Comparison of 1950s to the 2012 High Yielding Broiler

K.E. Collins, B.H. Kiepper, C.W. Ritz, B.L. McLendon, and J.L. Wilson
The University of Georgia
Poultry Science Department

The Athens Canadian Random Bred

- Ottawa Meat Control Strain
- Developed in 1955
- White Cornish, Wyandotte
- Single, pea, rose, walnut combs

Objective

Gain a new understanding of the history and changes in the birds you process

The Athens Canadian Random Bred

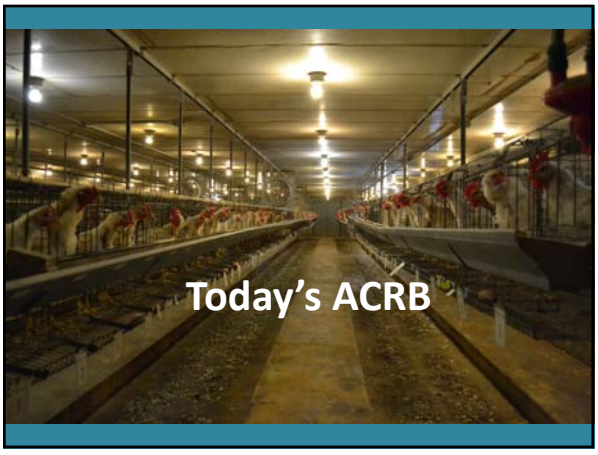
- Southern Regional Poultry Breeding Project started in 1947
- Athens-central testing station
- Southern Regional Poultry Genetics Laboratory in 1955
- Population arrived in Athens in 1958

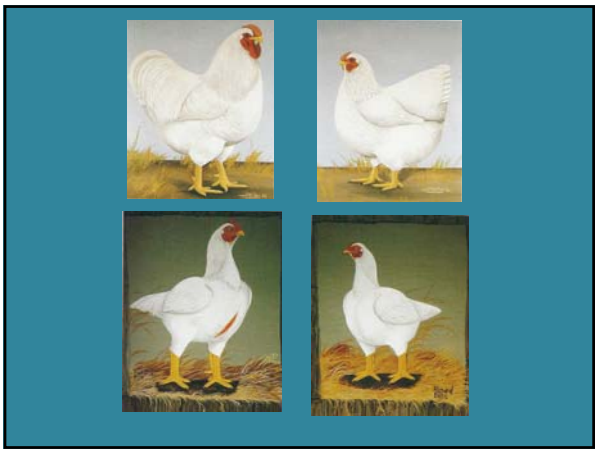
Changes since the 1950s

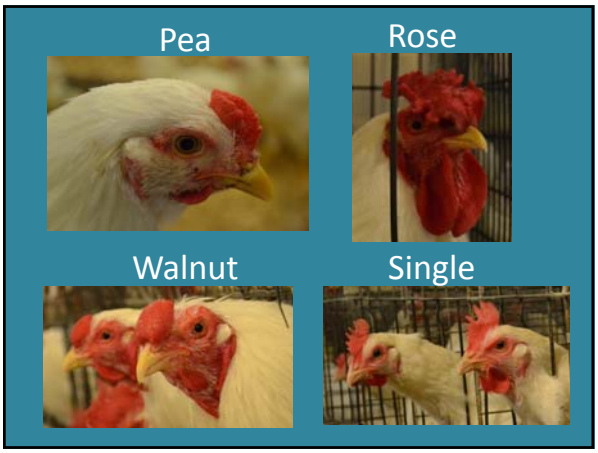
- Genetics: High yielding broiler
- ~6 weeks to market age
- 1950s: 12 weeks-double the time!

Unique Tool to see the 1950 meat-type chicken:

The Athens Canadian Random Bred (ACRB) Control Population







Methods

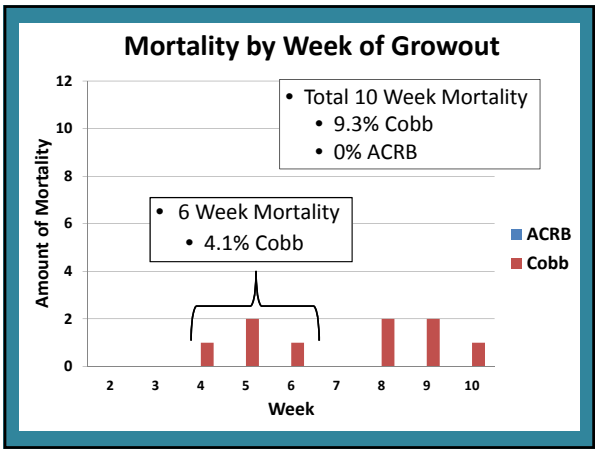
- Reared birds
- Processed birds at 6, 8, and 10 weeks
- Weighed everything!
  - Live birds, after bleedout, New York Dress
  - Parts
  - Organs (heart, liver, gizzard, lungs, all other viscera)


ACRB
Cobb 500


Very Different
Mentalities


1 Week
2 Weeks


4 Weeks
5 Weeks



Processing Details

- Bird electrically stunned (25V DC, 25V AC)
- Neck cut
- Bleed out for 120 seconds
- Carcass scalded at 60°C Hard Scald for 120 seconds
- Defeathered in picker
- Eviscerated by hand-parts weighed
- Static chiller for 3 hours
- Hung for 10 minutes before cutup

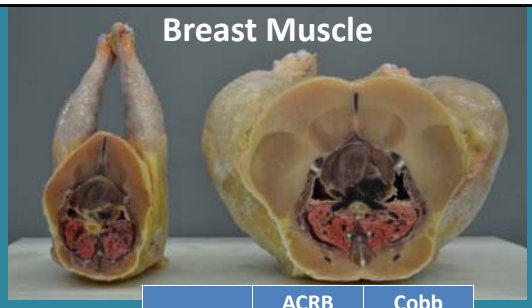
Cobb Always Outweighed ACRB

Cobb Live Wt/ACRB Live Wt		
Week	Males	Females
6	4.8 x's	4.7 x's
8	3.9 x's	4.2 x's
10	3.6 x's	3.8 x's

Take Percentage
(Part Weight/Live Fasted Weight)*100

Compared within each week/age

Breast Muscle



	ACRB	Cobb
P. Major	9.6%	20.7%
P. Minor	2.9%	4.3%

p values <.0001 at all ages

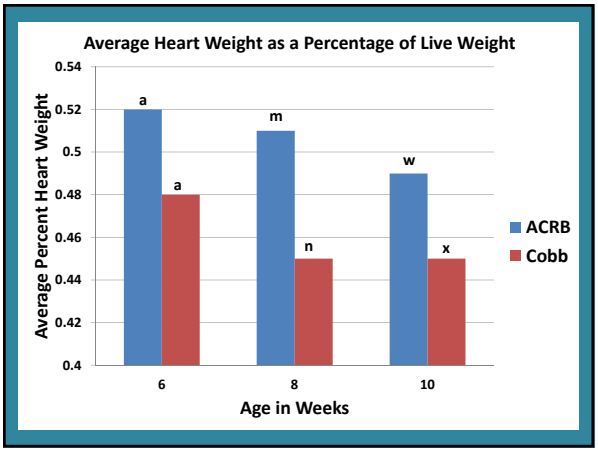
Consistent ACRB Advantages

% of Body Weight	ACRB	Cobb
Feet	4.3%	3.0%
Head	4.3%	2.1%
Preen Gland	0.2%	0.1%
Liver	1.7%	1.4%
Gizzard	4.3%	1.8%
Viscera	5.8%	4.0%
Wings	9.7%	7.8%
Feathers	8.0%	3.7%
Water Uptake	3.5%	2.4%

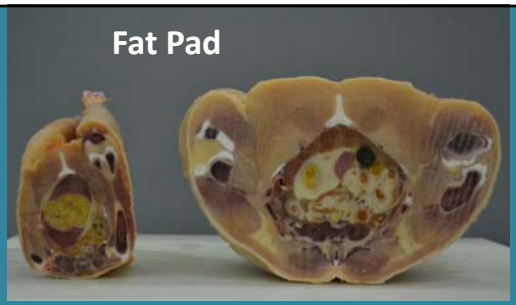
Cobb had larger leg muscles

	ACRB	Cobb
Thigh	12.0%	13.0%
Deboned Thigh	9.2%	11.4%

Thighs and deboned thighs consistently heavier at all ages



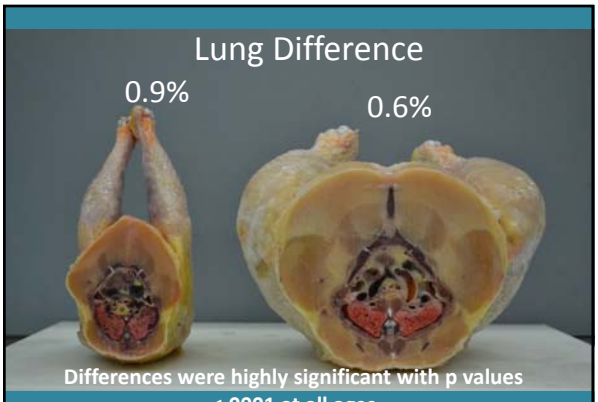
Fat Pad



ACRB	Cobb
0.7%	1.6%

p values <.0001 at all ages

Lung Difference



Differences were highly significant with p values <.0001 at all ages

Blood

No difference in blood until 10 weeks

ACRB	Cobb
1.6%	2.3%

p value 0.0498

Summary

- Modern High-yielding broilers weigh 3.6-4.8 times as much as broilers of 55+ years ago
- Modern broilers have much more muscle- especially breast meat
- Despite the increase in muscle, supply organs (heart and lungs) are actually smaller