



ANIMAL WELFARE ASSESSMENT CONTEST 2019

Meat Bird Scenario

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NOTES

- 1. THESE ARE FICTITIOUS FACILITIES.** They have been created using pictures and information collected from multiple sites, as well as realistic, yet fabricated information. *Neither facility actually exists as presented here.*
- 2. Please use the images provided throughout the presentation as well as text when making your assessment.**

Context

System M

- Located in a humid subtropical region
 - Warm season = 6 months
 - Avg. temperature = 74F (23C)
 - Avg. humidity = 72%
 - Cool season = 2.5 months
 - Avg. temperature = 65F (18C)
 - Avg. winter humidity = 70%
- End of production targets
 - Average weight at slaughter = 6.10 lb (2.77 kg)
 - Average age at slaughter = 42 days

System B

- Located in a humid subtropical region
 - Warm season = 4 months
 - Avg. temperature = 85F (29C)
 - Avg. humidity = 81%
 - Cool season = 3 months
 - Avg. temperature = 46F (8C)
 - Avg. winter humidity = 73%
- End of production targets
 - Average weight at slaughter = 5.14 lb (2.33 kg)
 - Average age at slaughter = 70 days

Operation Overview

System M

- Owned and operated by husband and wife that live on farm
 - Daughter in college helps 4h/day
- Have direct contract with regional grocery chain (GC)
- Local poultry veterinarian visits 2x/flock and as needed to check on birds

System B

- Farm is owned by an global, integrated poultry company (IPC)
 - Operated by one employee that lives near site
- IPC sends a technician every 2 weeks to check equipment and birds
- IPC sends their veterinarian 1x/flock or as needed to check on birds

Facility Overview

System M

- Facility is 12 years old
- 4 barns total
 - Each is 44 ft x 328 ft (13 m x 100 m)
 - 14,000 birds per barn



System B

- Facility is 3 years old
- 2 barns total
 - Each is 44 ft x 600 ft (13 m x 183 m)
 - 41,000 birds per barn



Both systems have similar biosecurity and pest control practices.

System M



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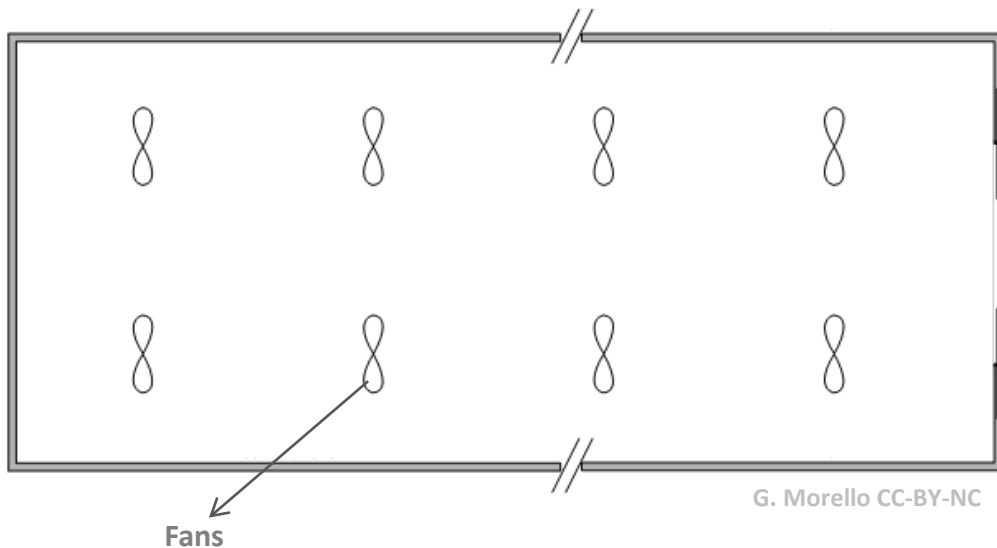
System B



Ventilation

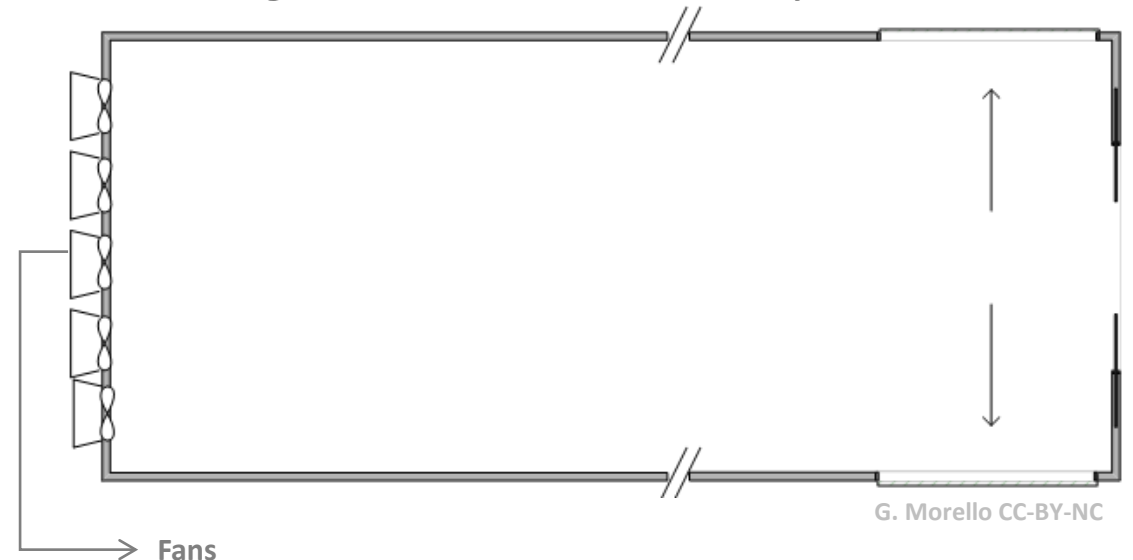
System M

- Barns equipped with mixing fans
- Side curtains are mostly kept open
- Average ventilation rate* = 3.5 m/s
- Average ammonia level* = 7 ppm
 - Maximum ammonia <15 ppm
- Average relative humidity* = 54%



System B

- Barns equipped with exhaust fans
- Side curtains are mostly kept closed
- Average ventilation rate* = 4 m/s
- Average ammonia level* = 16 ppm
 - Maximum ammonia = 37 ppm
- Average relative humidity* = 76%



*Levels at bird height

Lighting

System M

- Compact fluorescent bulbs (>180 Hz)
- First week = 23L, 40 lux
- 8-39 days of age = 18L, 20 lux
- 3 days before transport = 23L, 10 lux
- Producers clean bulbs between flocks
- Natural light enters when side curtains are open



Bulb at start of flock cycle in System M

System B

- LED lighting (5000 K)
- Day 1 = 24L, 40 lux
- Day 2 = 23L, 20 lux
- Days 3-65 = 18L, 5 lux
- Starting 5 days before transport, increase L by 1 h/day
 - 1 day before transport = 23L, 5 lux
- Employee does not clean bulbs between flocks

Bulb at start of flock cycle in System B



L = hours of light; D = hours of dark

Litter

System M

- Wood shavings
- Litter is completely changed 2x/year
- Top-dressing of bedding is applied between flocks
- Daily removal of clumps of wet, compacted litter
- Drinkers and water lines checked daily and repaired when a leak is detected

System B

- Predominantly straw
- Litter completely changed 1x/year
- No litter added between flocks
- Weekly removal of clumps of wet, compacted litter
- Drinkers and water lines checked weekly and repaired between flocks



	System M	System B
Litter depth, day 1	5 cm	7.5 cm
Litter moisture, day 1	9%	13%
Litter moisture, wk 6	18%	46%
Litter caking, wk 6	12%	35%



Observations of Flock

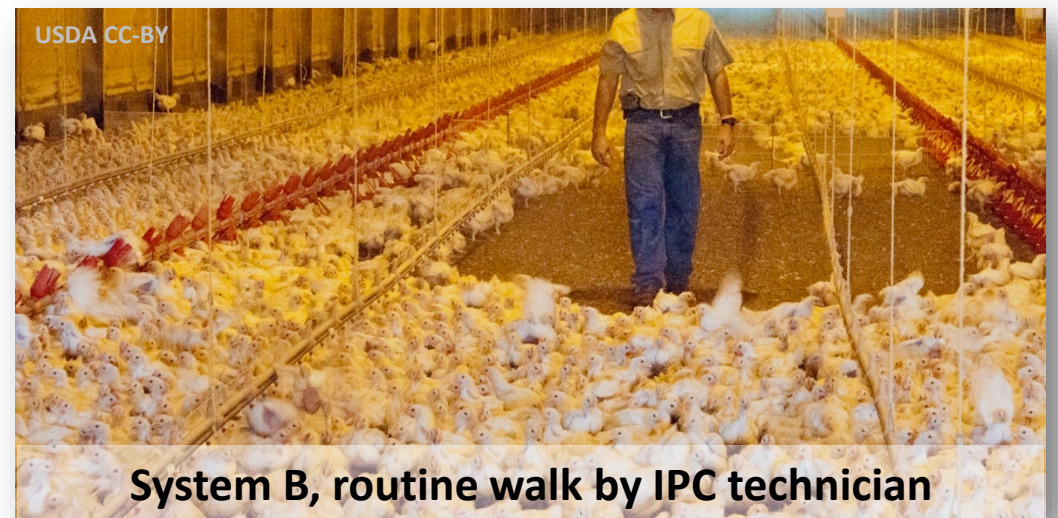
System M

- Producers walk barns 2x/day to collect dead birds, check for problems
 - Use a transect approach to conduct walks
 - Record information on phone app
- Producers also walk barns several times a day at other times
 - Random pattern through house, variable speed, often stop to check equipment



System B

- Employee walks barns 1x/day to collect dead birds
 - Walks through center of house
- Employee avoids going in the barns at other times
- IPC technician walks house during visits every 2 weeks to check for problems



Culling & On-Farm Euthanasia

- Producers look for compromised birds each time they are in the barn
- Cervical dislocation is used promptly once a compromised bird is identified
- Birds are examined afterwards to ensure euthanasia was successful
 - Nictitating reflex is checked
 - Birds are observed for lack of respiration
- Total on farm cull rate = 1.06%
 - Most culls are due to leg/lameness problems or birds that cannot right themselves
- Compromised birds are collected and euthanized all at once
- CO₂ (~50%) is used to euthanize groups of birds in a pre-charged chamber
- The birds are left in the chamber after being euthanized
 - Emptied 2x/week when other trash is removed from the building
- Total on farm cull rate = 0.3%
 - Most culls are performed on birds that appear diseased or are emaciated

Bird Mortality and Morbidity

At 6 Weeks of Age

	System M	System B
% Total farm mortality (including culls) (% ascites, % sudden death syndrome)	3.26% (1.4%, 0.8%)	4.71% (0.2%, 0.1%)
% Flock with lameness	6.4%	0.76%
Average plumage condition 0 = clean, 2 = very dirty	0.61	1.27
Average hock burn score 0 = normal, 2 = >10% discoloration/lesions	0.21	0.25
Average foot pad scores 0 = no lesions, 2 = > 5mm lesion	0.14	0.84
% Birds with tibial dyschondroplasia	4.3%	0.32%
% Birds huddling	0.1%	0.05%
% Birds panting	1.2%	6.3%
Response to human during walks	< 1 m, walk away	2 m, walk/run away

Bird Behavior

As % of time during lights on

	System M		System B	
	2 wk	5 wk	2 wk	5 wk
Lying/resting/sitting	53%	72%	43%	50%
Standing idle	8%	4%	12%	22%
Walking	8%	3%	17%	9%
Foraging (i.e., pecking & scratching litter)	8%	6%	8%	3%
Eating	12%	6%	7%	8%
Drinking	3%	3%	4%	6%
Preening	4%	4%	5%	2%
Dust bathing	2%	2%	1%	<1%
Play	2%	0%	3%	<1%

Pre-Transport

System M

- Prior to transport, producers schedule pick up time with drivers and with daughter and 4-5 locals to work as catchers
- Feed withdrawal occurs 10 h prior to scheduled catch time
- Water lines are lifted 1-2 h prior to catching
- Side curtains are kept open
- Birds are caught with lights turned off at various times of the day
- Catching takes 5-6 hours

System B

- Prior to transport, IPC tech calculates time, crates, and personnel needed; coordinates logistics; and prepares house
- Feed withdrawal occurs 8 h prior to scheduled catch time
- Water lines are lifted immediately before catching
- Fans are turned on and temperature is monitored
- Partitions are use to divide barn into smaller sections
- Birds are caught in low light (<5 lux) at end of dark period
- Catching takes 4-5 hours

Catching

System M

- Birds are caught by hand and carried upside down by legs
 - No more than 3 birds per hand
 - Often held by one leg
- Birds are placed into plastic crates
 - 8-10 birds per crate
 - In 10% of crates, birds are seen sitting on other birds
 - 2% of crates have signs of damage

System B

- Birds are caught by hand and carried right side up by body
 - Two birds at a time
 - Wings are held against body
- Birds are placed into module drawers
 - 30 birds per module
 - In <1% of modules, birds are seen sitting on other birds
 - < 1% of modules have signs of damage

Catching



Transport

System M

- Crates are transported by trucks owned by independent drivers
 - Tarp can be lashed over top if needed during extreme weather
- Transported 196 miles (315 km)
 - Trip usually takes ~4 hours
 - After leaving farm, truck travels a mix of country roads and highways
- Independent driver, paid by the load
 - Also transports animals for other area farms as well as feed

System B

- Modules are transported by trucks from IPC fleet
 - Solid covering extends over modules
 - Side curtains can be extended or folded to protect birds or allow airflow
- Transported 25 miles (40 km)
 - Trip usually takes ~40 minutes
 - After leaving farm, truck travels on a smaller highway to the plant
- IPC driver, paid a salary
 - Is penalized for loads that do not meet welfare and mortality targets

Bird Morbidity and Mortality

After Handling & Transport

	System M	System B
% Total Dead on Arrival	0.35%	0.11%
% Birds with wing fractures	1.8%	0.1%
% Birds with wing bruising/dislocation	9.9%	5.8%
% Birds with splayed legs	0.2%	0.1%
% Birds with heads/toes/wings stuck in crates/modules	0.26%	0.03%
% Crowded crates/modules	5%	0.2%
% Birds huddling	<0.1%	0.1%
% Birds panting	2.3%	0.6%

Slaughter Plant

System M

- Independent plant
 - Kills 100,000 broilers per day
 - Slaughters birds from various sources for various customers
- Plant manager has MS in microbiology and 10 years industry experience
- Plant has written animal welfare program
 - Catching crew and live hang employees are trained in humane handling when hired

System B

- IPC slaughter plant
 - Kills 250,000 broilers per day
 - Only slaughters birds coming from sources within the IPC
- Plant manager has BS in food science, 20+ years industry experience and auditing certification
- Plant has written animal welfare program with annual 3rd party audits
 - Catching crew, drivers, live hang employees, and quality assurance technicians are trained in animal welfare and humane handling annually

Holding

System M

- Trailers are parked in covered shed equipped with fans
 - Fans turned on at 70F (21C)
 - Shed is often full full, additional trailers are parked in covered shed without fans
- Birds are held for 2-18 hours prior to slaughter
- ~0.1% of birds are found lying on their backs

System B

- Trailers are parked in covered shed equipped with fans and misters
 - Fans turned on at 75F (24C)
 - Misters turned on at 80F (27C)
- Birds are held for 2-4 hours prior to slaughter
- Trucks are inspected by quality assurance personnel every 3 h

Unloading

System M

- Crates are unloaded one by one
 - Dropped onto a conveyer belt that carries them into plant
 - ~0.5% of crates pop open
 - ~7 loose birds are observed in the unloading area at any given time
- Birds are removed from crates manually and hung upside down in shackles in a darkened room

System B

- Modules are unloaded using a forklift
 - <1 loose bird is observed in the area at any given time
- Module drawers containing birds are placed on conveyer belt
 - Belt carriers drawers through a low atmosphere stunning tunnel
- Birds are hung from shackles after stunning

Stunning & Cutting

System M

- Birds enter an electric water bath stunner for 10 seconds (150mA/ bird with 200Hz AC)
- Necks of birds are cut manually
 - Both sides of the neck are cut, severing the jugular vein and both carotid arteries

System B

- A bi-phasic atmospheric gas stunning process is used
 1. Birds are exposed to 40% CO₂/30% N₂/30%O₂ gas for 1 minute
 2. Mixture is changed to 80% CO₂ in air for 2 minutes
- Birds enter an automatic neck cutter
 - One side of the neck is cut, severing the jugular vein and carotid artery
- 2 workers check birds and manually cut any missed or not cut properly

Bird Metrics

At Stun, Slaughter & Post-Mortem Inspection

	System M	System B
Shackled by 1 leg	0.02%	<0.001%
Birds not stunned when cut	2.5%	0.6%
Birds missed or not cut correctly on first try	1.7%	0.8%
Birds entering scalding alive	0.1%	0.001%
% Total carcass rejections	1.94%	0.76%
Due to ascites	0.75%	0.05%
Due to wounds	0.66%	0.13%
% Downgrades	7%	2%