicken wings – a dish first served in an upstate New York bar in 1964.

Feet – Top importer, China. Total US exports, 330,509 tons. Known as paws in the poultry business. Chicken feet were considered worthless until Asian markets were tapped in the early 1990s.

Viscera – Top importer, South Africa. Total US exports, 48,477 tons. Intestines generally go to rendering plants to be ground and used as pet food or fertilizer.

Feathers – Top importer, Indonesia. Total US exports, 210,822 tons. The US poultry industry produces some 1.6 million tons of feathers every year. They are ground up into feather meal and used as animal feed or as plastic fortifiers.

Leg Quarters – Top importer, Russia. Total US exports, 2,005,892 tons. In the early 1990s, during the breakup of the Soviet Union, the US government donated chicken legs to help with food shortages. Russians called them nozhki Busha or Bush's legs. Now the need for aid is over, but a taste for dark meat remains.

Figuring Average Daily Gain (ADG)



For this we will use an example Chicken, "Zip Tie" tagged for identification, color "zip tie" will be RED. Let's say we want to set a goal weight of 8#s a chicken at the Fair weigh in. For this example Fair weigh in will be on August 4th and we got the chickens on June 12th.

The total weight of 3(three) chickens cannot be over 24#s and cannot be under 15#s at the Fair weigh in.

With small animals (chickens & rabbits) it is easier to convert pounds into ounces because these animals gain in ounces unlike larger animals that gain in pounds.

Things you need to know....

1. How many days is in your animal's feed period? This means from first getting project chickens.
2. How much you want your animal to weigh at final weigh in at the Fair.
3. Number of days into your feed period you weighed and how many days you have left in your feed period till your final weigh in.
4. Number of ounces in a pound = 16.

ADG = Current Weight of chicken divided by # of days into Feed Period.

RED was weighed on July 6th, weight being 2#s and 10ozs = 42ozs converted. ADG is 2.3ozs per day.

What will he weigh at the Fair???

Take ADG X by number of days left in feed period and then add it to current weight. Then if needed convert to pounds.

RED's ADG 2.3ozs x 33 days left in feed period = 75.9ozs + 42ozs (current weight) = 117.9ozs.

Converted = 7# 5.9ozs.

This Chicken is very close to the set goal. This is the time to look at how the animal is being feed, housed, watered, etc. and make some changes(separate animals ,etc.) if needed. Then in a couple of days to a week reweigh and do the math again. Do the same if the animal is coming out over weight. All that is needed is 2(two) more chickens that weigh close to the same weight. Be sure to match up breast sizes when choosing your 3(three) chickens to bring to the Fair weigh in.

Mandy Causey 2013

Meat Cuts of a Chicken



Breast Tenderloin (2)



Half Chicken



Drumette



Split Breast (2)



Drumstick (2)



Thigh (2)



Boneless Skinless Breast



Neck



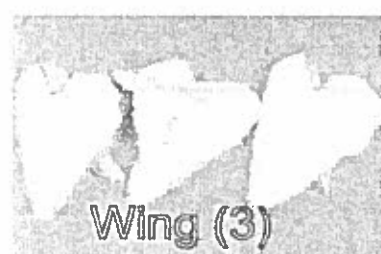
Leg Quarter (2)



Back



Whole Leg (2)



Wing (3)

Production

Egg Production Breeds

All chickens produce eggs that can be used by people for food. By providing proper diets and environment, specifically light, chickens can be stimulated to produce quantities of nutritious eggs. By selecting for specific physical traits, generation after generation, "breeds" of chickens were developed. In 1874 the American Poultry Association published the first Standards of Excellence that outlined the breed characteristics. This ushered in the "Golden Age of Pure Breeding" and poultry led the way for all species of livestock.

Heavy breeds such as the Brahma, matured slowly and did not excel in egg production. Light breeds, including the Minorca, Leghorn and Ancona, were great egg producers, but lacked the size to be good meat producers. Dual purpose breeds like the Rhode Island Red, Barred Rock and White Wyandotte met both requirements, but seldom produced more than 250 eggs per year. Breeds with white earlobes tend to produce white shelled eggs and those with red earlobes usually produce brown shelled eggs. Therefore, any pure breed chicken can be kept for egg production. However, modern egg production hybrids far surpass the pure breeds in egg production and feed efficiency. These birds will produce well over 300 eggs per year and will convert about 2 pounds of feed into a dozen large eggs.

The Leghorn type breeds are similar in size, feed requirements, and egg production. This type bird weighs 4 to 4 ½ pounds when fully grown. It takes about 4 pounds of feed to produce a dozen eggs with this type bird. They lay white shelled eggs. They are very skittish and nervous, if not handled much, will be a challenge to show in the arena.

The Rhode Island Red and Sex-Link birds are heavier and take more feed. They lay brown shelled eggs. These breeds can be used as dual breed birds. These are not as nervous as the Leghorn breed.

Rearing

The rearing stage of chicks is from 8 to 10 weeks of age, until they start to lay at 18 to 22 weeks of age. The rearing stage is an important period. Provide your production birds with the right kind and amount of feed to make certain they develop into strong healthy birds. If you start with "straight run" (a non-sexed mixture of birds of the selected breed) chicks, the cockerels can be separated out and slaughtered for meat or sold for profit. A straight run will usually have more male chickens than female chickens in it. For exhibitor's project, two roosters would be recommended, in keeping. One for the show and a back up bird. Too many roosters and the hens can be overly mated, leaving them unhealthy and ragged looking. Keeping the roosters and hens separated until after the show may be a good idea, this will ensure the birds will look their best for the show. Pullets (young hens) can be allowed to develop in total confinement or ranging on open grassy areas. Confinement rearing is growing pullets in a house instead of on an open range. Allow 3 square feet per bird. Allow 4 to 5 inches of feeder space per bird. Three 8-foot feeders or four 5-foot feeders will take care of 100 hens. Provide five 3-gallon waterers for each 100 birds.

A good job of sanitation will prevent many diseases. Keep the pullets away from older hens. Don't allow visitors around your flock. If a chicken looks sick remove it from the flock and quarantine it until a diagnosis is made. Lice and mites are two external parasites that can invade a hen house, check birds regularly. Do not feed too much grain, when a hen eats too much grain, they get fat and are slower in developing, and do not lay as well.

Housing

A fancy building is not necessary. An available building can be converted to a good poultry house. The building must have 1 square foot of floor space per chick for the first 10 weeks. It should be dry and well ventilated to give the proper amount of fresh air. Rat proof the building to keep rats from wasting feed and killing baby chicks. The building that you raised the pullets in can be used for a laying house or you can use another building as a laying house. The sides of the building must be open during hot weather. Cover openings with poultry netting. During the winter cover the north, east, and west sides of the house. Plastic material can be used for this. The south side is left open for ventilation.

One nest box for every four laying hens is needed. Nests must be at least 12x12x12-inches so that plenty of nesting material can be used. Wood shavings make excellent nesting material. Place nests in the house before the hens start laying; if not many will lay on the floor. Floor eggs get dirty and many are broken.

Light

Hens need the proper amount of light. They require 16 hours of light each day. During the winter this is very important. Determine the amount of daylight and then turn on the lights to provide the needed 16-hour day. For instance, if the sun rises at 6am and sets at 6pm, you have 12 hours of daylight. You would need the lights on for four additional hours. Use a 60-watt bulb for every 200 square feet of floor space. Be sure to supply exactly the same amount of light each day or egg production will drop.

Culling is the removing of unwanted birds from a flock, be it not laying, too old, or undesired traits. This should be done on a regular basis. In this instance culling non or poor layers are determined in looking for dull shriveled combs and hard abdomens.

Eggs

Eggs should be gathered two to three times a day. Gather in a wire basket or egg flat. Place in a cool place so that the temperature of the egg is reduced quickly. When an egg is laid, its temperature is 106 to 107 degrees F. an egg left in the nest will not cool when other hens get in the nest to lay. High temperature and dry conditions will cause egg quality to break down rapidly. Store eggs at a temperature of 50 degrees F and humidity of 75 percent.

Handle eggs carefully. Cracked eggs do not sell well. Clean eggs soon after gathering. If there is a large number of eggs, washing may be required. Keep water at 110 to 120 degrees F and do not leave eggs in the water longer than 2 ½ minutes. Egg shells are porous and absorbent, and the dirty water could contaminate the egg. Pack eggs in clean, cool cartons with the small ends down. Keep cool at all times.

Many 4H exhibitors with small laying flocks can sell their eggs locally. Many have regular customers. Sell eggs daily, do not hold eggs for long periods of time. This will lower the quality. If you have a larger flock, you can sell to a store or egg dealer. Your flock will have to be inspected and the human work area be inspected. A license from the local Health Department will be issued after the inspection is passed.

F.L.A.W.S.

Feed must be fresh and nutritious. Commercially produced feed will give the birds the nutrients needed and will produce great results within the flock. Follow feed instructions on the bag. A pullet chick for production should grow from chick to 18 weeks by consuming 10 – 12 pounds of feed.

Light stimulates growth and reproductive development. Small brooders are heated with light bulbs, but 16 hours of light should be provided per day as they grow.

Air, fresh air needs to be provided for good ventilation. Prevent over-crowding. If there is an odor in the coop it lacks ventilation. Pullets can be free ranged as soon as weather permits. They will go for flower beds and mulched areas, so it is best to fence their range in. **Water** is the most often neglected nutrient, yet the least expensive. Fresh water should be provided at all times.

Security means protection from predators such as hawks, raccoons, fox and opossums. This also includes protection from disease which Biosecurity measures need to be taken.

Purchasing Chicks

There are many sources that can be utilized in obtaining chicks for laying stock. Local and mail order hatcheries are just a few examples. Tractor Supply and Rural King and some area feed supply stores will have "Chick Days" in the spring, where chicks of different varieties can be purchased. Mail order hatcheries such as Murry McMurry and Stromberg hatcheries are a few that will mail chicks through the mail. Contact the hatcheries for a catalog or look these hatcheries up on the internet. Remember when ordering through the mail the hatchery may require a minimum number of chicks (usually 25 birds) to be ordered. Getting together with another family member or exhibitor may be wise if wanting to keep a small number of birds.

Hybrid Layers

Hybrid layer chicks will be referred to as White or Brown. They may have a hybrid number or a specific name to identify the line. White layers are yellow as chicks and may have a spot or two of black. They grow into "Leghorn type" pullets, but should never be exhibited as a purebred Leghorn. Browns are light buff or red as chicks. They may have variety names such as Cinnamon Queen, Pumpkin Red, Red Stars or Golden Comet. These birds should never be exhibited as purebred New Hampshire or Rhode Island Reds, because they lack the correct size, color and body shape to be shown as purebreds.

Much of the credit for hybrid layers can be given to Henry A. Wallace, the founder of Pioneer hybrid seed corn company in 1926. He believed that with the advances in hybrid corn that similar advances could be made laying hens. In 1944, the DeKalb seed company began developing their own hybrid layers. The majority of chicks that are sold to hatcheries today can trace their genetic lineage back to these hybrid birds.

NPIP

Save the paperwork that comes with the chicks when ordered. They will come with a National Poultry Improvement Plan (NPIP) certificate which will be necessary for check in to the fair. This certificate certifies the poultry purchased to have been hatched at a facility that is free of certain tested for diseases. The certificate is good for one year from purchase date. The chickens will need to be tested for Pullorum the following year or the exhibitor's facility can be tested and the facility can be a NPIP facility, which will cover all birds on the premises.

Abnormalities

Sometimes a small blood vessel in the follicular membrane hemorrhages as the yolk is ovulated. This drop of blood will be incorporated into the contents of the egg. This abnormality is called a "blood spot". If a small piece of membrane breaks free at the time the yolk is ovulated, the egg is formed with a "meat spot" inside. If a piece of membrane drops into the oviduct, separate from the egg, a very tiny egg will be formed.

In the event that two or more yolks are ovulated at the same time, a "double yolk" egg will be formed. If these eggs are fertilized and are incubated, two chicks will develop but are typically unable to hatch because the chicks cannot engineer hatching with twins in the shell.

If two yolks are ovulated about two hours apart, two separate eggs will be produced but ridges and irregularities of the shell will be formed as the eggs bump into each other in the uterus.

As hens mature, shell deformities such as calcium deposits and thin spots will be produced. If an egg is cracked while in the uterus, the hen will "patch" the egg with additional calcium.

Pure Ameraucana or Araucana chicken eggs are blue through the entire shell, inside and out. Olive green eggs are crossbreeds of blue and brown. The pigment is added just to the outside of the shell.

Size

The USDA has established standard sizes of eggs. Baking recipes are precise and require a specific amount of ingredients. Therefore, the standard large egg is 24 ounces per dozen or 2 ounces per egg. Pullets start production by laying Small and Pee Wee eggs, while older hens will lay Extra Large and Jumbo.

Quality

Eggs are evaluated for their interior and exterior quality. The USDA interior quality grades of eggs are **Grade AA, A, B** and loss or no grade. The exterior quality grades are **Grade A, B** and loss or no grade. Interior grades of eggs are for the most part an evaluation of the freshness of the egg or factors that would make the egg inedible. Interior quality is determined by candling the egg, the process of shining light through the eggs. The size of the air cell helps in determining quality of the egg. As the egg ages water evaporates through the shell making the air cell larger. The warmer the egg is kept; the faster evaporation occurs and the egg white starts to degrade from a thick egg white to a thin and watery one.

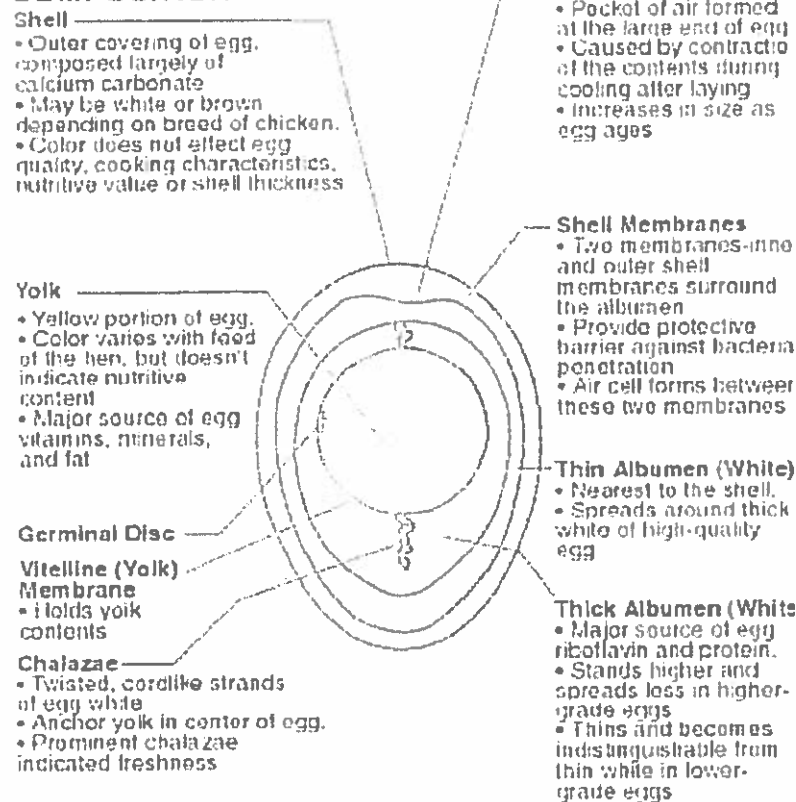
Fresh eggs have a strong rounded yolk when candled. But as eggs age, the vitelline (yolk) membrane breaks down and the yolk becomes flattened and "out of round". These yolks are elongated and fill the shell when candled. These eggs will get a grade "B".

Blood spots or meat spots are observed as dark red or brown spots while candling. These eggs are objectionable to consumers and automatically get a grade "loss".

Unless eggs are graded by candling, they should be marketed as "Nest Run" or "Farm Fresh" alerting the consumer of variations in quality.

Eggs are a valuable part of a nutritious diet. Besides carbohydrates, fats, vitamins and minerals, eggs provide the essential amino acids -the building blocks of protein. Eggs are essential in baking and cooking recipes, providing structural components and flavor.

COMPOSITION



Fancy

Ornamental or fancy chicken rearing has become a hobby for many. There are many breeds and varieties of birds. Many of the breeds come in a Bantam size (miniature). There are however a few breeds that the bird comes in only Bantam size.

Ornamental and fancy birds are for show, they are not good egg layers, hens will produce eggs, and they do not make good meat birds. Many exhibitors raise exhibition birds because their plumage is pretty or they just like a certain type of breed.

Raising pure breeds of poultry requires much more skill, time and effort than it might seem. Hatcheries provide catalogs of beautiful show birds do an excellent job of providing healthy representatives of many breeds and varieties poultry at commercially competitive prices. However, those who show exhibition poultry will quickly point out that hatching large quantities of show quality chicks is a difficult task.

Hatcheries often sacrifice the show-quality of their breeding stock for birds that produce a large quantity of highly fertile eggs. So, an exhibitor, that orders chicks from a hatchery, might be disappointed with the results in the show ring after a long spring and summer growing and caring for the birds. Purchasing chicks from a breeder of exhibition quality birds might also be

challenging. First of all, a breeder may have invested a lifetime of work to develop a line of high-quality birds. Each offspring that is produced is vital to that breeder's plan to produce show champions and breeders for the next year. As a result, the breeder may be very reluctant to part with even a few of their birds. Secondly, locating breeders of specific breeds that you want may also be difficult. Since breeders often specialize in only one or just a few breeds and varieties, the youth project member may need to travel some distance to find a breeder that is willing to sell their birds.

Finally, most purebred poultry breeders are more than willing to pass on their expertise and their bird's genetics for a young members project. Be advised they may only want to sell older breeding stock. If a breeder is willing to sell chicks, they will want them going to an individual who is committed to the project, and who has proven record of successfully raising poultry. Each purebred has its specific historical, ethnic and geographical origin. Genetically, identical pairs of chromosomes (alleles). An example is a purebred White Plymouth Rocks will pass their genetic characteristics to their offspring so that chicks will appear to similar to the parents.

Classifications for Breeds of Chickens

Standard Classes – Based on Place of Origin

- American
- Asiatic
- English
- Mediterranean
- Continental
- All Other Standard Breeds

Bantam Classes – Based on Physical Characteristics

- Modern Game Bantams
- Old English Bantams
- Single Comb Clean Legged Bantams
- Rose Comb Clean Legged Bantams
- Any Other Comb Clean Legged Bantams
- Feathered Legged Bantams

Chicken Breed Characteristics

Chickens are divided into large chickens (also called large fowl) and Bantams. In addition to full size, or large chickens, poultry fanciers have developed a miniature counterpart of each large chicken called a Bantam. Bantams are normally one-fourth to one-fifth as large as their full-size counterparts, and in addition there are breeds that exist only as Bantams.

A "breed" is identified as having a particular body shape or style. Breeds are further divided into varieties, usually by differences in color or pattern of feather markings. In addition, special features determine differences in varieties, such as comb shape or extra feathers such as a "beard" or "top-knot".

Based on pictured chickens

Sussex – Speckled – English – Large Fowl: This breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, straight, and upright. Plumage

is mahogany-bay and each feather is tipped in white with a black bar. Main tail feathers are black tipped in white. These are good all-round farm-fowl: alert, attractive, good foragers, broody and good mothers. They are one of the best dual-purpose birds: used for meat production (about 7 to 9 lbs.) and egg production (brown eggs).

Orpington – Buff – English – Large Fowl: this breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, straight, and upright. Plumage is a rich, golden buff. These birds are docile, good mothers, broody, and able to withstand cold temperatures. They are general purpose birds: used for heavy meat production (8 to 10 lbs.) and egg production (brown eggs).

Brahma – Light – Asiatic – Large Fowl – this breed originated in China. Comb, wattles, and earlobes are bright red. Cock's comb is pea shaped, small and firm. Shanks and toes are yellow with a black and white feather covering. Plumage is silvery white with black and white cape. Main tail is solid black with increasing white towards the base of the tail. These birds are a favorite among fanciers for show. They go broody, are good mothers, and are able to withstand cold temperatures. They are general purpose birds: used for heavy meat production (9 to 12 pounds) and are fair layers (brown eggs).

Sicilian Buttercup – Mediterranean – Large Fowl: Breed originated in Sicily. Comb and wattles are bright red with white earlobes. Cock's comb is cup-shaped, smooth and fine with a deep cavity. Plumage is reddish orange with a black tail and dark, buff cape with black spangles. Hen is golden buff with black spangles and tail. These birds are small, sprightly and non-broody. They lay a fair number of white eggs and are ornamental fowl 7 to 9 lbs.).

Chicken Breeds

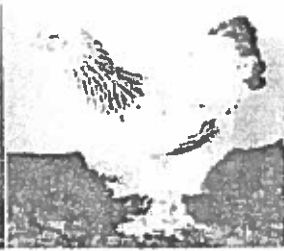
Key: Breed
Variety
Class - Large or Bantam



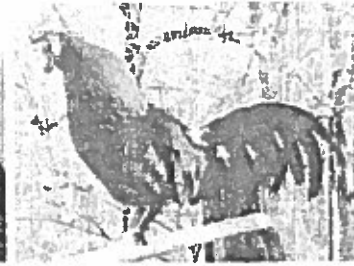
Sussex
Speckled
English - Large



Orpington
Buff
English - Large



Brahma
Light
Asiatic - Large



Sicilian Buttercup
Mediterranean - Large



Leghorn
Single Comb White
Mediterranean - Large



Rhode Island Red
Single Comb
American - Large



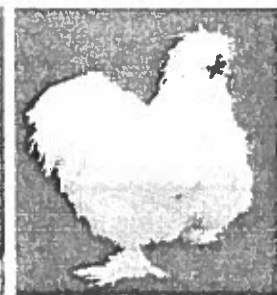
Old English Game
Black Breasted Red
Game - Bantam



Japanese
Black Tailed White
Single Comb Clean Legged - Bantam



New Hampshire
Single Comb Clean Legged -
Bantam



Silkie
Bearded White
Feather Legged - Bantam



Sebright
Silver
Rose Comb Clean Legged -
Bantam



Booted
Bearded Mille Fleur
Feather Legged - Bantam

Additional chicken breeds can be found in the Standard of Perfection

Leghorn – Single Comb White- Mediterranean – Large Fowl: this breed originated in Italy and is the most numerous breed in America today. Comb and wattles are bright red. And the earlobes are white. Comb can be rose or single. Plumage is white with a large tail. These birds are small, sprightly, noisy and good foragers, capable of considerable flight, and like to move around. They are noted mostly for egg production (about 4 to 6 lbs., white eggs).

Rhode Island Red - Comb – American – Large Fowl: this breed originated in Rhode Island, USA. Comb, wattles, and earlobes are bright red. Cock's comb is medium length, straight and upright. Plumage is rich, dark red with greenish black sickles in the tail. They are hard, dual-purpose birds, the best layer in the American group, and good for the small flock owner. Used for meat (6 to 8 lbs.) and egg production (brown eggs).

Old English Game – Black Breasted Red - Game – Bantam: This breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb and wattles are neatly dubbed. The head and neck plumage is orange red. The tail, wing fronts and coverts, breast, and body are black. These birds are small hardy, extremely active, very noisy, broody, aggressive, and capable of considerable flight. They are bred for show (22 to 24 ounces, white or lightly tinted eggs).

Japanese – Black Tailed White – Single Comb Clean Legged – Bantam: this breed originated in Japan. Comb, wattles, and earlobes are bright red. Cock's comb is single, large and firm. Wattles are large and smooth. Plumage is white with a greenish black. Sickles are black and laced in white. The birds weigh 22 to 26 ounces.

New Hampshire – Single Comb Cleaned Legged – Bantam: This breed originated in New England. Comb wattles, and earlobes are bright red. Cock's comb is single, firm, medium length and upright. Wattles are medium length, uniform, and black tail. These birds are competitive and aggressive. Hens go broody and make good mothers. They are meat chickens with fair laying ability (30 to 34 ounces, brown eggs).

Silkie – Bearded White – Feathered Legged – Bantam: This breed originated in the Far East. Comb and wattles are deep mulberry, and earlobes are light blue turquoise. Cock's comb is walnut shaped, moderately small, lumpy and almost round. Crest is medium size, soft, and full. Wattles are very small; natural absence is preferred. Shanks and toes (five toes) are leaden blue and well covered with feathers. Plumage is white, downy or silky and hair like (feathers are without webs). Beard is thick and well feathered. Weight is 32 to 36 ounces.

Sebright – silver – Rose Comb Clean Legged – Bantam: this breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb is rose shaped, firm, and square in front. Wattles are broad and well rounded. Plumage is silver-white edged in black. Tail does not have sickles. Birds are bred for show and make good layers. Weight is 22 to 26 ounces.

Booted – Bearded Mille Fleur – Feathered Legged – Bantam: this breed originated in Germany. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, firm, and straight on head. Wattles are very small; natural absence is preferred. Shanks and toes are slate blue with black feather covering, tipped in white. Plumage is bright red with a white spangle on the end of each feather and separated by a black bar. Tail feathers are black with white spangle at the end. Beard and muff are thick and full, with a mane-like appearance. Weight is 22 to 26 ounces.

Dubbing

Some of the game bird breeds, when shown are dubbed. Dubbing is the procedure of removing the comb, wattles and sometimes earlobes of poultry. If the bird is not dubbed and shown against others, they will be marked down. It has been controversial in doing this, however it is still practiced and preferred for certain game bird breeds. There are videos and book on how to properly and safely do this. Dubbing is not something an exhibitor wants to wait to do. The bird needs time to heal before show day.

Despurring

Removing the spike like point on an adult rooster. Rooster can become aggressive toward other birds in the flock, their owner, or even younger children that are visiting. Despurring them will help calm them down. If, you have strong fingers, or you can use some pliers, just grasp the **spur** at the base close to the shank. Twist back and forth very gently until you feel the **spur** loosen, you will not cut all the way through the spur however. Then twist until it just lifts off. There will be a meaty soft inside left on the shank. This will dry up with time. Despurring should be done several months before the show, so the chicken's shanks have time to heal.

Waterfowl

Origin

Ducks

Most of the breeds of ducks that are domesticated are thought to be close relatives of the Common Mallard, one of seven sub-species of wild mallard ducks that live on the continents of Europe, Asia, and North America. The male of the Common Mallard has a distinctive green color on its head, with a ring of white feathers on its neck and distinctive markings on its wings. Females have a drabber appearance. The color pattern of the wild common Mallard is comparable to the domesticated Gray Mallard. Selection for different characteristics has resulted in the various breeds.

A duck that is seen less often is the Muscovy. It originally was from South America. Most ducks have a head that is covered with feathers, but the Muscovy Ducks' head have heads that are covered by wrinkly skin. Some other differences are that Muscovy eggs take about a week longer to hatch, and make nests in trees. They take twice as long to reach mature body weight, and they are leaner than other ducks. Muscovy ducks can mate with descendants of the mallard, but the resulting ducks cannot reproduce. As a result, they are sometimes called mule ducks.

Geese

Domesticated geese are thought to result from one of two wild ancestors. The Greylag Goose is native to northern Europe and western Asia. It has a chunky, compact appearance, with plumage color and pattern that is similar to the Toulouse Goose. In the wild, a strong bond is formed between a male (gander) and a female (goose) before producing young. The goose normally lays five to six eggs before incubating them for 30 days.

The Swan Goose is thought to be the ancestor of the other branch of domestic geese. Their home of origin is Asia, and a few Graylag and Swan Geese share the same habitat. The Swan Goose looks slightly different because of a longer neck and a prominent knob where the bill

joins the head. Brown Chinese Geese have the same color pattern as the Swan Goose. The African Goose, which has the same color pattern, probably is a descendant of the Swan Goose.

Waterfowl are organized into categories by class, breed, and variety. A class categorizes birds by weight. A breed is based on the type of the bird. One characteristic of type is whether its posture is more horizontal or vertical. Varieties are based on the different color patterns in a breed.

Duck Classes

Breeds in the heavy class are Appleyard, Aylesbury, Muscovy, Pekin, Rouen, and Saxony. The mature Muscovy drake (male) weighs approximately 12 pounds, and the duck (female) weighs about 7 pounds. For all other breeds, males weigh about 8 to 9 pounds. The main use of ducks in this class is for meat production.

Ducks in the medium class weigh less than those in the heavy class. Blue Swedish, Buff, Cayuga, and Crested are breeds that are in the medium class. Mature drakes weigh about 8 pounds, and ducks weigh about 7 pounds, although the Crested are slightly smaller.

Ducks in the light class are the smallest of the standard size ducks. Mature drakes weigh about 4.5 pounds. Breeds of light ducks are runner, Campbell and Magpie. Most of the ducks in this class were bred as good egg producers.

The bantam class includes breeds that are smaller than those listed above. Call, East Indie, and Mallards, weighs between 14 to 18 pounds, with drakes at 40 ounces and ducks at 36 ounces. Mallards are the larger duck in this class. Mature East Indie drakes should weigh 30 ounces and ducks at 24 ounces. Weights for the Call breed are 26 ounces for drakes and 22 ounces for ducks. Sometimes the ducks in this class are called ornamental.

Geese Classes

Geese are also divided into classes by weight. In the heavy class, a mature gander weighs 22 to 26 pounds, depending on breed, and mature goose weighs 18 to 20 pounds. Geese in the heavy class are African, Embden, and Toulouse.

In the medium class, mature gander weighs between 14 and 18 pounds, while a mature goose weighs between 12 to 16 pounds. Each breed has its own ideal weight. American Buff, Pilgrim, Pomeranian, and Sebastopol Geese are included in this class.

The light class includes Canada, Chinese, Egyptian, and Tufted Roman Geese. Egyptian Geese are very small, with weights of 4 to 6 pounds. Other geese in the class have mature ganders that weigh about 12 pounds and mature geese that weigh about 10 pounds.

Male or Female Duck?

There are several ways to tell the difference between a male and female duck.

- Male ducks (drakes) have two sex feathers located on the tail
- Male ducks can have a different color pattern than the female duck
- Female ducks are louder than the males, their quack is noisy compared to the males almost whispery quack

Breeds and Varieties of Geese

Class	Breed	Variety
Heavy Weight	African	Brown
		White

	Embsden (Emden)	White
	Toulouse	Buff
		Gray
Medium Weight	American Buff	Buff
	Pilgrim	Gray - female
		White - male
	Saddleback Pomeranian	Buff
		Gray
	Sebastopal	White
Light Weight	Canada	Eastern (Common)
	Chinese	Brown
		White
	Egyptian	Colored (Brown)
	Tufted Roman	White

Notes: Do not use medicated feed for waterfowl, it can be deadly to them.

For ducklings decrease brooder temperature by 10 degrees F per week following 1st week. Ducks can be noisy, especially the females and Call ducks. Be sure to check with neighbors and area ordinances before taking on a waterfowl project.

Breeds and Varieties of Ducks

Class	Breed	Variety
Heavy Weight	Appleyard	Silver
	Aylesbury	White
	Muscovy	Black
	Muscovy Pekin	Blue
		Chocolate
		White
		White
	Rouen	-
	Saxony	-
	Cayuga	Black

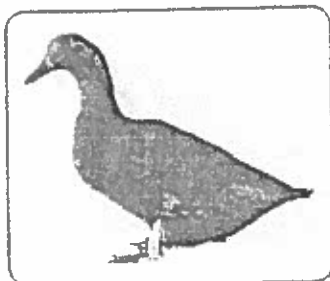
Medium Weight	Crested	Black
	Crested Swedish	White
		Blue
	Buff	Buff
Light Weight	Runner Campbell	Black
		Buff
		Chocolate
		Cumberland Blue
		Fawn and White
		Gray
		Penciled
		White
		Khaki
	Magpie	Black and White
	Magpie Call	Blue and White
		Blue
Bantam	Call East Indie	Buff
		Gray
		Pastel
		Snowy
		White
		Black
	Mallard	Gray
		Snowy

Exhibition

Make a preliminary selection from your entire flock a week or two before the show date. Take time to handle the waterfowl so they will get used to being picked up and handled. When making the final decision look for the birds that are "conditioned" the best. Be sure to check for feather quality, best coloring for the breed, how close do the birds match the description in the Standard of Perfection? Does the bird have any disqualifications as listed in the Standard of Perfection and how close does the male and female match each other?

Always take clean birds to the show. Waterfowl are better than chickens at keeping themselves clean. Bath the waterfowl like one would a chicken. Keeping waterfowl clean as they grow helps in them stay clean for show.

Ducks



Cayuga duck

Courtesy of Korahna's Waterfowl



Silver Appleyard duck

Courtesy of Julie D. Cox



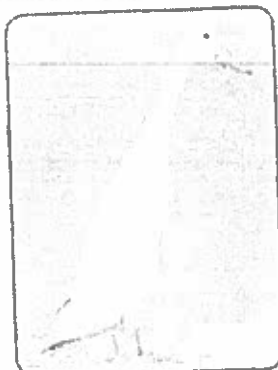
Pekin duck

Courtesy of James I. Cramm



Rouen duck

Courtesy of Julie D. Cox



White Runner duck

Courtesy of Julie D. Cox



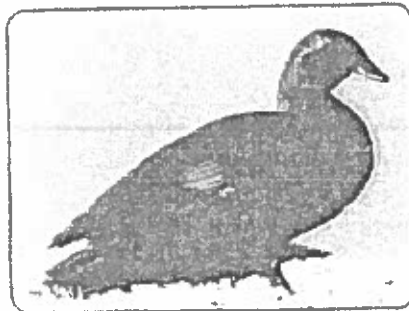
Saxony drake

Courtesy of Julie D. Cox



Crested drake

Courtesy of Julie D. Cox



Black East Indry duck

Courtesy of Chris E. Luedersfeld



White Muscovy duck.



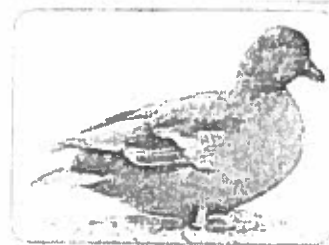
Khaki Campbell duck



Buff duck



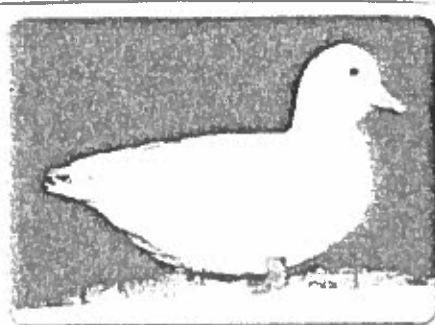
Grey Call duck



Khaki Call duck



Penciled Runner duck

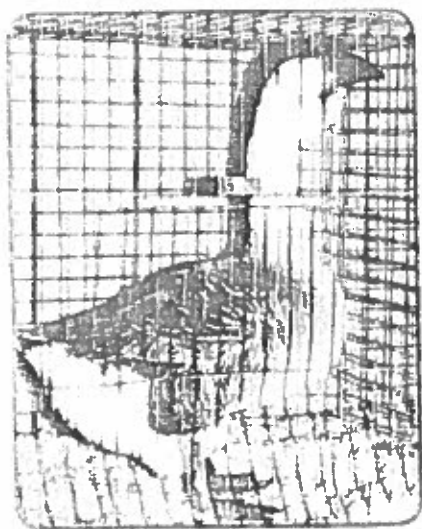


White Call duck



Blue Swedish duck

Geese



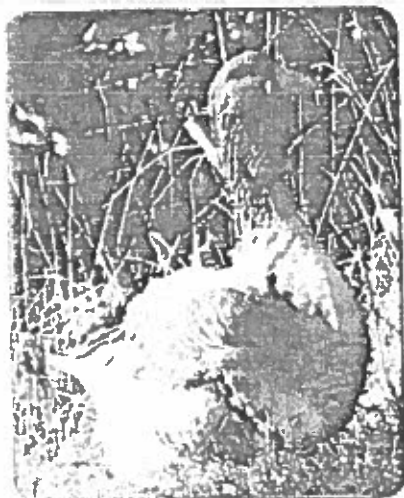
Brown African

Courtesy of Don Roscoe



Emden

Courtesy of Dave and Millie Holderread



Toulouse

Courtesy of Dave and Millie Holderread



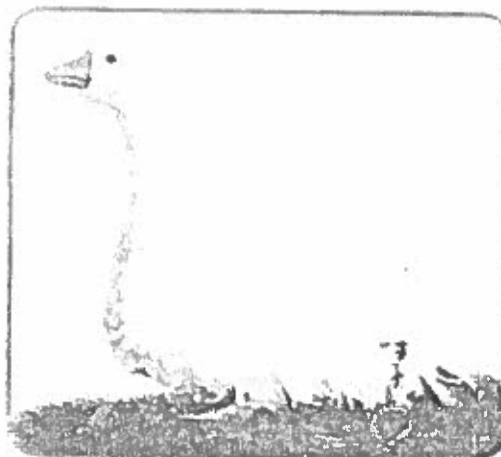
American Bull

Courtesy of Wild Plain Waterfowl



Chinese Brown

Courtesy of Julie Dixon



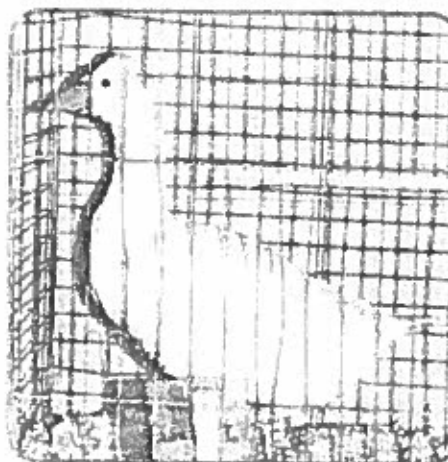
Sebastopol

Courtesy of Dave and Millie Holdcroft



Gray Saddleback Pomeranian

Courtesy of Lisa Neal



White Tufted Roman

Courtesy of Ryan Garman



Egyptian pair



Egyptian Brown

Turkey

Raising turkeys can be a rewarding experience. But the nature of the turkey, its size and cost set up a whole different set of challenges from other poultry. Take to experienced growers before taking a turkey project.

Turkey History and Being Confused With Guinea Fowl

The common turkey was probably first domesticated by the Indians of pre-Columbian Mexico. The birds were first taken to Spain about 1519, and from Spain they spread throughout Europe, reaching England in 1541.

When the bird became popular in England, they were called by the name turkey-cock, a name formerly used for the guinea fowl of the Near East. The confusion between these kinds of birds from related, but different, families is also reflected in the scientific name for turkey genus: *Meleagris*, is Greek for guinea fowl. Two major reasons why the name "Turkey Fowl" stuck to *Meleagris* rather than to Helmeted Guinea Fowl (*Numida Meleagris*), were the genuine belief that the newly-discovered Americas were in fact a part of Asia, and tendency during that time to attribute exotic animals and foods to place that symbolized far-off, exotic lands.

Guinea Fowl are indigenous to Africa. They were raised in domestication by the Egyptians as early as 2,400 BC. They were highly prized by the Greeks by 400 BC and later by the Romans. However, they went out of existence in Europe for more than 1,000 years, until Portuguese sailors reintroduced them from West Africa, which is also known as "West Guinea".

English colonists introduced European-bred domestic strains of the turkey to eastern North America in the 17th century. These were crossed with the Eastern Wild Turkey, creating a bird with exceptional vigor. The resulting turkey was called the Narragansett, in recognition of the Native Americans that populated the New England states. Other varieties were developed and bred for local preferences and feather colors. A standard for each variety was developed and they were admitted to the American Poultry Association Standard of Perfection.

Turkey history changed when an English turkey breeder, Jesse Throssel, moved to British Columbia, Canada in 1926. In 1927, he had his breeding stock of Bronze turkeys sent to him from England, just three birds. For many years he had selected his birds for large amounts of meat. Some of these turkeys put on a great amount of breast meat, so much so that they began having difficulty mating naturally. Throssel sold some of his toms to breeders in Oregon. These birds were crossed with other high meat-producing turkeys and natural mating became even more of a problem. In 1934, the USDA developed a practical producing method of artificial insemination which allowed turkey breeders to use birds that were unable to mate naturally.

This "new" turkey was so different than the one in the Standard of Perfection that breeders attempted to develop a new standard for this "improved" variety. In 1943, shortly after an article discussing the new variety changes to the Bronze turkey, breeders made a proposal of variety change to the American Poultry Association. After much discussion the APA decided that the "improved" Bronze and the "standard" Bronze were the same variety. It was at this point that the Broad Breasted Bronze separated from the APA and became the genetic base for commercial production turkeys of today.

The Broad Breasted Bronze was “improved” to make its skin a uniform color by breeding it with a White Holland turkey. This produced the Broad Breasted White which, because of its white feathers, had less visible pin feathers. In the 1960’s, as the demand for maximum size and breast meat yield was being achieved, the commercially produced turkey became “flightless” and required artificial insemination for reproduction.

The Broad Breasted Bronze turkey fell out of favor with commercial producers to the Broad smoother skin.

Features

Adult males have a naked, heavily carunculated (bumpy) head that normally is bright red but turns to white overlaid with bright blue when the birds are excited. Other distinguishing features of the common turkey are a long red fleshy ornament (called snood) that grows from the forehead over the beak, which elongates to 3 or more inches when displaying; a fleshy wattle growing from the throat; a tuft of coarse, black, hairy feathers (known as a beard) projecting from the breast; and more or less prominent leg spurs.

Female turkeys have pale pinkish-red head and neck features. They will display their tail feathers, while strutting on occasion, but not nearly as often or as significantly as males. They may have small, usually blunt spurs and sometimes, a small beard. Their snood seldom elongates more than ½ to 1 inch in length. Wattles are relatively small and pale colored.

Turkey Varieties

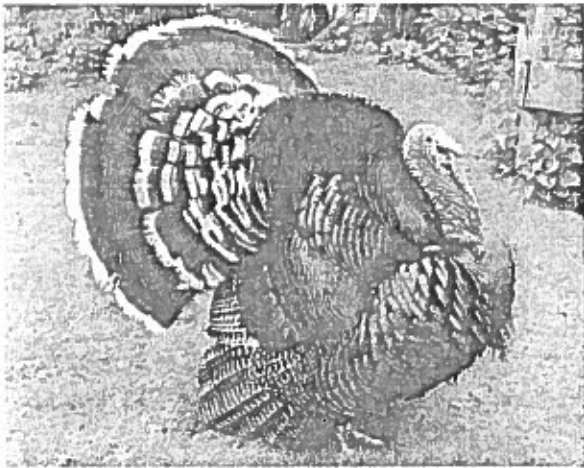
Technically, there is only one “breed” of turkeys, since all turkeys have the same body shape. There are a number of standard varieties of turkeys recognized by the American Poultry Association. The “Heritage Varieties” are relatively rare, have distinct flavored textured meat and can reproduce on their own.

Bronze – The name refers to its plumage, which bears an iridescent bronze-like sheen. The Bronze had been the most popular turkey throughout most of American history, but decreased in popularity in the mid-20th century.

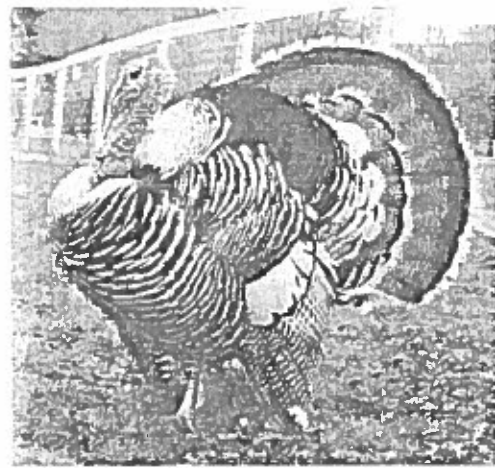
Bronze turkeys are the product of crossing domestic turkeys brought from Europe by colonists (which had been exported to Europe years before) with the Wild Turkey. These turkeys produced a bird that was larger and more robust than the European turkeys, and tamer than the wild turkeys. Though the Bronze turkey type was created in the 18th century, the actual name was not used until the 1830s, when a strain developed in the US state of Rhode Island was named the Point Judith Bronze. The name later spread to be used in reference to the breed as a whole, and was called the Cambridge Bronze, but again this name has been simplified to just “Bronze”.

The Bronze was first admitted to the American Poultry Association’s Standard of Perfection in 1874. Later, beginning in the late 18th centuries, some Bronze turkeys were selected for larger size.

Fun Fact: The Sesame Street Character, Big Bird, proudly displays dyed white turkey feathers.



Bronze



Narragansett

Narragansett – This turkey was developed in Colonial America by English and other European colonists beginning in the 17th century. The Narragansett Turkey is unique to North America and is named for Narragansett Bay (Rhode Island) and the Native Americans that occupied New England at the time.

The Narragansett has plumage with black, gray, tan, and white feathers. It resembles the Bronze Turkey but has feathers of gray or dull black replacing the Bronze Turkey's distinctive coppery coloring. The Narragansett sometimes has bars of white feathers on its wings due to a genetic mutation not found outside the US. It has a black beard, a horn-colored beak, and a mostly featherless head and neck which range in color from red to blueish white. The breed is prized for its excellent temperament combining a calm disposition with good maternal abilities. They mature early, are good egg producers, have excellent quality meat, and tend not to wander too far from home when allowed to range. Through selective breeding, young Narragansett Turkey toms weigh 22 to 28 pounds and hens weigh 12 to 16 pounds. They can run quickly, fly well, and prefer to spend their nights roosting in trees.

Narragansett Turkeys are good at foraging for crickets, grasshoppers and other insects, and can be maintained with little supplemented feed if free ranged. This breed was recognized by the American Poultry Association (APA) in 1874. A fancy variety called the Silver Narragansett was developed with white plumage replacing the tan and gray.

White Holland – Their acceptance into the APA was in 1874. It has white plumage and a deep black beard. The beak is pink to horn colored and the throat and wattles are pinkish-white. Shanks and toes are pinkish-white. The standard eye color is brown. The name "Holland" is credited to the early Dutch colonists of New England and perhaps its European origin.

It was commonly used for commercial production in the early 1900s. It was desirable because of its white plumage which reduced the visibility of pinfeathers when plucked. In the 1050s, the breed was crossed with the Broad Breasted Bronze to create the Broad Breasted White. Standard weights are 33 pounds for tom and 18 pounds for a hen.

Black or Black Spanish or Norfolk Black – this breed was developed in Europe from the first turkeys brought there from North America by explorers. Despite the names "Spanish" and "Norfolk" (England), birds of this type are found in many European nations. Keep in mind that all domestic turkeys have their origins in wild birds taken back to Europe by the

Spanish explorers, domesticated there and brought back to the New World by the English colonists.

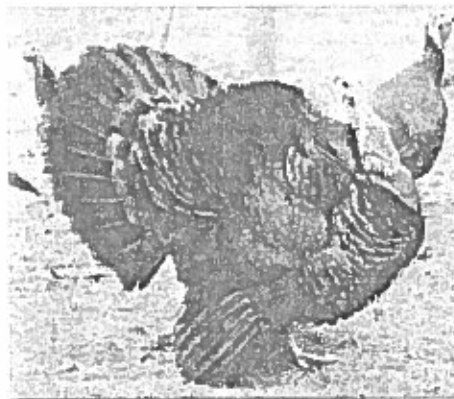
Black turkeys were crossed with the Wild Turkey to help produce varieties such as the Bronze, Narragansett, and Slate. Blacks were admitted to the APA Standard in 1874. Weight for these birds are 33 pounds for toms and 18 pounds for hens.

Slate or Blue Slate – These birds have a slate gray colored plumage. Lighter birds are sometimes called Lavender turkeys. Slate turkeys may actually be any number of shades between black and white, but only ash-gray birds are eligible for showing under the APA Standard of Perfection. This variety was admitted to the APA in 1874, toms weigh 33 pounds and hens weigh 18 pounds.



Provided by Lynn Magedson

White Holland



provided by Mike Walters

Black Spanish



provided by Mike Walters

Blue Slate



provided by Mike Walters

Royal Palm

Royal Palm – these turkeys are a small domestic variety. This turkey is best known as an ornamental bird with unique appearance, largely white with bands of metallic black. Primarily kept as an exhibition bird, it lacks the size for significant meat production. Toms usually weigh 16 to 22 pounds and the hens weigh 10 to 12 pounds.

A relative newcomer among turkey varieties, the bird first appeared in the 1920s on a farm in Lake Worth, Florida, apparently as a cross between Black, Bronze, Narragansett, and native turkeys. Years of selective breeding followed to stabilize the coloring, and the Royal Palm was finally accepted by the APA in 1971. In Europe, a turkey with similar coloration is sometimes called the Crollwitzer, Pied, or Black-laced White.

Beltsville Small White – This turkey is named after its physical characteristics – a relatively small size and entirely white plumage and its place of origin: the USDA's Beltsville Agriculture Research Center in Maryland.

The Beltsville Small White was developed beginning in 1934 in response to market research that said consumers wanted a turkey of small to medium size with no dark pinfeathers. In a breeding program at the Beltsville Center that lasted from 1934 to 1941, the USDA used White Holland, White Austrian, Narragansett, Bronze, and Wild Turkey genetics. The breed was used commercially in the 1940s, and was recognized officially by the APA in 1951.

Bourbon Red – This turkey is named for its unique plumage and for Bourbon County, Kentucky. The standard indicates the Bourbon Red should weigh 23 pounds for toms and 14 pounds for hens at maturity. The breed's feathers are a dark base color, with white primary feathers characterized by a soft red band. The flight feathers are white and both tail and wing coverts are chestnut. The standard allows for a total of 30% red feathers in the tail before the bird is disqualified.

In the past, the variety has alternatively been called Kentucky Reds and Bourbon Butternuts. The bird originated in Kentucky and Pennsylvania in the late 19th century, and was created by crossing Buff, Bronze, and White Holland turkeys. It was first recognized as a turkey variety by the APA in 1909. It was selectively bred for utility traits as a meat bird, and was an important variety in the turkey industry throughout the 1930s and 1940s. Like most turkey breeds it declined after this point with the commercial adoption of the Broad Breasted White. It is one of the most popular Heritage turkey breeds today.

Buff – The Buff turkey was accepted into the Standard of Perfection by the APA in 1874. The original strain of Buff turkey was used in the development of the Bourbon Red breed, but had died out entirely by the early 20th century. This was partly due to the difficulty in selectively breeding the proper color pattern, and also to rise of new commercial breeds on the market. An interest in the Buff turkey was revived in the 1940s and a new strain was developed, called the Jersey Buff.

Auburn or Light Brown – it is one of the rarest varieties currently in existence. It has been referred by name in written records since the 18th century, and is named after the light reddish-brown color of its plumage. There is also an extremely rare variant of the Auburn called the Silver Auburn. This is an old variety that was listed in receipts when transporting turkeys to market in "turkey trots" during the late 18th and early 19th centuries in Philadelphia. Auburn turkeys are sex-linked (toms and hens are different colors at hatching). Cross-breeding Auburn toms and Bronze hens will produce Bronze toms and Auburn hens thus making it quite easy to sex poults by color at hatch.

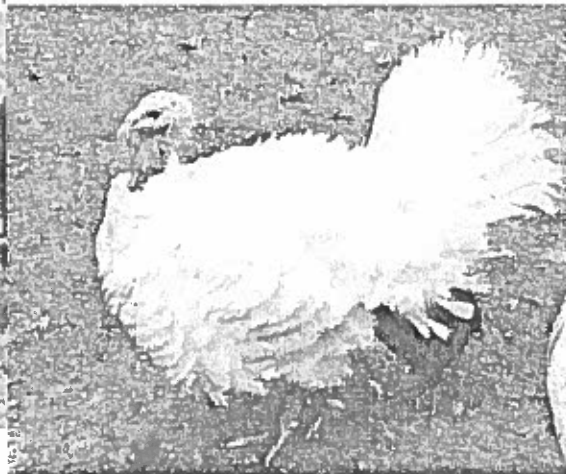
Auburn describes a variation in the typical bronze plumage color in which bronze is replaced with red-brown pigmentation. The Auburn poult resembles the Bronze but with black stripes replaced with a red-brown coloration. In the adult bird, the bronze pigmentation is also replaced by a red-brown color. The barring present in the primary and secondary flight feathers is red-brown and white in contrast to the black and white typical in the Bronze bird.

Midget White – This breed of domestic turkey is named for its white plumage and small stature. The breed is the smallest standard variety of turkey, and with toms at roughly 13 pounds and hens 8 to 10 pounds, its weighs only slightly more than the largest chicken. It is sometimes shown with the Beltsville White; however, it was bred from different lines, mostly the commercial turkeys and the Royal Palm. This breed is also a newcomer to the turkey variety and was developed in the 1960s at the University of Massachusetts as a smaller complement to the Broad Breasted White. This bird is relatively friendly and is especially well-suited to being raised on small farms.



provided by Mike Walters

Bourbon Red



Beltsville White



Buff

Auburn

Commercial Varieties

Broad Breasted Bronze has not been accepted by the APA. It is a cross-bred that was developed for commercial production. Apart for its size, the plumage of the Standard Bronze is usually lighter colored and more lustrous than that of the Broad Breasted Bronze. Both have brown color which highlighted by shades of copper and blue-green, and the plumage overall is very similar to that of the Wild Turkey. The **Broad Breasted White** took over in the commercial production because of their pinfeathers are nearly invisible when butchered. The Broad Breasted White is also not recognized by the APA. Part of the fact of their not getting recognized is due to their very large size, both varieties are unable to fly and because of their size unable to reproduce naturally. They are dependent on humans for care and artificial insemination.

Other Varieties

Many other color variations of turkeys will be found as pure varieties such as the Chocolate and the crossbred varieties. Crossbreeding different varieties will produce beautiful variations of plumage such as the Pied, Brindle, and the Mixed colors.

Feed

Turkeys grow quickly and convert feed into high-quality meat. Feeding a properly balanced ration is important. A commercially produced crumble starter feed should be used from day one to four weeks of age. The ration should contain no less than 28% protein to give the turkey poults a good start. The protein percent can be decreased the following two weeks (week 5 and 6). The final ration percent should never go below 16% protein. Adding cracked corn to the feed will lower the protein content. Range feeding Alfalfa or grass will supplement protein. Typically, it will take about 2.5 pounds of feed per pound of growth for turkeys. As a result, each turkey will eat 50 to 75 or more pounds of feed before the turkey is ready for butchering.

Health

"An ounce of prevention is better than a pound of cure" is more than just an old saying when it comes to raising turkeys. Management is key to maintain the health of the birds. Since turkeys eat a great deal, therefore they will produce a great deal of manure. Clean their living areas regularly. Do not keep chickens and turkeys together in the same areas or living areas. This can cause sickness such as Blackhead in the turkeys and can become deadly. Always have fresh water available at all time for the turkeys.

Testing

Before showing turkeys at the fair or any show, they will need to be blood tested by a veterinarian for transmittable diseases that affect turkeys. The paperwork can take several weeks to get back, so plan ahead. The finalized paperwork needs to accompany the birds to their show. Establishing a veterinarian client relationship is recommended when raising turkeys.

Guinea Fowl

Guinea Fowl, native to Africa, were brought to the US by early settlers. A Guinea Fowl is definitely not a chicken. It is more active, range farther, and flies higher than a chicken. It is recommended reading the turkey introduction about the confusion of calling turkeys guineas, when turkeys were being introduced. There are three species of Guinea Fowl: **Vulturine** (*Acryllium Vulturinum*) are from semi-arid regions of East Africa. They are not commonly raised in the US, as it is more sensitive to cold and lacks the hardiness of the common Guinea Fowl. It has a helmetless head and resembles a vulture; **Crested** (*Guttera Pucherani*) are from South Africa. They can be distinguished from other guinea fowl by their black head plumes; and **Helmeted** (*Numinidae Meleagris*) are the most common species of Guinea Fowl. They are named for the bony "helmet" on their head. There are only three colors recognized by the APA for show, they are Pearl, White and Lavender.

Guinea Fowl, often referred to as Guineas, are gamebirds that are increasingly popular among keepers of small backyard flocks. Guineas are vigorous, hardy, and largely disease-free birds. There are many reasons people raise Guinea Fowl. The birds sound an alarm whenever anything unusual occurs on the property. While some find this noise to be a nuisance, others find it to be an effective tool for protection. Farmers have made Guinea Fowl the farmyard "watch dogs". The loud noise of the Guinea Fowl has also been shown to discourage rodents from invading the area.

Keeping Guinea Fowl is also an effective means of pest control. Guinea fowl can also be raised for meat and egg production. The meat of a young Guinea is tender and tastes like that of wild game. The meat is lean and rich in essential amino acids. Guinea Fowl eggs can be eaten just like chicken eggs.

Uses

Insect Control: The main food for wild guineas is insects. Guineas will consume large amounts of insects, typically leaving the vegetable and flower gardens alone. Unlike chickens, Guineas do not scratch the dirt much and thus do very little damage to gardens. Once established on a farm, Guineas are able to pretty much fend for themselves, consuming insects, seeds, and grasses. They have been used to control deer ticks, wood ticks, grasshoppers, flies, crickets, and other insects.

Warning, if you or a neighbor have apiaries (honey bee hives), it is best to be cautious, Guinea Fowl will eat honey bees and have been known to stand by the hive and eat the bees as they exit the hive.

Rodent Control: The loud call of the Guinea Fowl has been shown to discourage rodents from invading the area. Guineas have been known to kill and eat mice and small rats. Guineas will also eat slugs and snails.

Snake Control: Some snakes will eat eggs and baby chicks. In areas where snakes are a probable, groups of Guinea Fowl have been known to locate and kill snakes before they can cause harm.

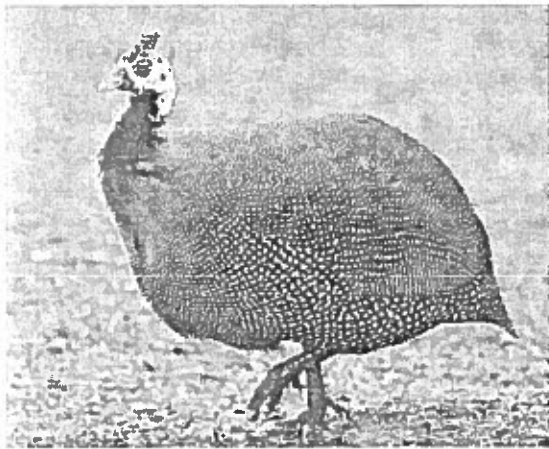
Unique Ornamental Value: Guinea Fowl are curious and interesting animals. Many like to keep them around simply for entertainment value. Guinea Fowl have been described as darting around the yard like roadrunners. Guinea Fowl droppings (guano) are less offensive than most poultry species and are only messy when the birds are sick. The guano is basically dry and washes away easily in the rain.

Varieties

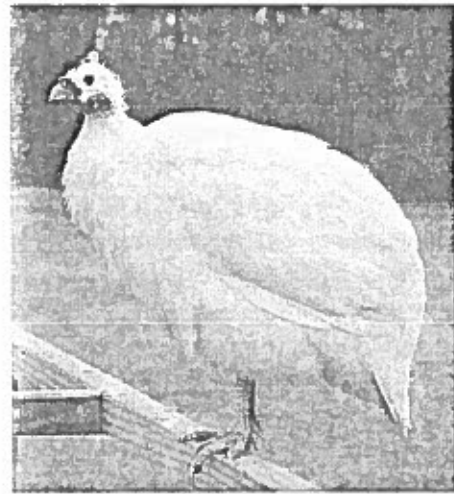
Pearl – This variety is the most popular and typically the one that people recognize. The birds have purplish-gray plumage with dots of white spots giving the look of pearls. Feathers from the pearl variety are often used for ornamental purposes.

White – The White variety is the next most common. As the name indicates, the White Guinea Fowl has pure white feathers. In addition, its skin is lighter than the other two varieties. These birds are not albino and are the only solid white bird that hatches solid white and not yellow.

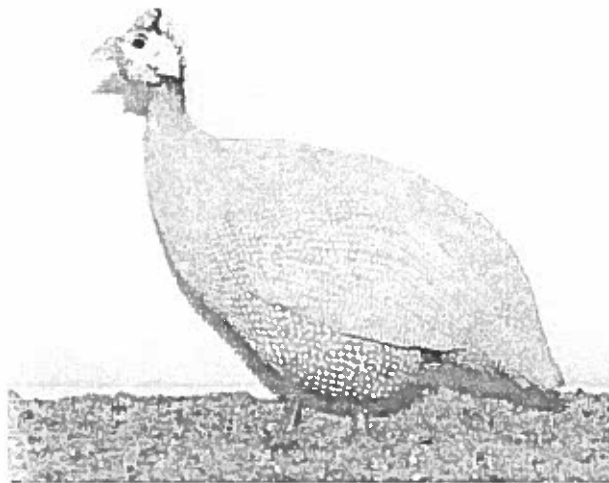
Lavender – this Guineas are similar to the pearl, but their plumage is light gray or lavender dotted with white spots.



Pearl Guinea Fowl



White Guinea Fowl



Lavender Guinea Fowl

Housing

Guinea fowl are often left to fend for themselves, but it is best to provide them shelter to protect them from the elements and predators. If confining Guineas for meat or egg production, or for a project, be sure to allow plenty of room. They will need 2 to 3 square feet of space per

bird. The more room the Guineas have the less likely they will become stressed. Floor covering the same as for chickens. Guineas prefer to roost, so it is important to provide perches for them. Guineas will fly, covering the outdoor run is recommended. They can fly at a very young age and can fly 400 to 500 ft. at a time. A large net will come in handy when catching Guinea Fowl because they are very fast and can change directions quickly.

Do not confine male Guinea fowl with chickens if there are roosters in the same flock. However, if the flock is allowed to free range during the day and is penned up at night, it is okay to keep the Guineas and roosters in the same barn. It is also ok to house them together in a short-term emergency, such as a blizzard or other bad weather conditions. If the male Guineas and the roosters are housed full time together, the Guinea males will chase the roosters around, keeping them from food and water.

When trying to keep Guinea Fowl from wondering too far from the area, it is best to pen the guineas up for a week or two, so they can see the area where they will be living and become accustomed to their home. After an initial couple of weeks, let one Guinea out at a time. Guineas hate to be alone, so a single Guinea will not go far and will learn its way around the area, and not wonder far from its flock. After a few days of this, two Guineas can be turned out, if they stay close, it is a good sign that a few more birds can be released with them. Keep this up until the entire flock has been released together.

Nutrition

Adult guineas forage for themselves and are able to meet most of their nutrition requirements on their own. They need to consume some greens to maintain good digestion. They eat grass, dandelions, weeds and other vegetation. Provide clean water at all times. They like wheat, sorghum, and millet grain and will ignore whole kernel corn. Feed confined Guinea Fowl commercial poultry diet. Have oyster shell and or grit available for them also for it will aide in digestion. Guinea Fowl do need a higher protein feed than chickens, but do well on the regular poultry diets. Supplemental greens should be given if the birds are being raised in a confined space. Leafy Alfalfa is a good source of required nutrients needed for heathy digestion. Do not feed moldy greens to the birds for they do not like them and can make them sick.

Brooding

Young Guinea Fowl are susceptible to dampness during the first two weeks after hatching. They can get sick and possible die by following their mother through dewy grass. It is wise to keep a close eye on newly hatched chicks. After those first few weeks, Guinea Fowl are widely considered the hardest of all domestic fowl. Keets (baby Guinea Fowl) can be raised in a brooder like chickens. The temperature is reduced the same as you would baby chickens.

The incubation period for Guinea Fowl is 26 to 28 days, similar to the incubation period of turkeys. If available, broody chickens can be used to hatch Guinea eggs. A bantam chicken can sit on 12 to 15 Guinea eggs and a Standard Hen can sit on 20 to 28. Guinea hens do not always make good mothers. a Guinea hen typically will not get broody until the nest has around 30 eggs in it. Confined Guinea eggs are easier to collect than those of Guineas left out to nest. If eggs are collected for an outside Guinea nest, the Guinea will make a nest somewhere else.

Guinea eggs are smaller and have a thicker shell than chicken eggs. As a result, it is difficult to candle the eggs until they are 10 days into incubation.

Sexing

It is very difficult to tell young (those 12 to 52 weeks of age) male and female Guineas apart because the pullets and cockerels look exactly the same. When Guineas are older there are two ways to tell them apart.

- **Listen to their sound.** The hen makes a two-syllable noise that sounds like she is saying “buckwheat, buckwheat”, “put-rock, put-rock”, or “qua-track, qua-track” These are the only sounds that a Guinea female makes that a Guinea male does not.
- **Look at helmet and wattles.** The helmet is protuberance on top of the head of Guinea Fowl. The wattles are the fleshy appendages that hang from the sides of the head. The helmet and wattles of a male bird are much larger than those of the female.

Note: Guinea Fowl are subject to the same diseases and parasites as other poultry and respond to the same treatments. Furthermore, do not feed Guinea Fowl medicated feed. Some of these feeds are toxic to Guineas.

Glossary Terms & Study Material

Glossary

Abdomen – The underpart of the body from the point of the keel to the tail.

Aircell – The air space in the egg, usually the large end.

Amino Acids – Amino acids are building blocks of protein. For example, if a brick wall represented protein, each brick in the wall would be an amino acid.

Anticoccidial – A drug to prevent coccidiosis.

APA – American Poultry Association. The group that determines the “Standard” (desired characteristics) of show poultry.

Axil Feather – The short feather growing between the primaries and secondaries of the wing.

Bantam – A diminutive fowl – some being distinct breeds, others being miniature of large breed or variety, approximately one-fourth to one-fifth their size. Usually ornamental in character, some breeds have considerable merit as egg producers, a few as meat fowl.

Book of Standards – Book written by the American Poultry Association. Lists all the recognized poultry breeds that are showable. Book includes varieties of breeds and disqualifications of traits in the breed.

Breast – The entire forward part of the body of live fowls, from the juncture of the neck and body down to the rear point of the keel bone.

Breed - The special variety of domesticated fowl within the species. Grouped as to their physical characteristics.

Brood – 1. A distinct group of birds, usually of the same age, placed as a group. 2. The act of rearing chicks using heat and other management options.

Capon – A castrated male bird.

Cloaca – Organ where reproductive tract and digestive tract join in hens.

Cock – A male fowl one year old or more.

Cockerel – A male fowl less than one year old.

Condition – The state of a fowl with regard to health, including cleanliness and brightness of plumage, head parts, legs, and feet.

Coverts – the feathers that cover the base of the primary and secondary wing and main tail feathers.

Crop -Organ which stores food before digestion.

Crossbred – Animals that are the result of crossbreeding two or more purebreds. Results of the offspring will be unique to each crossing.

Drake – A male Duck.

Dual Purpose – Term used for birds that are efficient in both meat and egg production.

Dubbed/Dubbing – A term used to describe the close trimming of the comb, wattles, and earlobes of the male.

Duck – A female duck.

Duckling – A baby duck.

Earlobes – The fleshy patch of bare skin below and behind the ears, varying in size and shape with color, either red, white, or blue, or purple, according to the breed.

Fowl – The name given to the domesticated species of animal with feather coverings.

Gander – A male goose.

Gizzard -Organ in which feed is physically broken down.

Goose – A female goose.

Gosling – Young geese up until feathers have completely replaced the down.

Grit -Very small stones in a chicken's gizzard to help grind up feed.

Guinea Fowl – Proper name for the species. By using the term fowl with Guinea, it distinguishes it from the "hamster-like" animal.

Helmet – Protuberance on the head of some Guinea fowl.

Hen – An adult female chicken, turkey, and or Guinea Fowl.

Hock -The joint between the lower thigh and shank, sometimes incorrectly referred to as the keel.

Hybrid – This is when two inbred animals are crossed. The offspring will inherit the best characteristics of each parent.

Inbred – Animals that are specifically bred for their commercially valuable traits that can be passed on to their offspring. Inbred chicken are produced by breeding close relatives together for seven to ten generations.

Incubation Period – Time from when eggs are set until hatch date, whether be by bird or artificial means.

Incubator – A mechanical devise to artificially incubate eggs.

Keel /Keel Bone – Also called the Sternum. In chickens and turkeys as well as most birds, it is the large bony protrusion on the midline of the breastbone; it resembles the keel of a boat, both as to shape and position.

Keet – Young Guinea Fowl from hatch up through 12 weeks of age.

Knob – The horny protuberance at the junction of the head and upper bill; such in African and Chinese geese.

Lamella – tooth-like serration on the inner edges and roof of the bill of ducks and geese.

Line-breeding - Mating of distant related individual birds.

Molt – Annual loss and regrowth of feathers.

NPIP – National Poultry Improvement Plan, this is a recognition by the state that a flock has been tested for certain avian strains of diseases

Oyster Shell - A source of extra calcium for laying hens.

Paunch – Pendulous folds of flesh and skin suspended from the abdomen of geese.

Pin Feathers – New feathers just emerging from the skin.

Plumage – The collective feather covering of the entire body of a fowl. Including the head, neck, wings, tail, and where specified for breed, the shanks and toes or face area.

Poult – Young bird before a sex can be determined.

Poultry – A general term applied to all domesticated fowl, including chickens, turkeys, waterfowl, and Guinea Fowl.

Preen Gland/Uropygial Gland – The oil or “preen” gland is the only skin gland in birds. A large gland, opening on the back, at the base of the tail feathers, secreting an oily fluid which the fowl applies to its feathers during preening. It is especially developed in waterfowl because the oil helps make the plumage shed water.

Primary Feathers/Primaries – the long stiff feathers of the wing, growing from the last segment of the wing. Counting from wing tip to body is the first 10 feathers. When at rest these feathers are folded under and are completely hidden by the secondaries when the wing is properly folded; also know as the primary flight feathers. These feathers are for power during flight.

Proventriculus – It is the true stomach.

Pubic Bones – The thin, terminal portion of the hip bones that form part of the pelvis. Considered important in evaluating productivity of the female fowl.

Pullet – A female fowl less than one year old.

Pullorum – A avian disease that can be transmitted by birds in eggs or manure. Birds must be tested for this prior to going to shows or fair.

Purebred – Animals that breed true to color, body shape and other physical feathers. There are over 100 recognized breeds of large and bantam chickens.

Rate of Gain – Amount of weight gained per day.

Rooster/Cock - An adult male chicken or Guinea fowl, being over a year old.

Scoop-bill – A concave depression in the top of the bill of waterfowl; it is a disqualification.

Secondary Feathers/Secondaries – The long, stiff wing feathers growing from middle wing segment. When the wing is folded, the exposed secondaries form a triangular area know as the “wing bay”. These secondary flight feathers are responsible for lift during flight.

Sex Feathers – Also know as the drake feathers. The two feathers in the tail of the drake or male duck which curve upward and forward; and by which the sex of the duck is distinguished (except in Muscovy ducks).

Shank – The portion of the leg below the hock, exclusive of the foot and toes; the metatarsus.

Side Sprig – A point or projection from the side of a single comb.

Sickles -Long curled rooster tail feathers.

Spur – A stiff, horny projection from the rear inner side of the shanks, rounded or pointed according to the age, prominent in male fowl, may be present in female fowl, increasing greatly in size with age. In the Sumatra Breed it is not uncommon for the rooster to have multiple pairs of spurs.

Straight Run – Refers to the way a mail order of birds is sent from the hatchery without being separated by sex.

Strain – Fowl of any breed or variety that have been line-bred for a number of years and that reproduce uniform characteristics with marked regularity.

Standard – Term used for the large chicken breeds; being distinct from bantams.

Stub – A short section of the stem of a feather, sometimes with a few short barbs attached. A disqualification when found on shanks or between the toes of clean-legged breeds.

Tom – Adult male turkey.

Variety – A subdivision of breed, distinguished either by color, color and pattern, or comb.

Wattles – The thin, hanging growths of flesh at either side of the base of the beak and upper throat; usually much larger and longer in males than females. Usually red in color, but purple in Sumatras and Birchen, and brown in Red Modern Games and Silkies. Should be fine and soft in texture, slightly concave in surface, regular in outline, and uniform in size.

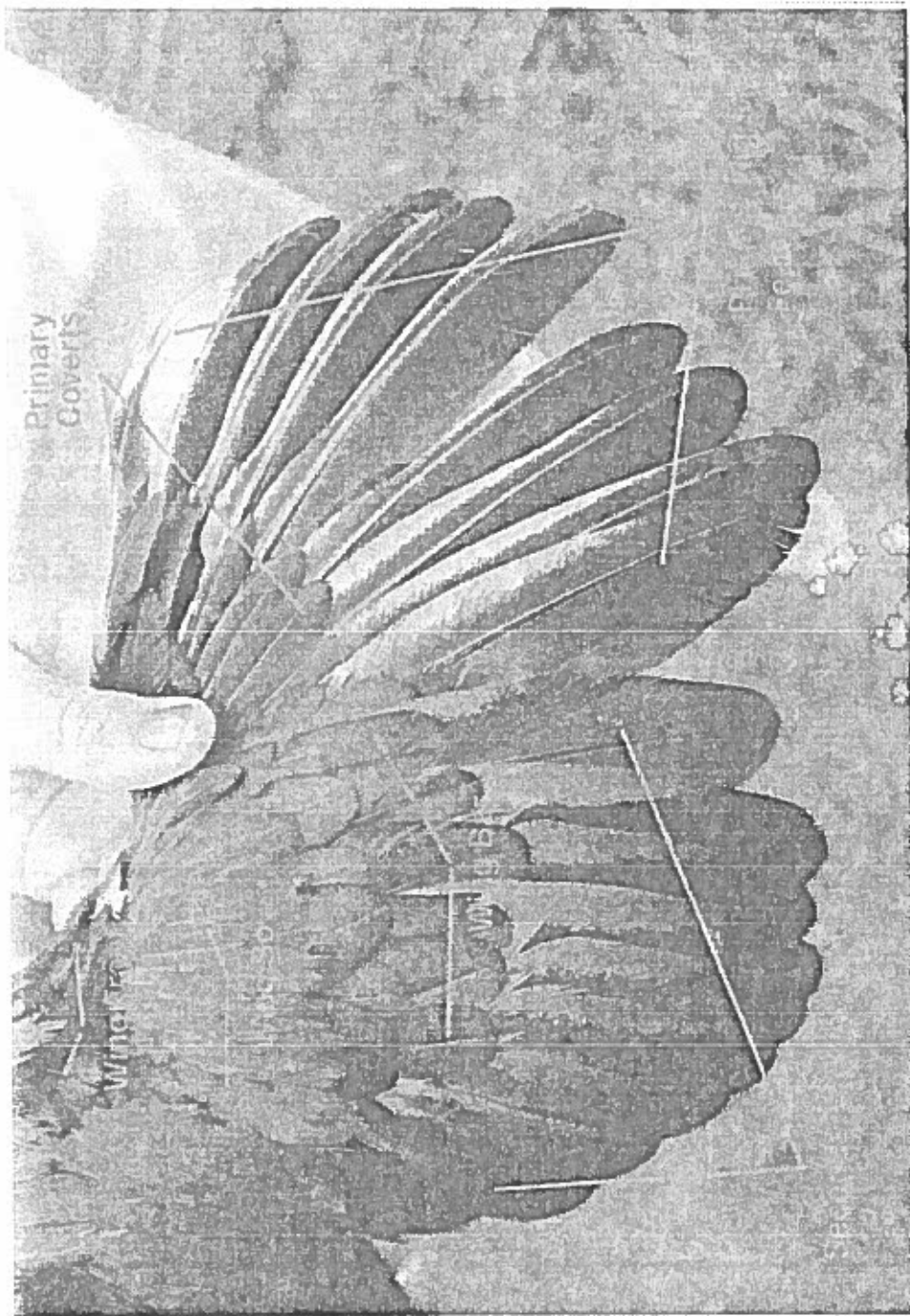
Web – The stout membranes between the toes of all waterfowl.

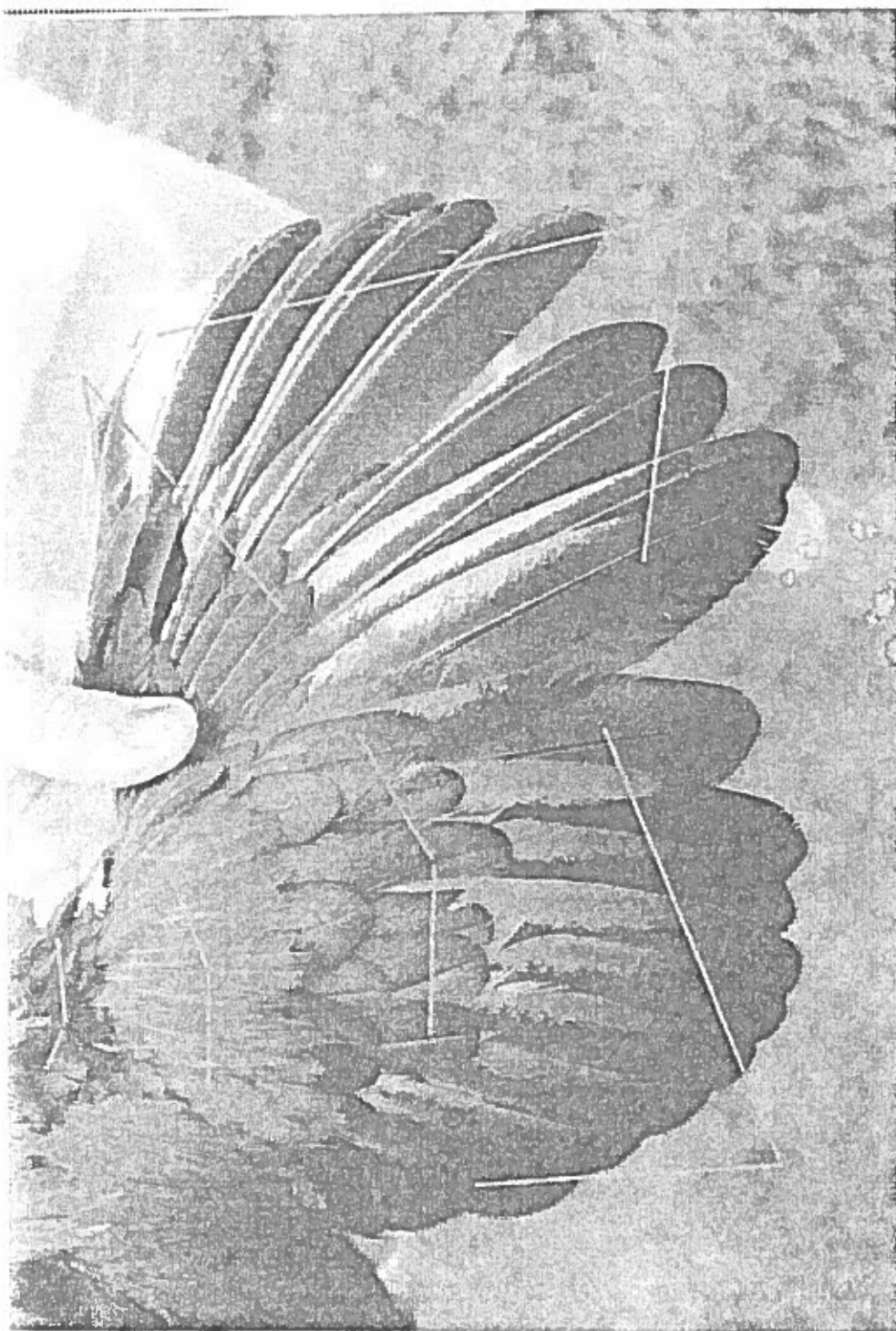
Young Guinea – Any Guinea Fowl 12 to 52 weeks of age.

Study Material

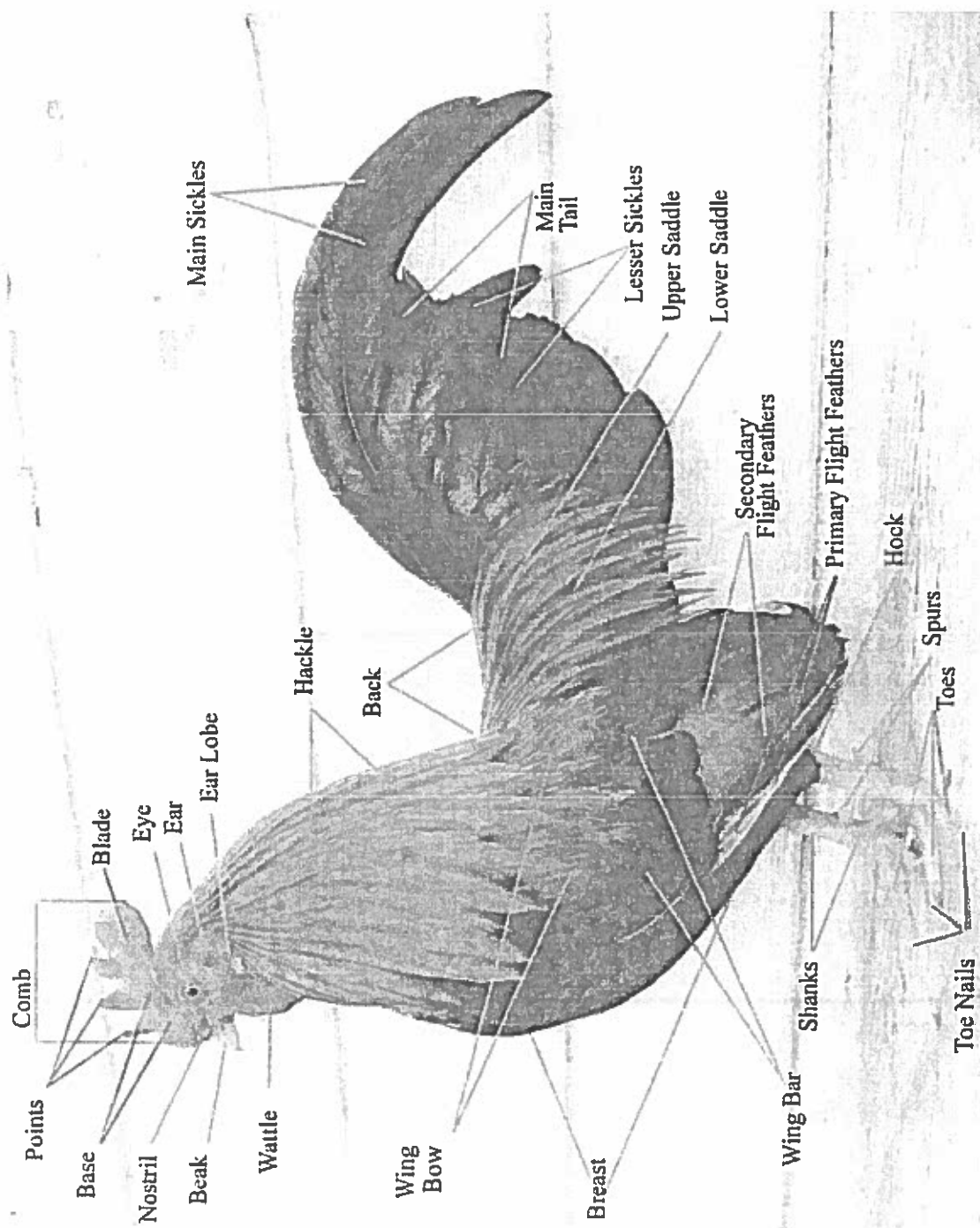
The next pages are useful in studying the wings and bird parts. It is recommended that a binder be kept and as your project grows, so does your collection of study material, make it a goal to add something each year to the binder, whether it be on the breed chosen to show or a showmanship tip.

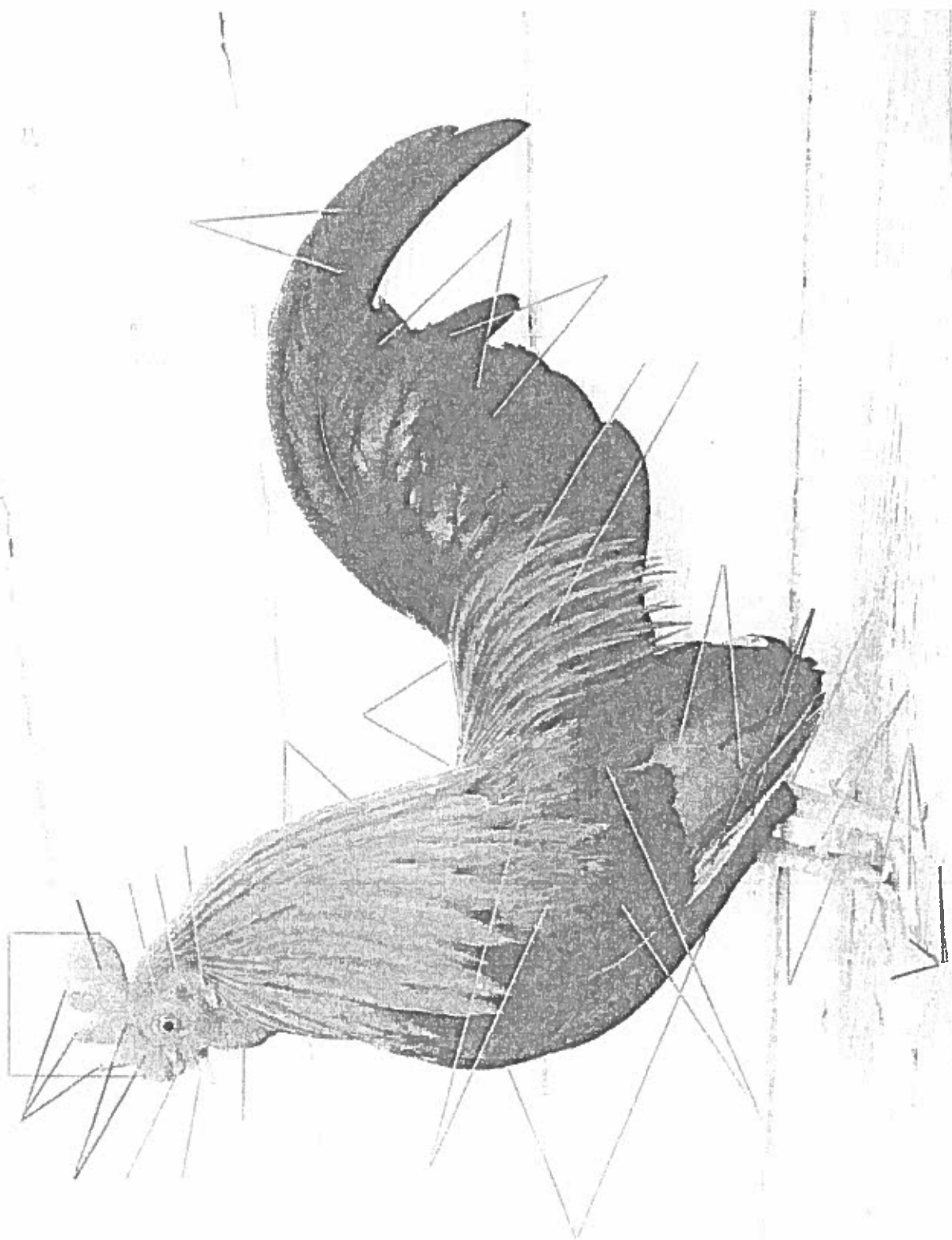
Wing Identification



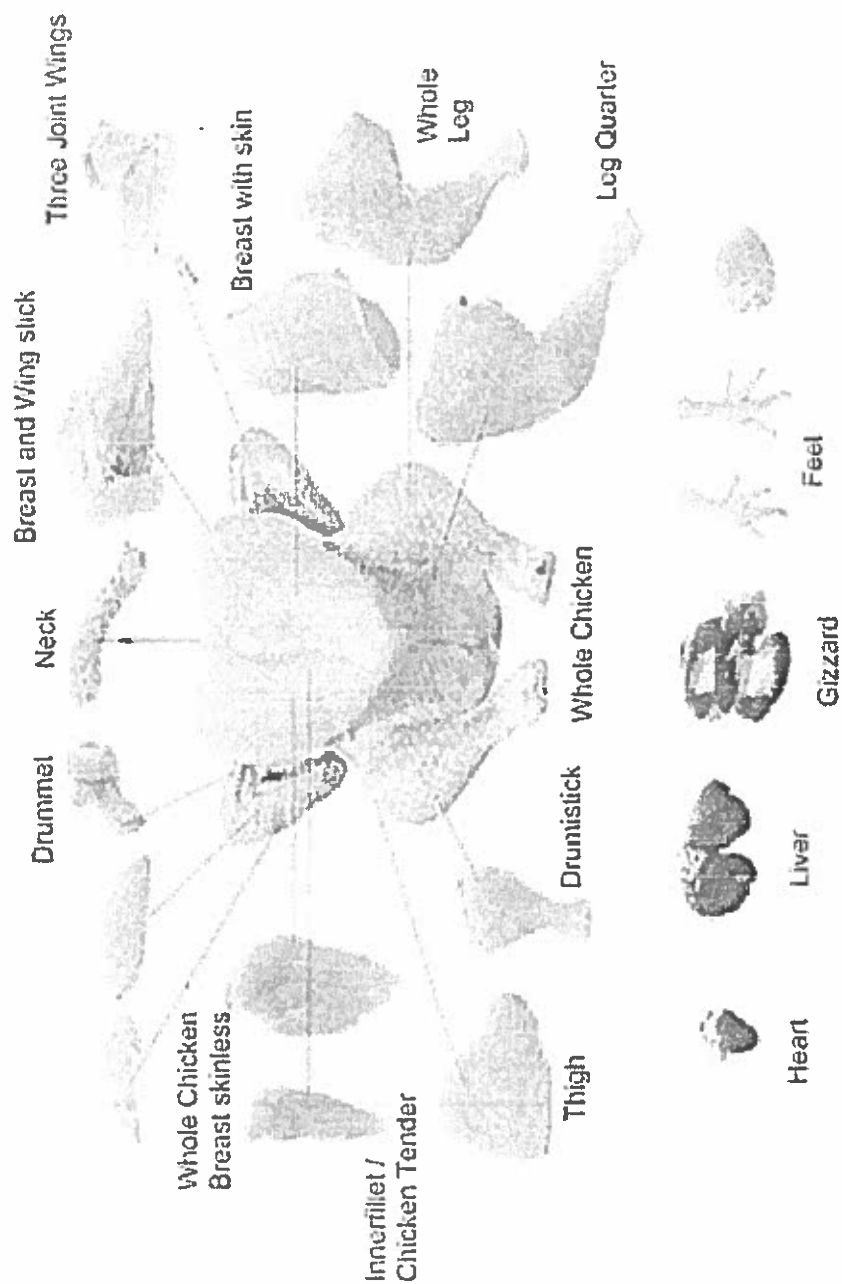


Part Identification





Chicken Meat Parts



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