

Soy vs. No Soy

Broiler Field Trial

3 Farms 3 Breeds Same Feeds

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Dickinson College Farm - K-22 Red Broilers

Jason & Heather Fritz - Bard Silver Cockerel

Rodale Institute - Cornish Cross

Feeds Used

Soy Based Feed

No Soy Feed



Feed Recipes

Broiler St-Gr Soy formula

<u>Ingredients:</u>	<u>LBS</u>
Alfalfa Hay	100
Aragonite	25.0
Corn Grain Shell	1015
Fish meal, 60% plus	75
Poultry NB	60
Soybeans, Roasted	625
Spelt	100
Total	2000

<u>Nutrient Name:</u>	<u>Amount</u>
Crude Protein	19.7%
Crude Fat	8.1%
Crude Fiber	4.5%
Energy	1,379Kcal/lb

No Soy Broiler w/crab, fish,

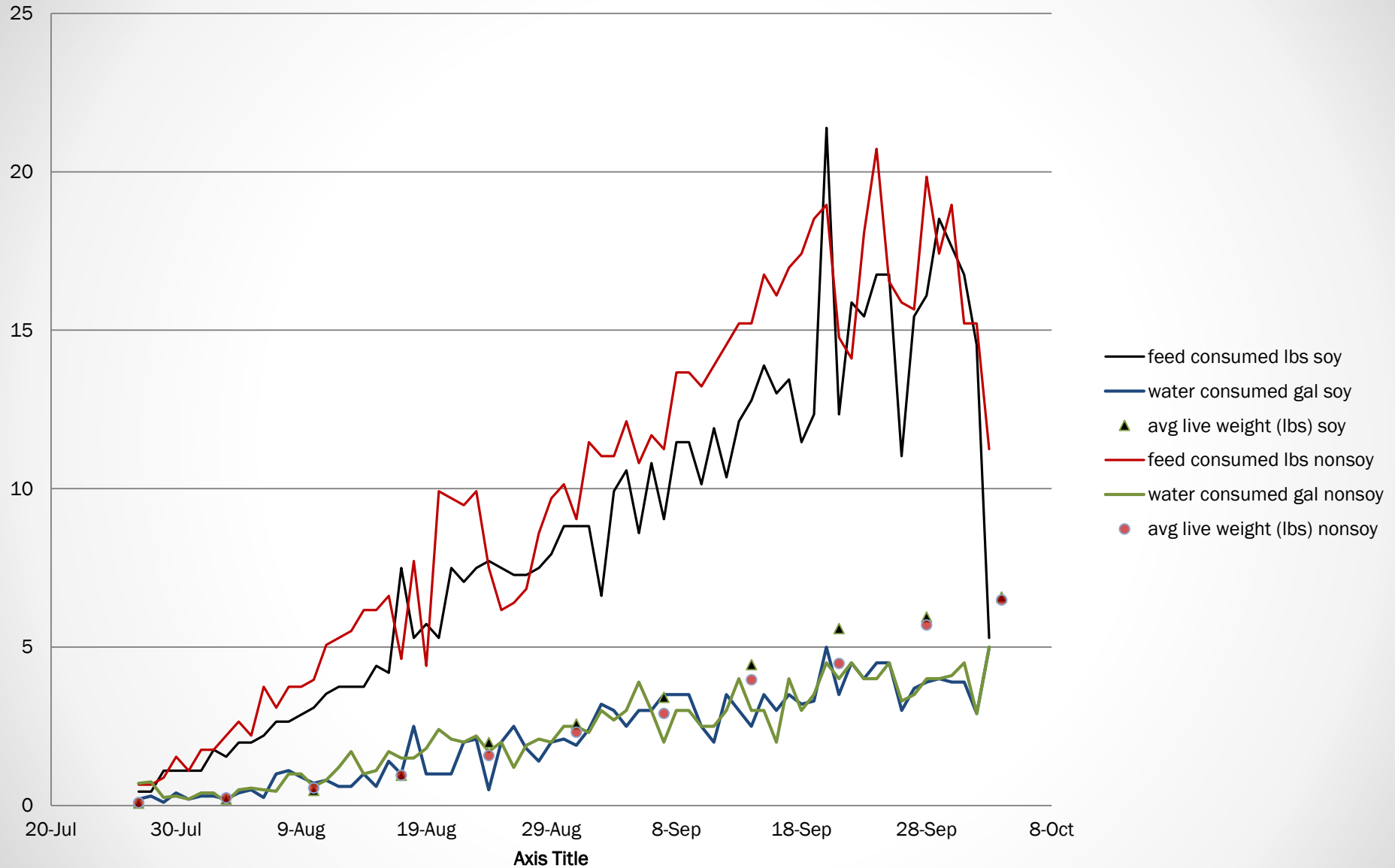
<u>flax Ingredients:</u>	<u>LBS</u>
Corn Grain Shell	465
Crab Meal	150
Fish Meal, 64%	125
Flax Seed	100
Peas	800
Poultry NB	60
Wheat	300
Total	2000

<u>Nutrient Name:</u>	<u>Amount</u>
Crude Protein	19.7%
Crude Fat	4.4%
Crude Fiber	4.6%
Energy	1,300Kcal/lb

Dickinson College Farm

- Received day-old K-22 Cockerel chicks (n=82, 1 dead upon delivery) 27 July 2012.
- Randomly split into two groups, soy (n=40) and nonsoy (n=41).
 - Two pens of equal ground area (approx. 64 ft²) but different overall design were chosen, one for each group.
- Both groups of chickens were housed entirely in pens until week of 9/17, when they were allowed access to an area enclosed with electronetting.
- Pens were closed nightly after this period, and opened around 8 AM each morning.
- Food was initially provided ad libitum from a hanging feeder; for a brief period from 9/9 to 9/14, occasionally one or both groups would consume all the food provided to them in less than 24 hours, until a second feeder was added to both pens 9/15.
- Water was provided ad libitum at all times through a 5- or 3-gallon waterer in each pen.

2012 SOY POULTRY TRIAL, DICKINSON COLLEGE FARM



Dickinson					
Soy Fed Group	Total	Units	Soy Free Group	Total	Units
Total feed Consumed	579.48	lbs	Total consumed	684.4	lbs
Birds in Group	37	Each	Birds in Group	35	each
Feed Consumed per bird	15.66	lbs	Feed Consumed per bird	19.55	lbs
Average Live Weight	6.577	lbs	Average Live Weight	6.491	lbs
Average Carcass Weight	4.76	lbs	Average Carcass Weight	4.457	lbs
FCR Live weight	2.38	lbs	FCR Live weight	3.013	lbs
FCR Carcass Weight	3.29	lbs	FCR Carcass Weight	4.387	lbs
Feed cost/Lb	0.406	lbs	Feed Cost/Lb	0.475	lbs
Total Feed Cost	\$ 6.36		Total Feed Cost	\$9.29	
Cost per Lb Carcass	\$ 1.34		Cost per Lb of Carcass	\$2.08	lbs

Dickinson Shelters



Flat Top Pen

Hoop Style Structure



Phytoestrogen Analysis

ug/100 g	wet weight			
Sample Name	Daidzein	Genistein	Glycitein + Biochanin	
DSF 1			24.3	
DSF 2			2.8	
DSF 3	2.3		2.7	
DSF 4	3.4		7.5	
DNS 1			2.9	
DNS 2				
DNS 3				
DNS 4				
ug/100 g	wet weight			
Sample Name	Formononetin	Coumestrol	Apigenin	Total Isoflavones:
DSF 1				24.3
DSF 2	1.5			2.8
DSF 3				4.9
DSF 4	2.1			10.9
DNS 1				2.9
DNS 2				
DNS 3				
DNS 4				

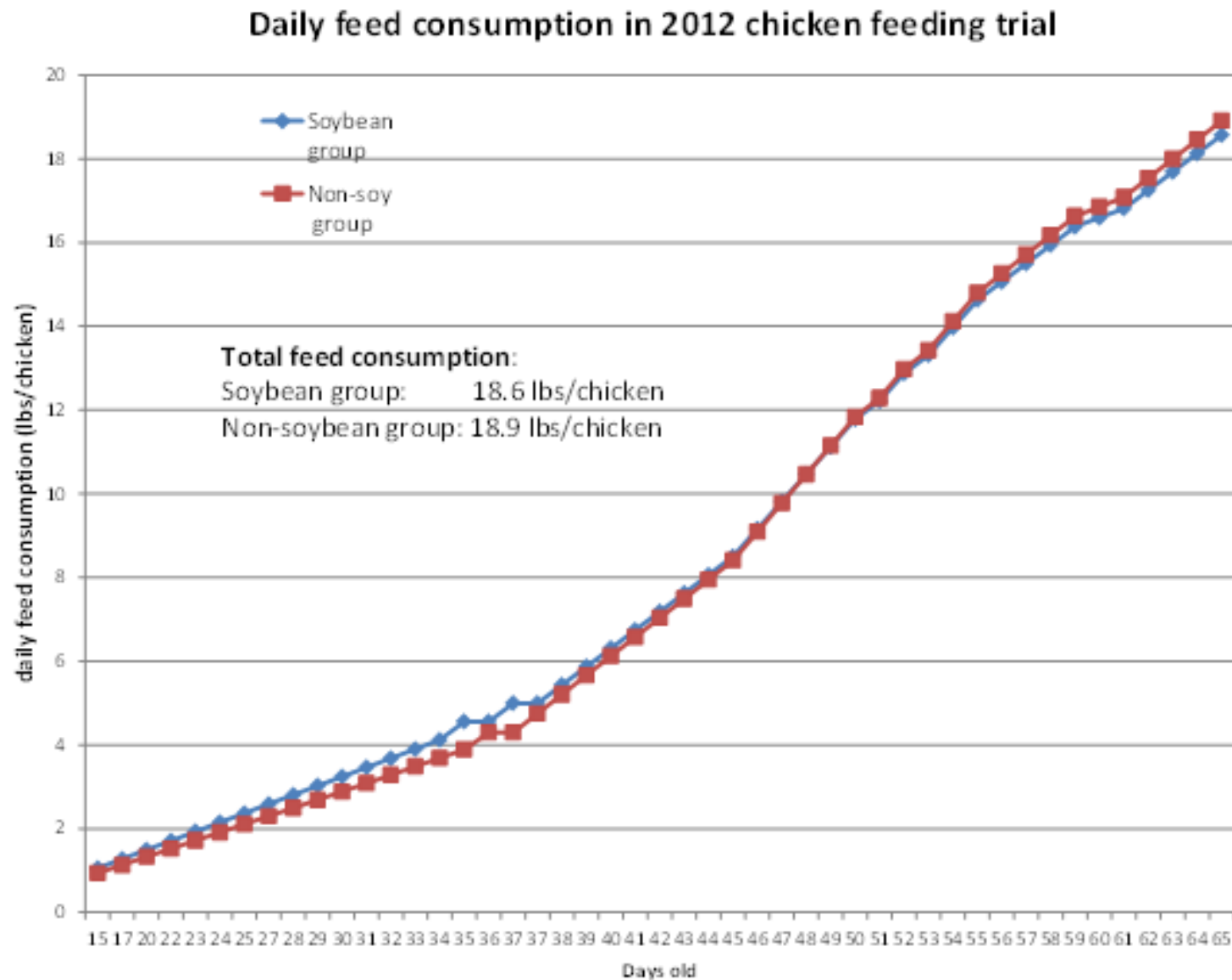
Rodale Institute

- **Abstract**
- This experiment examined two populations of 50 Cornish Cross broiler chickens.
- The two populations were kept in nearly identical conditions but were fed two different types of feed.
- One feed had a base of roasted soybeans, the other had a base of field peas.
- Data was collected on the amount of feed consumed and on the weight gains of the birds. It appears that using a soybean-based feed can produce a larger and more robust bird

Shelter Design



Daily Feed Consumption



Weekly weight gains for each group

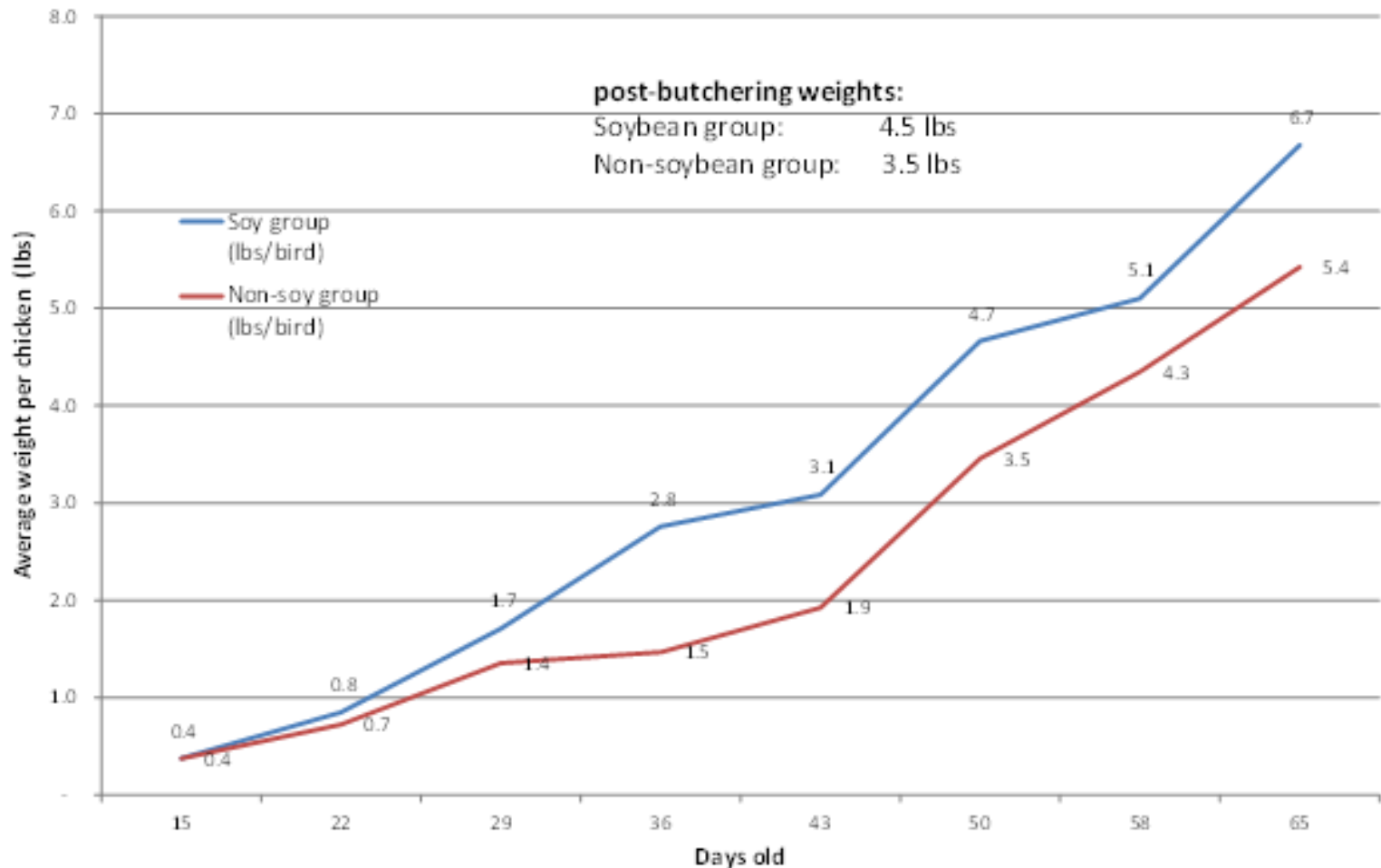
(based on a sample size of 5 per group)

Date	Days old	Soy group (g/bird)	Non-soy group (g/bird)	Soy group (lbs/bird)	Non-soy group (lbs/bird)	weight gain difference (%)
09/26/12	15	171	170	0.4	0.4	1
10/03/12	22	386	329	0.8	0.7	17
10/10/12	29	777	615	1.7	1.4	26
10/17/12	36	1,254	667	2.8	1.5	88
10/24/12	43	1,402	874	3.1	1.9	60
10/31/12	50	2,121	1,572	4.7	3.5	35
11/08/12	58	2,319	1,976	5.1	4.3	17
11/15/12	65	3,034	2,466	6.7	5.4	23

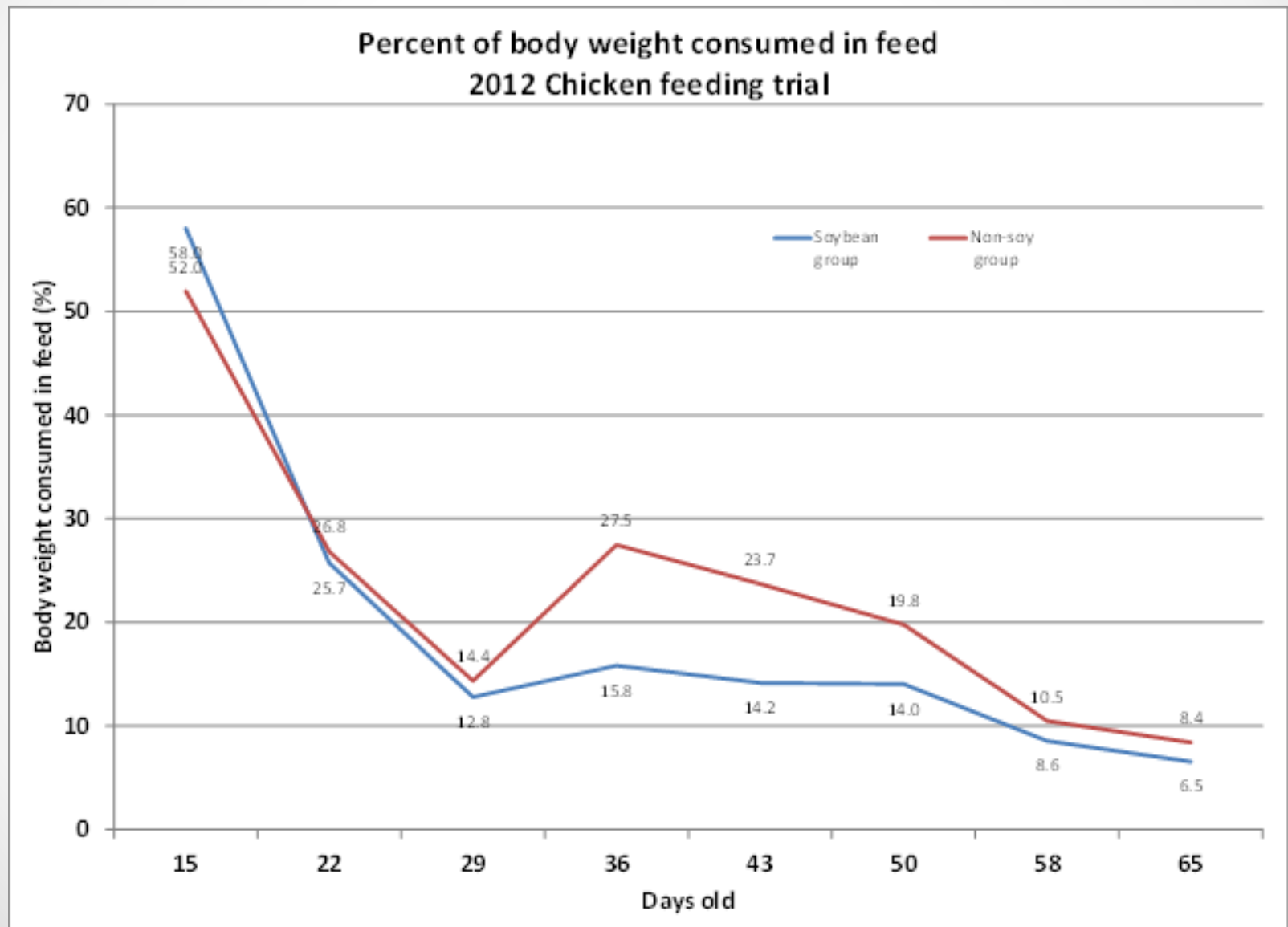
Weight Gains Chart

Weight gains in 2012 chicken feeding trial

(weekly weighings, started 2 weeks after hatching)



Percent of Body Weight consumed in Feed



Rodale					
Soy Fed Group	Total	Units	Soy Free Group	Total	Units
Total feed Consumed	869.5	lbs	Total consumed	869.4	lbs
Birds in Group	47	Each	Birds in Group	46	each
Feed Consumed per bird	18.50	lbs	Feed Consumed per bird	18.9	lbs
Average Live Weight	6.7	lbs	Average Live Weight	5.4	lbs
Average Carcass Weight	4.5	lbs	Average Carcass Weight	3.5	lbs
FCR Live weight	2.76	lbs	FCR Live weight	3.5	lbs
FCR Carcass Weight	4.11	lbs	FCR Carcass Weight	5.4	lbs
Feed cost/Lb	0.406	lbs	Feed Cost/Lb	0.475	lbs
Total Feed Cost	\$ 7.52		Total Feed Cost	\$ 8.98	
Cost per Lb Carcass	\$ 1.67		Cost per Lb of Carcass	\$ 2.57	lbs

Phytoestrogen Analysis

ug/100 g	wet weight			
Sample Name	Daidzein	Genistein	Glycitein + Biochanin	
RSF 1	3.0		5.8	
RSF 2	5.2		4.3	
RSF 3	19.0	7.6	3.7	
RSF 4	5.3		1.0	
RNS 1			2.4	
RNS 2			1.4	
RNS 3				
RNS 4				
ug/100 g	wet weight			
Sample Name	Formononetin	Coumestrol	Apigenin	Total Isoflavones:
RSF 1	2.1			8.8
RSF 2				9.5
RSF 3				30.3
RSF 4				6.2
RNS 1				2.4
RNS 2				1.4
RNS 3				
RNS 4				

Fritz' Field Shelter



Jason & Heather Fritz

- This experiment consisted of two Groups of 50 Bard Silver Cross broiler chickens.
- The two groups were managed in nearly identical ways but were fed two different types of feed.
- One feed had a base of roasted soybeans,
- The other had a base of field peas, Linseed, Fish and Crab meal.
- Data was collected on the amount of feed consumed daily
- Weight were taken weekly to show gains of the birds

Fritz					
Soy Fed Group	Total	Units	Soy Free Group	Total	Units
Total feed Consumed	1226	lbs	Total consumed	1290	lbs
Birds in Group	46	Each	Birds in Group	47	each
Feed Consumed per bird	26.65	lbs	Feed Consumed per bird	27.45	lbs
Average Live Weight	7.275	lbs	Average Live Weight	6.778	lbs
Average Carcass Weight	4.665	lbs	Average Carcass Weight	4.47	lbs
FCR Live weight	3.66	lbs	FCR Live weight	4.05	lbs
FCR Carcass Weight	5.71	lbs	FCR Carcass Weight	6.14	lbs
Feed cost/Lb	0.406	lbs	Feed Cost/Lb	0.475	lbs
Total Feed Cost	\$ 10.83		Total Feed Cost	\$ 13.04	
Cost per Lb Carcass	\$ 2.32		Cost per Lb of Carcass	\$ 2.92	lbs

Phytoestrogen Analysis

ug/100 g	wet weight			
Sample Name	Daidzein	Genistein	Glycitein + Biochanin	
FSF 1			40.7	
FSF 2		5.3	11.0	
FSF 3			6.6	
FSF 4		3.9	3.0	
FNS 1		12.3	37.7	
FNS 2			18.2	
FNS 3			10.7	
FNS 4			8.7	
	wet weight			
Sample Name	Formononetin	Coumestrol	Apigenin	Total Isoflavones:
FSF 1				40.7
FSF 2				16.3
FSF 3				6.6
FSF 4				6.9
FNS 1	8.6	14.2	29.2	50.1
FNS 2	3.8			18.2
FNS 3	4.3	19.3		10.7
FNS 4				8.7

Thank you!

Questions

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For more information:

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www.fertrell.com

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