2022-2023
Citrus County Fair
Poultry
Skill-a-thon Study Guide

Citrus County Poultry Skill-A-Thon

A "Skill-A-Thon" is an excellent method of involving FFA and 4-H members in challenging, learn-by-doing activities. This program of helping youth develop both their life skills and poultry project skills is designed as a series of mini-learning stations. Use this guide to prepare for the skill-a-thon at the county fair.

OBJECTIVES:
1. To provide a learning laboratory which will enhance knowledge of the poultry industry.
2. To help youth feel more comfortable communicating with an adult.
3. To gain self-confidence and skills in one-on-one communication.
4. To develop responsibility for completing a project.
5. To develop critical thinking and problem-solving skills.
6. To provide additional opportunities to recognize youth for their accomplishments.

To have FUN!

TOPICS:
The topics are specific for each of the Fair's age groups for skill-a-thons.
Age as of September 1st, 2021:

J: Junior (8-10 yrs)
I: Intermediate (11-13 yrs)
S: Senior (14 yrs and up)

1. Definitions and Parts of Poultry **(J, I, S)**
   - A. External Anatomy
   - B. Internal Anatomy
2. Poultry Combs **(J, I, S)**
   - A. Learn the Combs
   - B. Practice exercise
3. Poultry Wing and Feather Pattern **(J, I, S)**
4. Feathers **(J, I, S)**
5. Showmanship **(J, I, S)**
6. Preventative Healthcare **(J, I, S)**
7. Organizing Poultry (Large and Bantam) (**I and S**, **only**)
   - A. Large Fowl and Bantam
   - B. Poultry classes
8. Chicken Characteristics (**I and S, only**)
   - A. Large Breed
   - B. Bantam Breeds
9. Broiler Production in the US (**S, only**)

This Study Guide was updated by:
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DEFINITIONS TO KNOW:

Poultry - Domesticated fowl kept by humans for their eggs, their meat, or their feathers.

Male Poultry:

Cock - over 1 year old
Cockerel - less than 1 year old

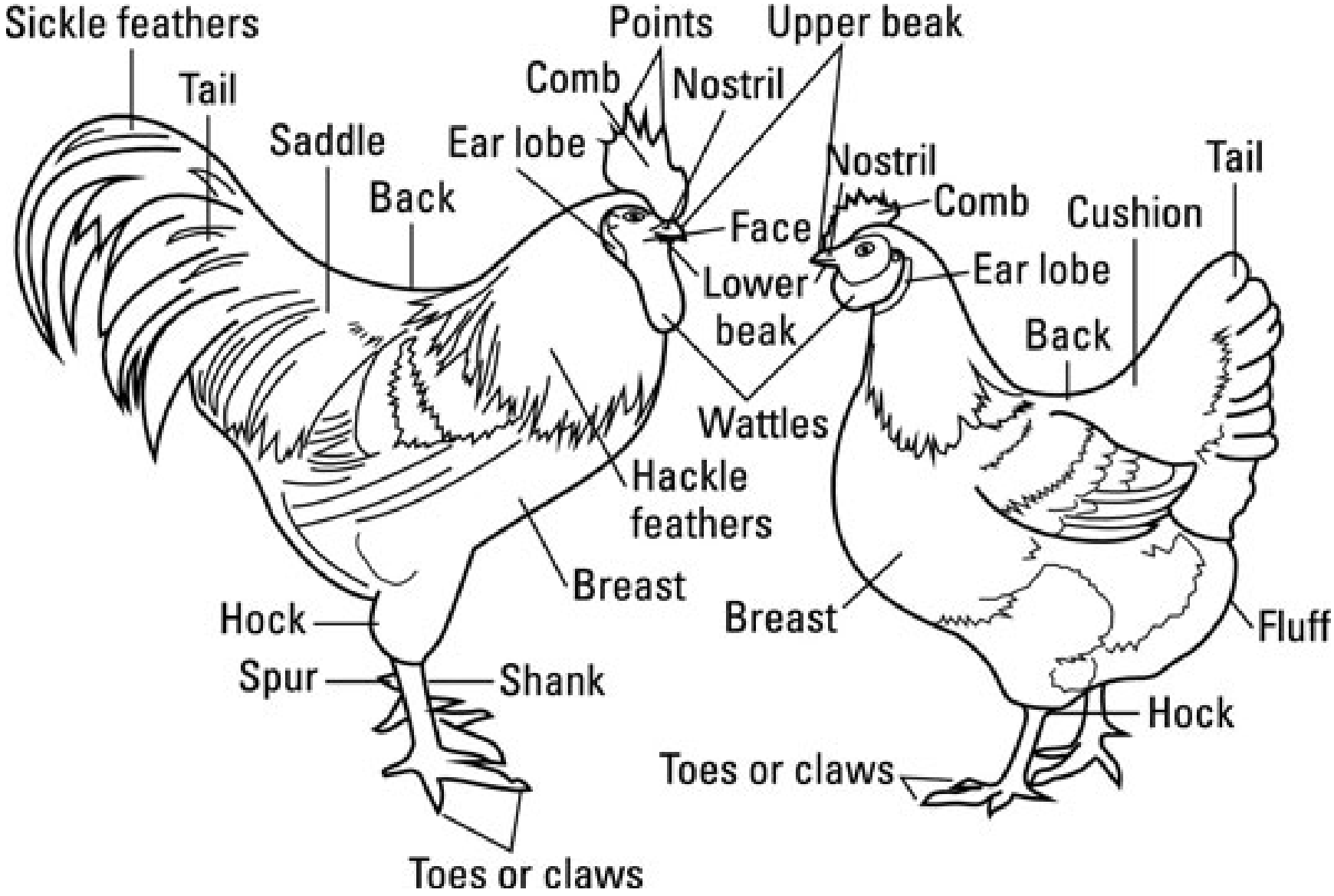
Female Poultry:

Hen - over 1 year old
Pullet - less than 1 year old

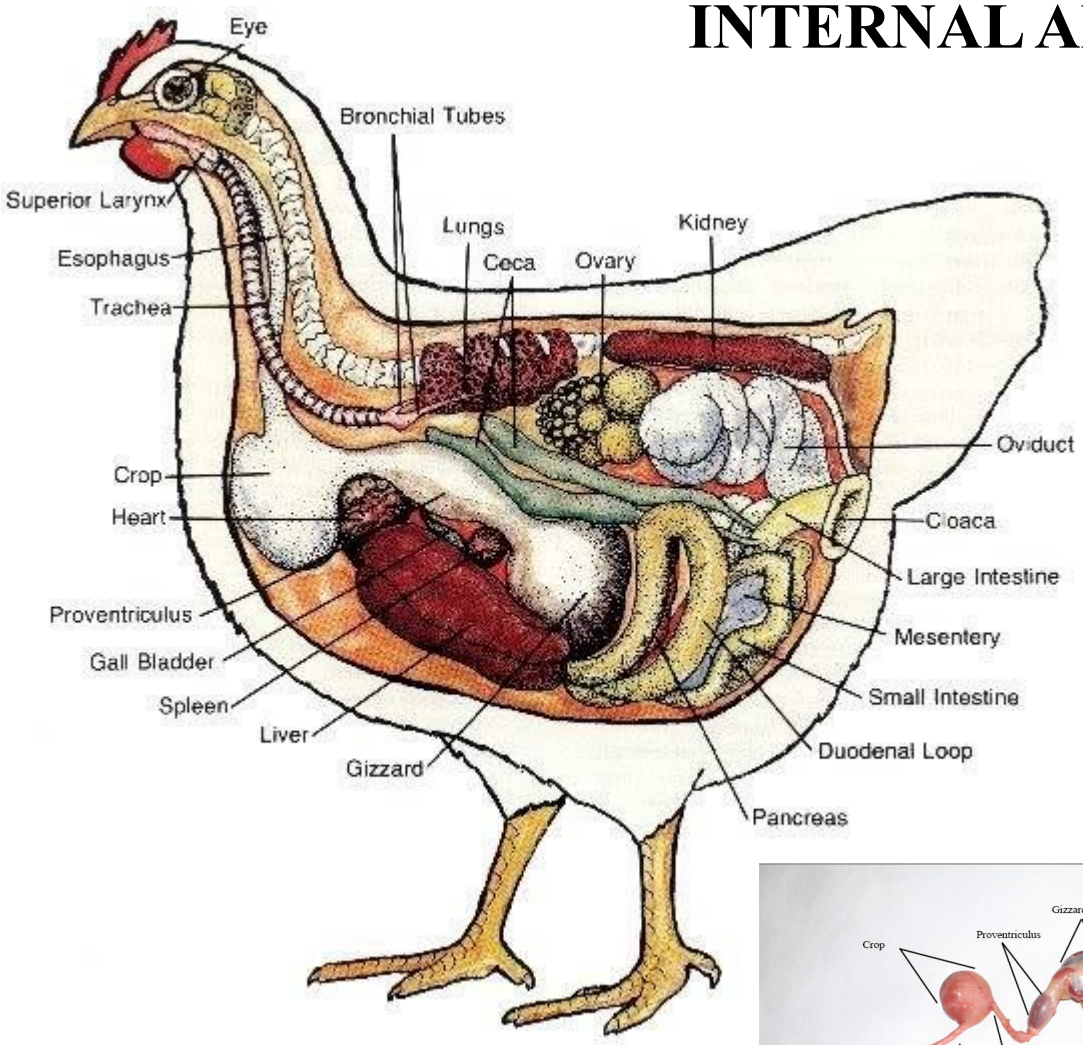
POULTRY BODY PARTS:

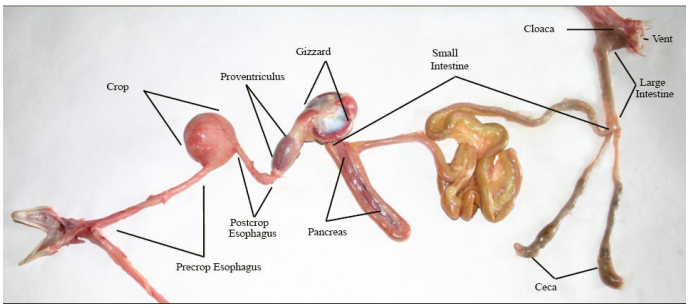
As a poultry exhibitor/producer, identifying and describing poultry is an essential skill. Begin by learning the External Anatomy of poultry. While many parts are the same, the male (cock or cockerel) and the female (hen or pullet) have some unique characteristics. Use the figure on the next page to identify the differences between male and female poultry.

POULTRY
EXTERNAL ANATOMY



POULTRY
INTERNAL ANATOMY





The digestive tract of a chicken with labelled organs.

Several internal organs are essential for poultry to digest food. They include:

Crop

Gall Bladder

Stomach—composed of Proventriculus and Gizzard

Proventriculus—portion where food stored

Gizzard—muscular portion that grinds food into smaller particles

Small Intestine—where digestion of food particles occurs and nutrients absorbed.

Large Intestine—stores undigested waste and absorbs water, before excretion.

POULTRY COMBS

Single

Pea

Strawberry

Cushion

Walnut

Buttercup

V-Shaped

Rose

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 fleshly 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 Amerauconas, Brahmas, Buckeyes, Cornish, Cubalayas and Sumatras.

Walnut A roundish, lumpy comb is wider than long with grooves that give it the appearance of a walnut half. Most are red, but on Silkie are dark-purplish.

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.

PRACTICE IDENTIFYING POULTRY COMBS

1.

2.

3.

4.

5.

6.

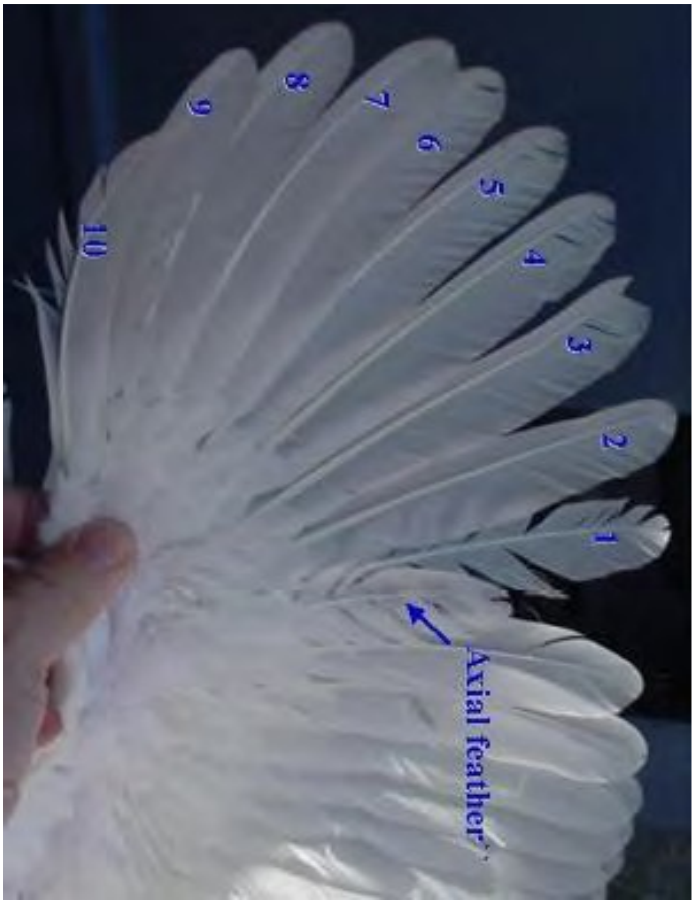
7.

8.

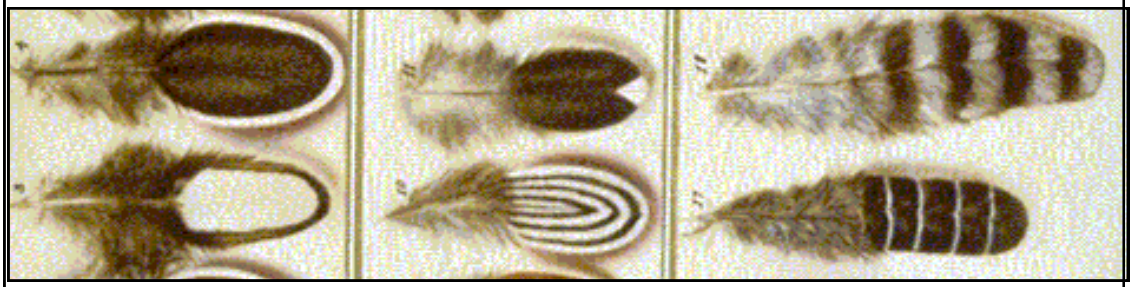
POULTRY WING

A chicken's wing has several flight feathers. As figure shows, the axial feather separates the primary feathers and secondary feathers. Primary feathers (numbered 1 through 10). The axial feather is the separation between primary and secondary feathers of an adult chicken. More difficult to identify in pullets and cockerels.

When a hen molts, she starts losing feathers from the axial feather out.



Different Types of Standard Feather Patterns -

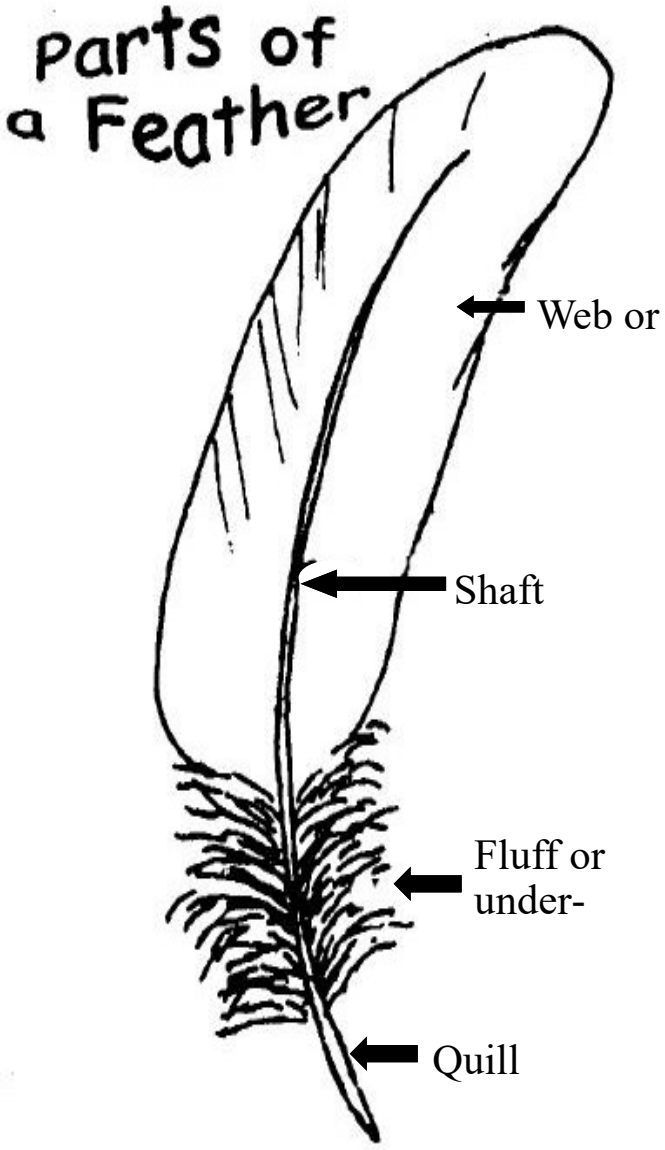


Laced | Spangled - top Penciled - bottom | Barring

FEATHERS

All birds have feathers. The role (job) of feathers is to:

- Provide insulation, so birds can maintain their body temperature in a variety of environments.
- Certain feathers are instrumental in allowing birds to fly.
- Provide individual plumage that can serve to camouflage a bird or attract a mate.



There are many types of poultry feathers:

FEATHER	DESCRIPTION
Beard	Feather projecting below beak
Crest	Feathers projecting upwards from the head
Ear tufts	Feathers projecting from the ear
Lesser sickles	Long curved feathers of the tail, below the sickles
Saddle feathers	Feathers covering the back or saddle before the tail coverts; in cocks they are long and pointed
Tail coverts	Short feathers covering the base of the main tail feathers in cocks, and most of the tail in hens
Secondaries	The long flight feathers of the inner part of the wing

POULTRY SHOWMANSHIP STEPS

Procedure	How it is done	Reason
1) Remove the bird from coop	Always remove 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 more easy to handle.
3) The judge will ask you to pose the bird on the show table.	Place the bird on the table and set up the bird's legs straight. You should take a step back and stand at attention.	Your bird should not move, walk or fly away. 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. When instructed start with the birds head.	Hold the bird alert and point at eyes, 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 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 steps for 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 the 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 free hand on back of bird and turn upside down. Look at the color on front and back of shanks and feet, counting each toe.	You are noting color, cleanliness, and for defects. Look at the feet of a hen for pigment loss.
9) Examine body	While still holding bird upside down, in the palm of 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 they are interested in.

PREVENTATIVE HEALTHCARE
HEALTHY ENVIRONMENTS

Animal caretakers are responsible for providing safe, secure, and healthy environments. This section will focus on providing healthy environments. In Florida, hot temperatures are commonplace. So, maintaining a healthy environment requires a knowledge of heat and heat management. If not managed, too much heat results in heat stress. This can lead to reduced feed intake and weight loss, poor breeding efficiency, changes in behavior, and in extreme cases death can occur.

HEAT AND HEAT STRESS

High temperatures are uncomfortable and can be stressful for livestock. Heat stress increases when combined with humidity, wind speed, and solar radiation (sunlight).

HEAT INDEX

To predict the likelihood of heat stress, ranchers, livestock producers and exhibitors can use a heat index. A Heat Index combines temperature, humidity, wind speed, and solar radiation to determine the stress on an animal for the specific environmental. The National Weather Service (NWS) maintains the Heat Index used by weather stations across the nation to forecast heat conditions (Table 1).

Table 1. The Heat Index is a measure of temperature and relative humidity. This table can be accessed on-line at https://www.weather.gov/safety/heat-index

NWS Heat Index

Relative Humidity (%) \ Temperature (°F)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

The Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) have created a heat tool (OSHA-NIOSH Heat Safety Tool) available on the App Store or Google Play. It can be used to monitor local heat conditions and predict the likelihood of heat disorders.

Download on the App Store | GET IT ON Google play

SIGNS OF HEAT STRESS IN LIVESTOCK

Livestock exhibitors know that it is in their best interest to keep livestock and poultry healthy and in good condition. Preventative healthcare seeks to identify potential issues before they become problems. Here are some of the symptoms indicating heat stress in livestock and poultry:

- Bunching in the shade
- Slobbering or excessive salvation
- Foam around the mouth
- Panting or open mouth breathing
- Lack of coordination
- Trembling

Temperature Range	
	°F
Poultry	105.0 - 107.0
Rabbit	101.0-103.0
Beef	100.5 - 103.0
Swine	101.5-102.5
Goat	101.5 -103.5
Sheep	101.5 -103.5

Poultry, along with humans, cattle, swine, poultry, rabbits, sheep, and goats, are HOMEOTHERMS meaning they can control body temperature within a range of temperatures. Poultry are exposed to many heat sources. Poultry do not sweat; however, they do have other ways of controlling temperature.

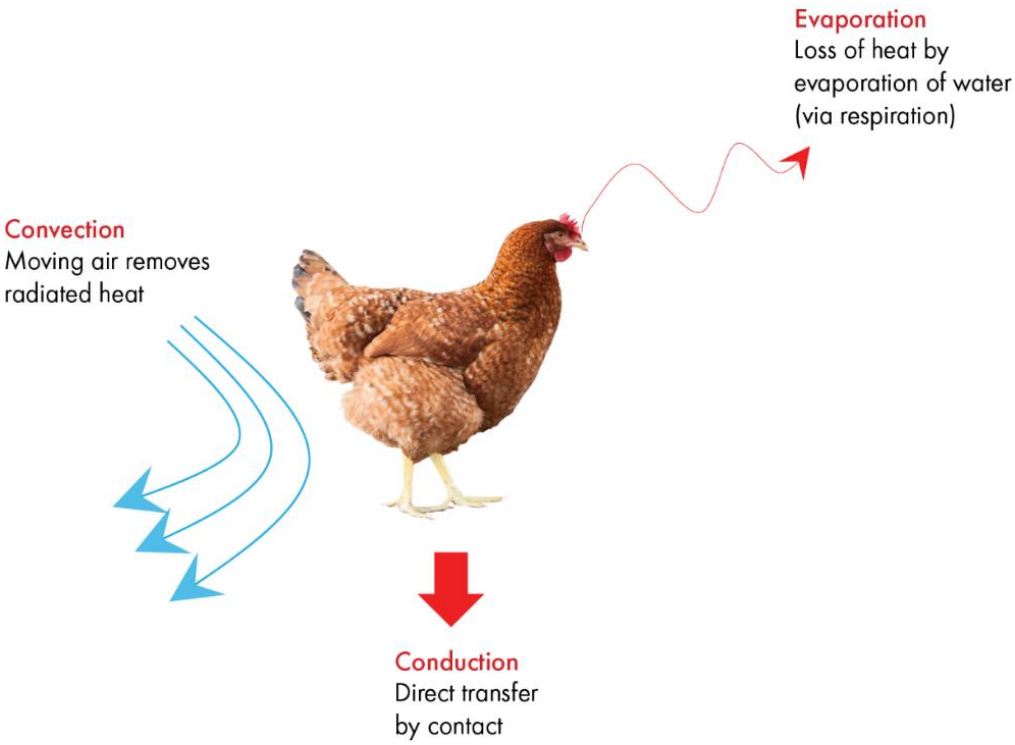


Figure 1. Poultry heat transfer occurs by 3 primary modes. Conduction – transfer of heat to the ground, Convection – heat dissipation with air movement, Evaporation – loss of moisture from respiratory tract. In poultry, convection also occurs as Vasodilation – blood swollen wattles and comb bring internal heat to the surface to be lost to cooler surrounding air.

Assume it is mid-August, the air temperature is 95°F, there is no wind, humidity is 95%:

1. Should you be making plans to reduce heat stress?
2. If so, what can you do to reduce heat stress?

ORGANIZING POULTRY

Poultry are divided into 2 groups, Large Fowl and Bantam. In addition to full size, or large chickens, poultry fanciers have developed a smaller counterpart of each large chicken called a Bantam. Bantams are normally one-fourth to one-fifth as large as their full-size counterparts. While all Large Fowl breeds have a bantam counterpart, not all Bantam breeds have a Large Fowl counterpart.

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."

For specific breed information visit:
https://amerpoultryassn.com

POULTRY BREEDS
(LARGE FOWL AND BANTAM)

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

CLASSES (5) for BANTAM BREEDS (61)

GAME BANTAM:
Modern, Old English

SCCL (Single Comb Clean Legged):
Anconas, Andalusians, Australorps, Catalanas, Campines, Delawares, Dorkings, Dutch, Frizzles, Hollands, Japanese, Javas, Jersey Giants, Lakenvelders, Lamonas, Leghorns, Minorcas, Naked Neck, New Hampshire, Orpington, Phoenix, Plymouth Rock, Rhode Island, Spanish, Sussex

RCCL (Rose Comb Clean Legged):
Anconas, Antwerp Belgians, Dorkings, Dominiques, Hamburgs, Leghorns, Minorcas, Red Caps, Rhode Island, Rosecombs, Sebrights, Wyandottes

AOCCL (All Other Comb Clean Legged):
Ameraucanas, Araucanas, Buckeyes, Chanteclers, Cornish, Crevecoeurs, Cubalayas, Houdans, LeFleche, Malays, Polish, Shamos, Sicilian Buttercups, Sumatras, Yokohamas

FEATHERLEGS:
Cochins, Frizzles, Brahmas, Faveroles, Langshans, Sillkies, Sultans,
Booted Bantams (when bearded called D'Uccle)

CLASSES (6) for STANDARD BREEDS (53)

AMERICAN: Plymouth Rock, Dominiques, Wyandottes, Javas, Rhode Islands, Buckeyes, Chanteclers, Jersey Giant, Lamonas, New Hampshires, Hollands, Delawares

ASIATIC: Brahma, Cochin, Langshan

ENGLISH: Dorking, RedCaps, Cornish, Orpingtons, Sussex, Australorps

MEDITERRANEAN: Leghorns, Minorcas, Spanish, Andalusians, Anconas, Sicilian Buttercups, Catalanas

CONTINENTAL: Hamburgs, Campines, Lakenvelders, Barnvelders, Welsummers,
Polish (Bearded & Non-Bearded), Houdans, Faverolles, Crevecoeurs, LaFleche

AOSB (All Other Standard Breeds): Modern, Old English, Malay, Sumatras, Aseels, Shamos, Yokohamas, Phoenix, Cubalayas, Sultans, Frizzles, Naked Neck, Araucanas, Ameraucanas

Classes (4) of DUCKS (14)
HEAVY: Pekin, Aylesbury, Rouen, Muscovy
MEDIUM: Cayuga, Crested, Swedish, Buff
LIGHT: Runner, Campbell, Magpie
BANTAM: Call, East Indie, Mallard

Classes (3) of GEESE (12)
HEAVY: Toulouse, Emden, African
MEDIUM: Sebastopol, Pilgrim, American Buff, Saddleback Pomeranian
LIGHT: Chinese, Tufted Roman, Canadian, Egyptian

One Class for all TURKEYS (8)
Royal Palm, Bronze, Narragansett, White Holland, Black (Spanish Black), Slate,
Bourbon Red, Beltsville Small White

One Class for all GUINEA (1)
Pearl, White, Lavender Varieties

Chicken Breed Characteristics (Int. and Sr. only)

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 a good all-around 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 a 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 lbs) and are fair layers (brown eggs).

Sicilian Buttercup - *Mediterranean* - Large Fowl: Breed originated in Sicily. Comb and wattles are bright red with white ear lobes. 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 small eggs and are ornamental fowl (7 to 9 lbs) and large white eggs.

Chicken Breed Characteristics Continued (Int. and Sr. only)

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 - Single 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 layers 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.

Chicken Breed Characteristics Continued (Int. and Sr. only)

New Hampshire - *Single Comb Clean 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 free of folds. Plumage is chestnut red with a reddish bay head, golden bay neck, 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 - *Feather 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 32 to 36 ounces.)

Sebright - Silver - *Rose Comb Clean Legged* - Bantam: This breed originated in England. Comb and earlobes are purplish red, and wattles 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. (22 to 26 ounces.)

Booted - Bearded Mille Fleur - *Feather 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 a 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 a white spangle at the end. Beard and muff are thick and full, with a mane-like appearance. (weight 22-26 ounces.)

BROILER PRODUCTION IN THE US

The United States is the second largest producer of broilers, after Brazil. In 2020, over 9 billion broilers were produced for a value of $21.7 billion and a weight over 60 billion pounds. Following processing, 45 billion pounds of ready-to-cook (tenders, nuggets, and whole birds) were marketed to consumers. This continues the upward trend in production. In 1970, the poultry industry produced roughly 10 billion broiler pounds, 2020 production exceeded 60 billion pounds.

Several factors have contributed to this:

1. Poultry genetics - new broiler breeds have been added to the market.
   Example - for the Pen of Meat poultry project in Citrus County a hybrid of the Cornish and the Plymouth White chicken are provided.
   * This genetic crosses maximize the best characteristics of both breeds—the weight and meatiness of the Cornish and the white flesh and fast growth of the Plymouth.
2. Feed efficiency (FE) - these breeds are more efficient in the conversion of feed to body weight. To calculate:
   FE = Total Feed Fed (lbs.)/Daily Gain of bird (lbs.)
3. Improved housing and healthcare - preventative healthcare including immunizations for common diseases (Marek's Disease and Coccidiosis).