

The Sustainability Impacts of Slow-Growing Broiler Production in the US

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INTRODUCTION

- Examine the environmental and economic impacts of slow-growing broiler production compared to conventionally raised birds
 - Slow-Grow defined: increase in the days-to-grow the same size and weight bird compared to conventional production
- Primary data obtained from industry sources
 - Average values of conventional vs. slow-grow broiler for mortality, grow-out days, feed conversion, days downtime, and placement density
 - USDA, EMI/ AgriStats, Ross/Aviagen, Cobb/Vantress, Whole Foods, Hubbard
- Methodology
 - Simulation model that estimates the impact slow-growing broilers on feed, land, water utilization, waste/manure generated, and production cost.
 - Model used previously in impact analysis of antibiotic-free production

PRIMARY DATA – AVERAGE OVER ALL BIRD SIZES

Parameter	Data: Conventional vs. Slow-Grow ^a			
	Conv.	Slow-Grow	Diff (Δ)	% Diff
Average Bird Weight (lbs)	6.25			
Mortality (%)	4.6%	4.6%	0%	0%
Prime Meat Yield ^b	55%	48%	7%	-15%
Grow-Out Time (Days)	44	58	14	32%
Feed Conversion Ratio	1.90	2.28	0.38	20%
Bird Density (Sqft/Bird)	0.80	1.067	0.267	33%
Cycle Downtime (Days)	16	16	0	0%

^a Model is based on data from USDA, EMI, Ross/Aviagen, Cobb/Vantress, Agri Stats, Whole Foods, Hubbard

^b Prime meat is based on the breast, wings, thighs, and legs.

SUPPORTING DATA

Additional data values that are shared between conventional and slow-growing models.

Parameter	Source	Unit	Value
Industry average broiler house size	USDA	Square feet	22,000
Percent of broiler feed corn	EMI	Percent	60%
Percent of broiler feed soybean meal	EMI	Percent	30%
Percent of broiler feed protein-based	EMI	Percent	10%
Post-harvest feed shrink (loss)	USDA	Percent	5%
Average cost per lb of feed	USDA	\$ per lb feed	\$0.22
Average non-feed cost per live weight pound	EMI	\$ per lb live-weight	\$0.13
Per capita annual consumption broiler meat USA	USDA	Lbs/person	80.4

RESOURCE UTILIZATION: HOUSE-LEVEL

The impact per broiler house per year compared to a conventional program.

House-Level Annual Gap (Delta)	Slow-Grow
Annual shortage in prime meat (lb/yr):	258,141
Annual shortage in prime meat (# 3 oz. servings/yr):	1,376,751
Decrease in the number of people fed (persons/yr):	3,211
Additional placed birds necessary annually to fill gap:	78,731
Increase in bird deaths/losses per year:	3,622
Additional feed required including shrink (lb/yr):	1,675,823
Additional land needed for growing feed (ac/yr):	384
Additional water consumed (gal/yr):	255,558
Additional manure produced (lbs/yr):	1,425,019
Additional production cost prime meat (\$/yr):	\$452,917

Model base case is a conventional broiler house.

EFFICIENCY ANALYSIS – BIRD BASIS

Changes to production efficiency when birds are slow-growing.

Efficiency Parameter	Efficiency Impact			
	Slow-Grow	Conv.	Diff (Δ)	% Diff
Cycles/yr:	4.95	6.10	-1.15	-19%
Birds marketed/ac of feed (bird/ac):	224	344	-120	-35%
Feed/prime meat (lb/lb):	5.67	4.23	1.43	34%
Water/market bird (gal/bird):	2.97	2.12	0.85	40%
Manure/market bird (lb/bird):	16.56	10.80	5.76	53%
Cost/market bird (\$/bird):	5.26	3.54	1.72	49%

CONCLUSIONS & IMPLICATIONS

- There is an environmental and economic impact resulting from a shift from conventional production to slow-growing production of broilers in the US
- Increased feed, land, & water utilization, more manure output and greater production cost
- The impacts result primarily from increased number of days grow-out, more space requirements, higher feed conversion and lower yields in slow-grow production

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