

National FFA 2023 – Poultry CDE – Team Activity
KEY

Indianapolis Poultry Unlimited runs two complexes of chickens. At each of these complexes, they will slaughter 1,000,000 birds per week. These complexes have similar live production costs and overhead expenses. The primary difference in these complexes is the live weights at which the birds are processed, one complex has a target live weight at slaughter of 8.0 pounds, the other has a target live weight at slaughter of 4.5 pounds. Both of these complexes are deboning the breast fillet and tenderloin; however, they are only selling the leg quarter for export. The wings are sold to restaurants at market price.

Average carcass part yield in each of these complexes:

Product	8.0 lb % Live Weight	4.5 lb % Live Weight
Boneless Breast Fillet	21%	19%
Tenderloin	5%	5%
Wing	7%	8%
Leg Quarter	30%	35%
Thigh	11%	16%
Drumstick	10%	12%

Definition of Overhead Expense: Ongoing cost to operate a business, excludes the direct costs associated with creating a product or service.

Carcass part yield calculation as % of Live weight: $\text{Weight of Part} / \text{Live Weight} \times 100 = \text{Carcass part yield}$

Market Prices for Carcass Parts:

Product	Price 8.0 lb Live Weight	Price 4.5 lb Live Weight
Boneless Breast Fillet	\$1.15	\$1.45
Tenderloin	\$1.65	\$2.00
Wing	\$1.00	\$0.90
Leg Quarter	\$0.30	\$0.25
Thigh	\$1.00	\$1.25
Drumstick	\$0.90	\$1.00

Prices expressed as \$/lb

Use this scenario and the samples provided in the Team Activity portion of the contest as indicated in the following questions.

- 1.) From information provided in the scenario above, how many available pounds per week of boneless skinless breast fillet will be produced from the 8.0 lb live weight bird complex?
- a.) 1,530,000 lbs available breast meat
 - b.) 1,680,000 lbs available breast meat
 - c.) 1,850,000 lbs available breast meat

- d.) 1,940, 000 lbs available breast meat
- e.) None of the above

(8lb x 21% breast to live) x 1,000,000 head complex = 1,680,000 lbs available breast meat

2.) From information provided in the scenario above, what is the calculated weekly value of the 8.0 lb complex boneless skinless breast fillet?

- a.) \$1,020,500
- b.) \$1,586,000
- c.) \$1,762,000
- d.) **\$1,932,000**
- e.) None of the above

(8lb x 21% breast to live) x 1,000,000 head complex = 1,680,000 lbs available breast meat X \$1.15 provided market price = \$1,932,000

3.) From information provided in the scenario above, how many weekly available pounds of boneless skinless breast fillet are expected for the 4.5 lb live weight bird complex?

- a.) **855,000 lbs available breast meat**
- b.) 900,120 lbs available breast meat
- c.) 952,000 lbs available breast meat
- d.) 1,010, 200 lbs available breast meat
- e.) None of the above

(4.5 lb x 19% breast to live) x 1,000,000 head complex = 855,000 lbs available breast meat

4.) From information provided in the scenario above, what is the calculated weekly value of the boneless skinless breast fillet from the 4.5 lb live weight complex?

- a.) \$950,600
- b.) \$1,100,500
- c.) **\$1,239,750**
- d.) \$1,362,000
- e.) None of the above

(4.5 lb x 19% breast to live) x 1,000,000 head complex = 855,000 lbs available breast meat X \$1.45 provided market price = \$1,239,750

5.) Using the scenario and provided information above, what is the calculated total carcass value of the 8.0 lb bird?

- a.) \$4,953,600
- b.) \$3,985,200
- c.) \$3,900,560
- d.) **\$3,872,000**
- e.) None of the above

Breast: (8lb x 21% breast to live) x 1,000,000 head complex = 1,680,000 lbs available breast meat X \$1.15 provided market price = \$1,932,000

Tenderloin: $(8\text{lb} \times 5\% \text{ tender to live}) \times 1,000,000 \text{ head complex} = 400,000 \text{ lbs available tenderloin} \times \1.65
provided market price = \$660,000

Wing: $(8\text{lb} \times 7\% \text{ wing to live}) \times 1,000,000 \text{ head complex} = 560,000 \text{ lbs available wings} \times \1.00
provided market price = \$560,000

Leg Quarter: $(8\text{lb} \times 30\% \text{ leg quarters to live}) \times 1,000,000 \text{ head complex} = 2,400,000 \text{ lbs available leg}$
quarter $\times \$0.30$ provided market price = \$720,000

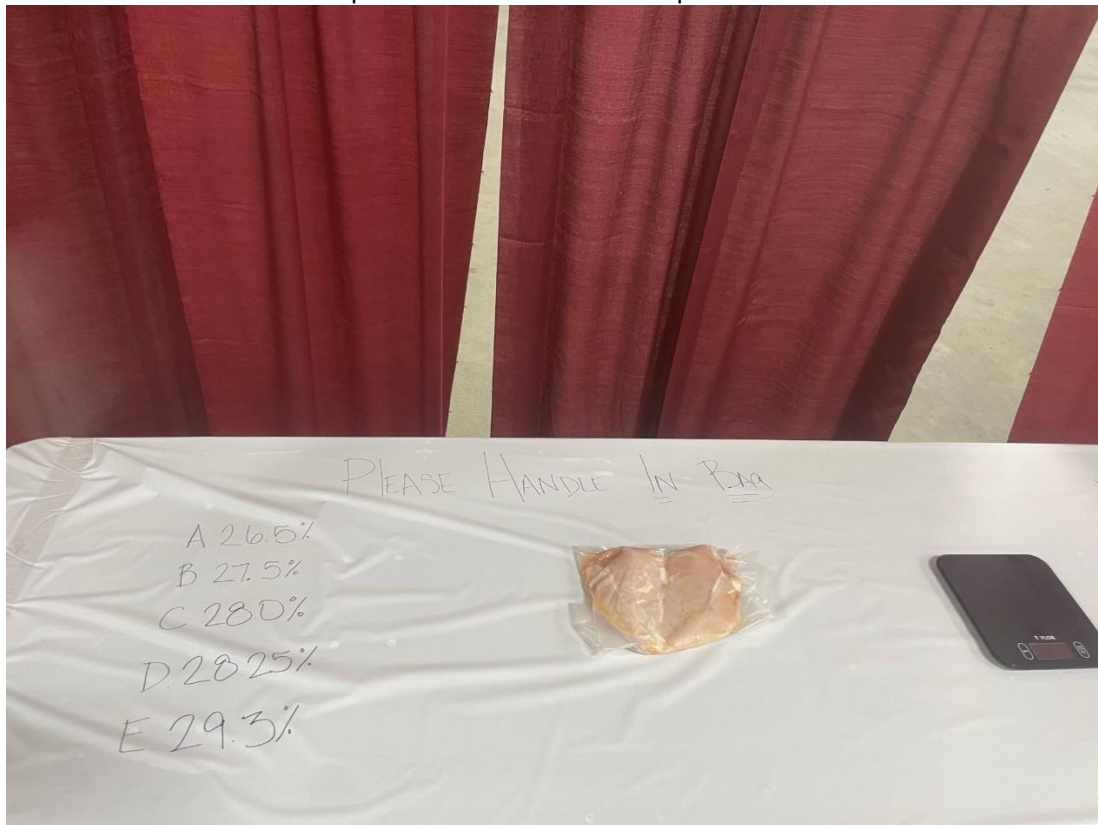
$\$1,932,000 + \$660,000 + \$560,000 + \$720,000 = \$3,872,000$

6.) Based on the scenario above. Which chicken has the highest total carcass value?

- a.) 8.0 lb bird
- b.) 4.5 lb bird

7.) Weigh and Calculate. What is the actual breast fillet to live yield if this was a 8.0 lb live weight?

Options available on the sample table



996 g breast, 2 lb 3 oz (2.19 lb) per breast/8 lb = 27.45% breast to live

- a. 26.5%
- b. 27.5%
- c. 28.0%
- d. 28.25%
- e. 29.3

8.) Weigh and Calculate. What is the average fillet weight in this sample?

946, 977, 1095, 1114, 1102 individual fillet weights

- a. 997 grams
- b. 956 gram
- c. 1189 grams
- d. 1057 grams
- e. 1047 grams average weight

Options available on the sample table



9.) Weigh and Calculate. Uniformity is critical in the broiler industry. Which of the samples of boneless skinless breast fillet are more uniform?

- a.) Sample A is more uniform
- b.) Sample B is more uniform



10.) Review samples. Based on USDA grading criteria, what percentage of these drumsticks would be grade A?

10 total drumsticks to grade

2 of these are A grade (3 B grade, 3 C grade, 2 NG)

WRITE ON TABLE

- a. 20%
- b. 30%
- c. 40%
- d. 50%
- e. 60%

Options available on the sample table



11.) Review samples. Based on USDA grading criteria, what is the total value of this sample of drumsticks?

Assume drumstick weight on table (unless we get another scale – 228.5 g per drumstick, 8.063 oz, 0.5039 lb

4 C grade x 0.5039 lbs = 2.0156 lbs x 0.40\$/lb = \$0.806 value

4 b grade x 0.5039 lbs = 2.0156 lbs x 0.50 \$/lb = \$1.0078 value

2 NG drum x 0.5039 = 1.0078 x 0.20 \$/lb = \$0.20156 values

Total value on table = \$ 2.01536 total table value

a. \$1.96

b. \$1.97

c. **\$2.02**

d. \$2.05

e. \$2.06

Market Prices for Graded Drumsticks:

Product	Price 8.0 lb Live Weight
A Grade	\$1.00
B Grade	\$0.50
C Grade	\$0.40
No Grade	\$0.20

Prices expressed as \$/lb

Options available on the sample table



12.) For an “all white meat” product which muscles of the chicken can be utilized?

- a.) Pectoralis major
- b.) Gastrocnemius
- c.) Pectoralis minor
- d.) Iliotibialis
- e.) Both a and c

13.) Define USDA.

- a.) United States Department of Animal production
- b.) United States Inspection Service
- c.) Food Safety Inspection Service
- d.) United States Division of Agriculture
- e.) United States Department of Agriculture

14.) The USDA considers chicken products fully cooked at what minimum internal temperature?

- a.) 145°F
- b.) 150°F
- c.) 155°F
- d.) 160°F
- e.) 165°F

Indianapolis Poultry Unlimited is considering buying processing equipment to begin deboning their thighs. There are pros and cons to this project. Their average bone in-skin on thigh weight is 7.16 ounces. They are estimating an approximately 65% boneless-skinless thigh fillet yield if they complete this project.

Boneless-skinless Thigh Yield Calculation: Boneless-skinless Thigh Weight / Bone in-skin on Thigh Weight X 100 = Boneless-skinless thigh yield

Market Prices for Carcass Parts:

Product	Price 8.0 lb Live Weight
Leg Quarter	\$0.30
Thigh	\$1.00
Boneless-skinless Thigh	\$1.30
Drumstick	\$0.25

Prices expressed as \$/lb

15.) Calculate the pounds of boneless-skinless thigh meat available from the 8 lb bird complex (Remember scenario provided above).

- a.) 480,623 lbs available BS thigh
- b.) **581,750 lbs available BS thigh**
- c.) 625,856 lbs available BS thigh
- d.) Not enough information provided
- e.) None of the above

7.16 ounce per thigh x 2 thighs per bird = 14.32 ounces available bone in thigh.

14.32 ounces / 16 ounces per lb = 0.895 lbs bone in thigh available

0.895 lbs thighs available x 1,000,000 head complex = 895,000 available lbs thighs

895,000 available lbs thighs X 0.65% debone yield = 581,750 lbs available BS thigh

16.) Calculate the value of boneless skinless thigh meat from the 8.0 lb live weight bird.

- a.) **\$756,275**
- b.) \$652,566
- c.) \$620,560
- d.) \$500,530
- e.) Not enough information provided

895,000 available lbs thighs X 0.65% debone yield = 581,750 lbs available BS thigh x \$1.30 provided market price = \$756,275

17.) Assuming the total value of the drumsticks alone at this complex are \$200,000. Considering market values alone, would it be a more profitable choice for this company to begin making boneless skinless thighs?

- a.) **Yes, considering sales price alone, the company will be more profitable deboning thigh fillets**
- b.) No, considering sales price alone, the company should only sale leg quarters

\$756,275 thigh value + \$200,000 drum value = \$956,275 total drum and BS thigh value

Leg Quarter: (8lb x 30% tender to live) x 1,000,000 head complex = 2,400,000 lbs available leg quarter X

\$0.30 provided market price = \$720,000

18.) In the commercial poultry industry lighter weight chickens are used for _____ and _____ operations.

- a.) Further processed and breaded products
- b.) Fast Food and breaded products
- c.) Fast food and whole bird
- d.) Retail and deli
- e.) Casual dining restaurants and retail

19.) True or False – Hormones are never used in commercial poultry production.

- a.) True
- b.) False

20.) Grading of poultry products help define the product to the consumer. Grading is conducted at point of cut up or packaging by _____.

- a.) Independent contractors
- b.) USDA Animal Management Service
- c.) USDA Agriculture Marketing Service
- d.) USDA Food Safety Inspection Service
- e.) None of the above