



monitoring the safety of animal feed



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Performance Trends in Commercial Livestock Populations before and subsequent to the inclusion of GMO (Genetically Engineered) feed in livestock diets

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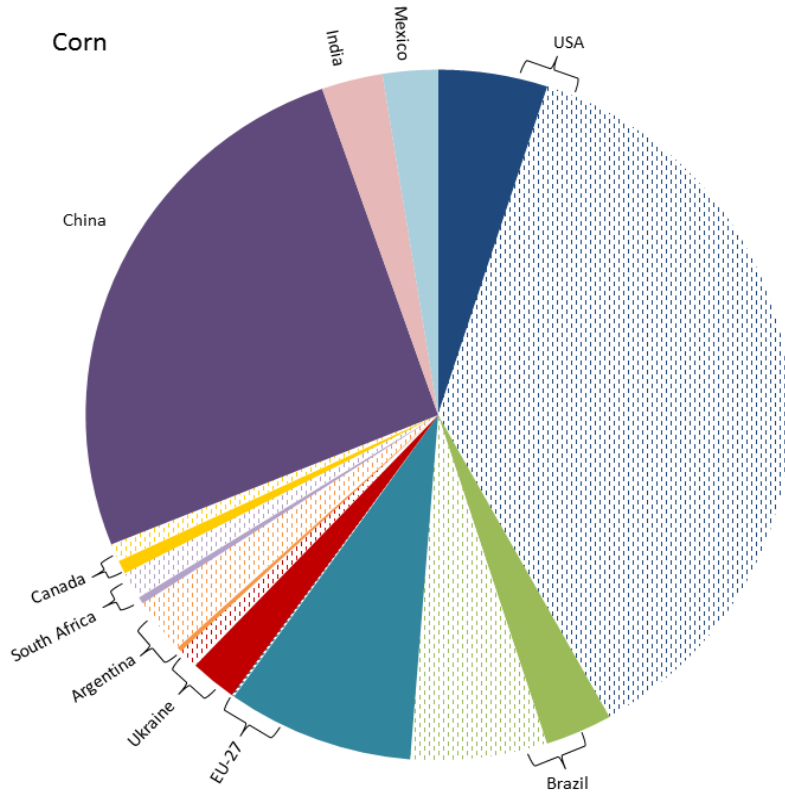
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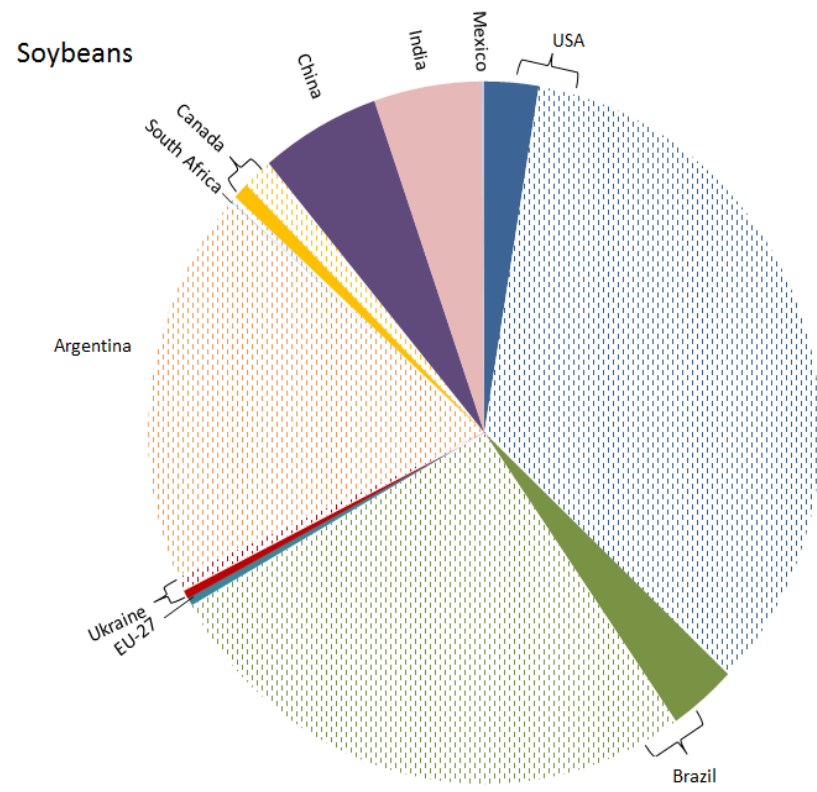
GE and conventional corn and soy produced (MMT) by selected countries 2012 – hatch marked slices represent GE, solid are conventional

CORN



35% (55.1 million hectares) of the 159 million hectares of the corn planted globally were GE

SOYBEANS

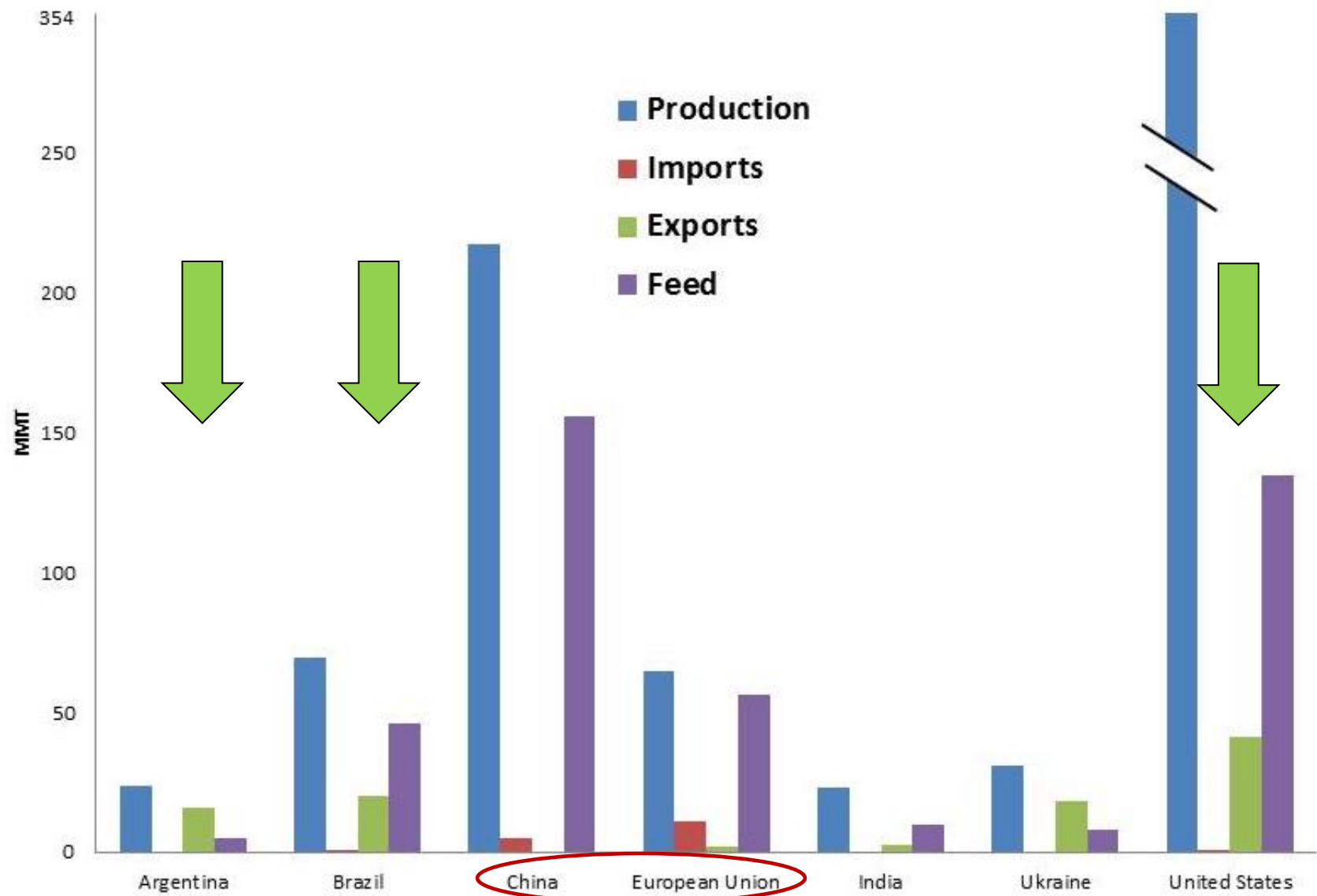


81% (80.7 million hectares) of the 100 million hectares of the soybean planted globally were GE



Corn Production

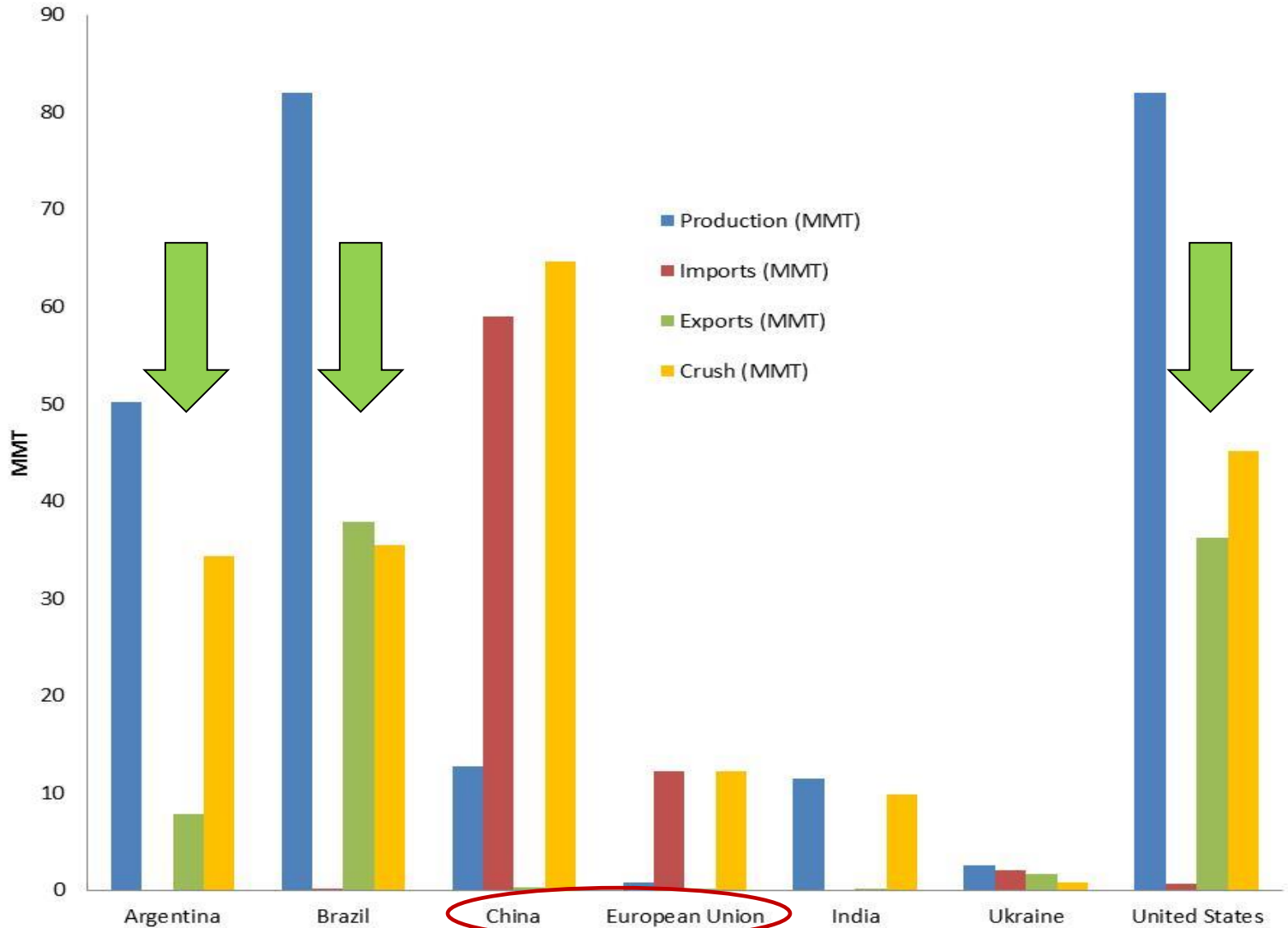
Production, Imports, Export, Feed by Country 2013





Soybean Production

Imports, Exports and Crush by Country 2013





The majority of the more than 100 billion food animals raised in the US between 2000-2011 consumed varying levels of GE feed.

Industry ^a	U.S. ^b
Broiler	105,426,000,000
Beef cattle	410,000,000
Dairy Cows	35,000,000
Hogs	105,000,000
Total	105,976,000,000

^a Numbers for broilers, hogs (barrows and gilts) and beef cattle (steers) are for slaughtered animals during calendar year. Dairy animals are number of dairy cows in a calendar year divided by three to account for three lactations per animal.

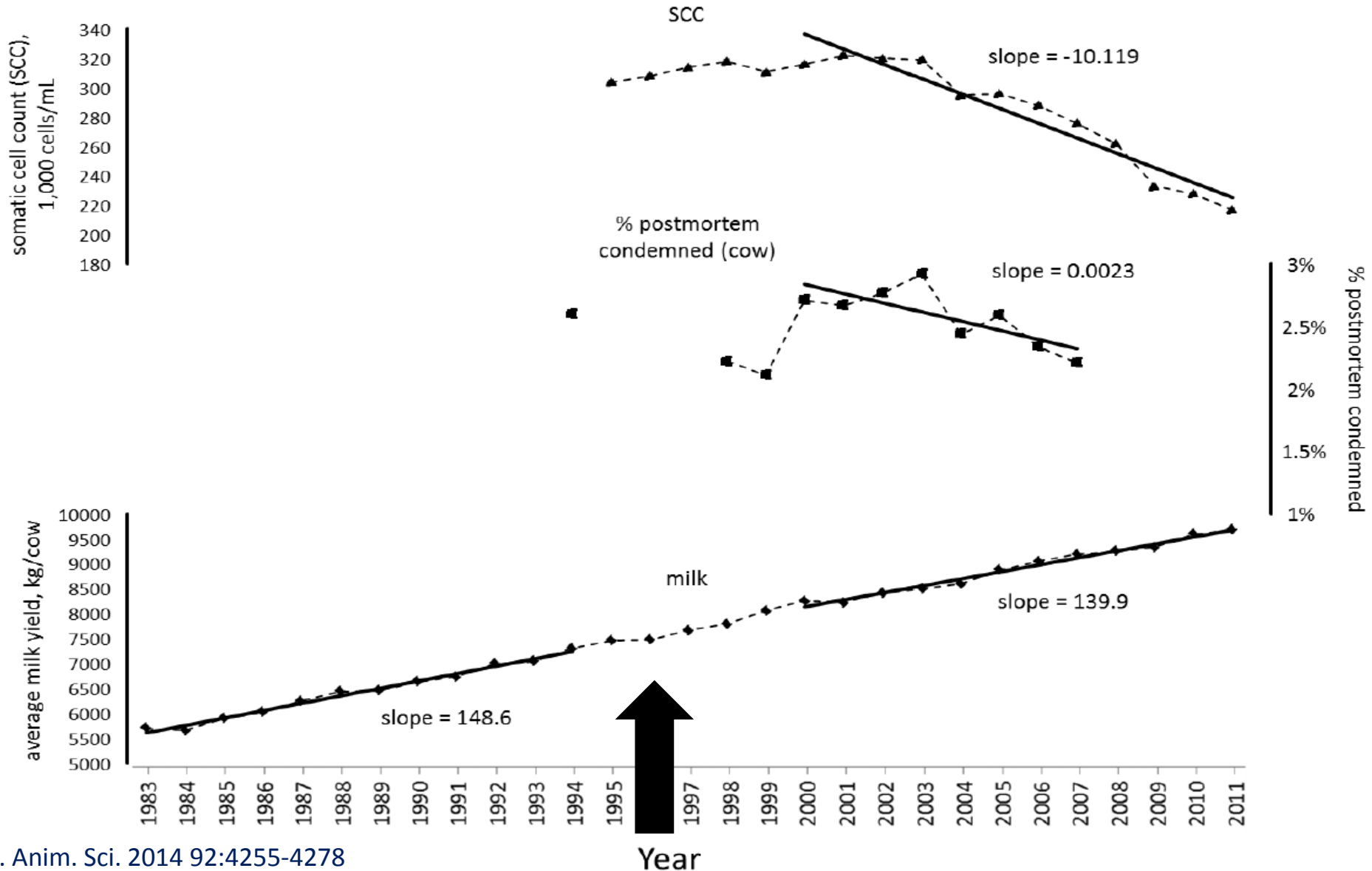
^b USDA: The USDA Economics, Statistics and Market Information System (ESMIS). 2013

<http://usda.mannlib.cornell.edu/MannUsda/homepage.do>.

Van Eenennaam, A. L., and A. E. Young. 2014. Prevalence and impacts of genetically engineered feedstuffs on livestock populations J. Anim. Sci. 92:4255-4278

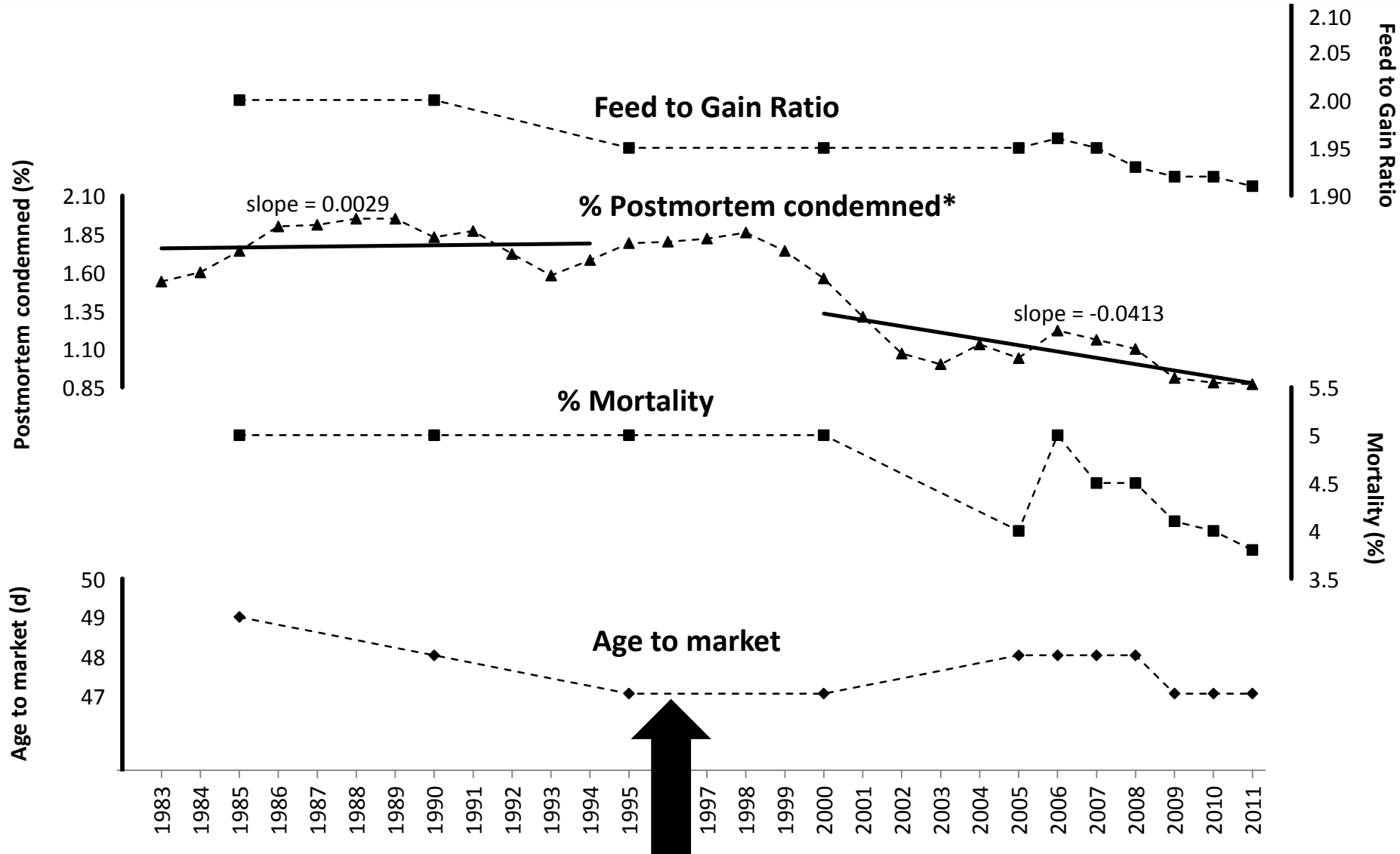


Milk production, percent post-mortem condemned, and somatic cell counts for the United States before and after the introduction of genetically engineered crops in 1996.



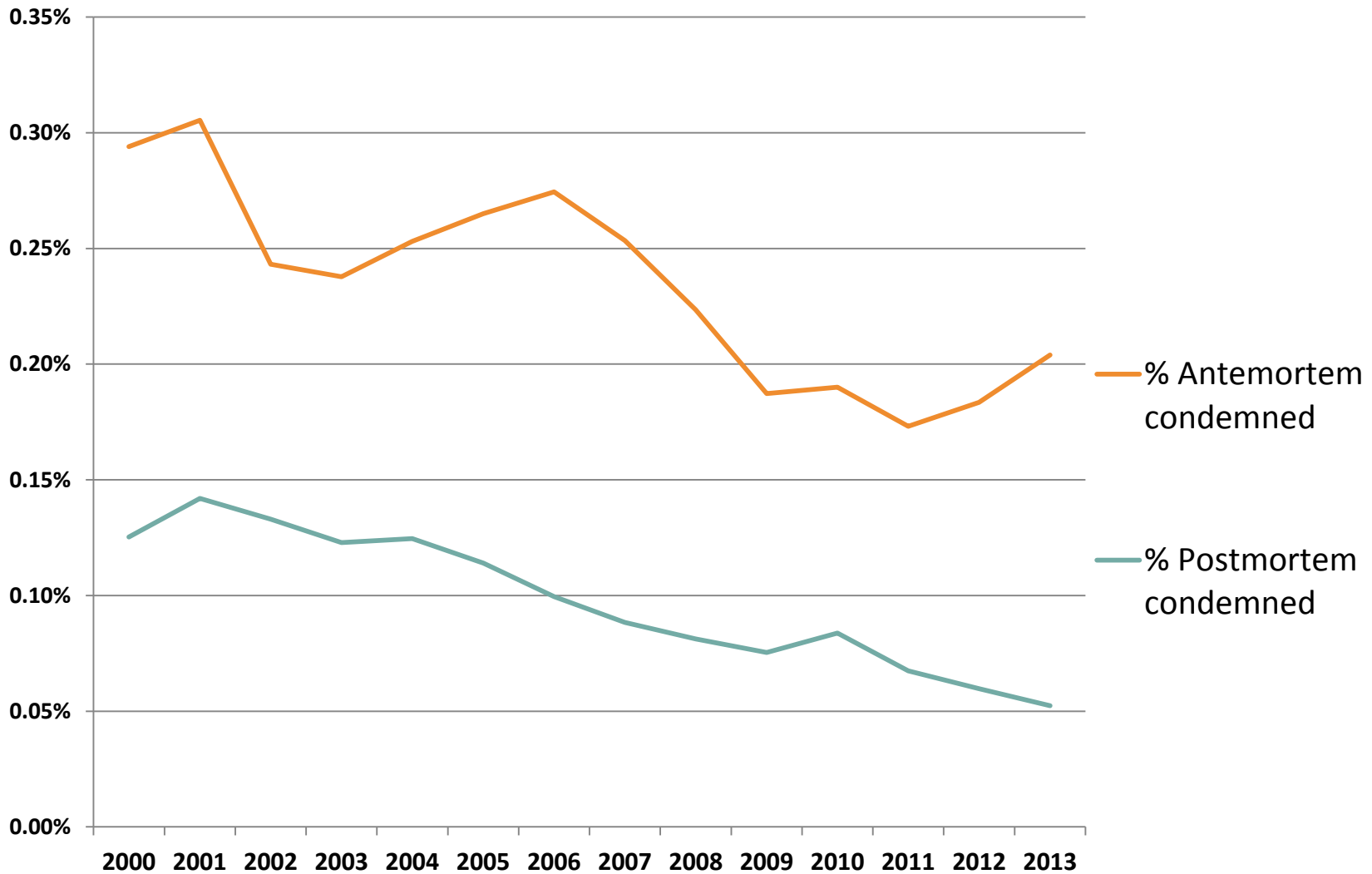


Production statistics for US broilers prior to and subsequent to the introduction of GM crops in 1996. Slopes differ between time periods 1983-1994 and 2000-2011 (*P < 0.05).





Anti-mortem and Post-mortem condemnation rates for US Swine 2000-2013 (subsequent to the introduction of GM crops in 1996).

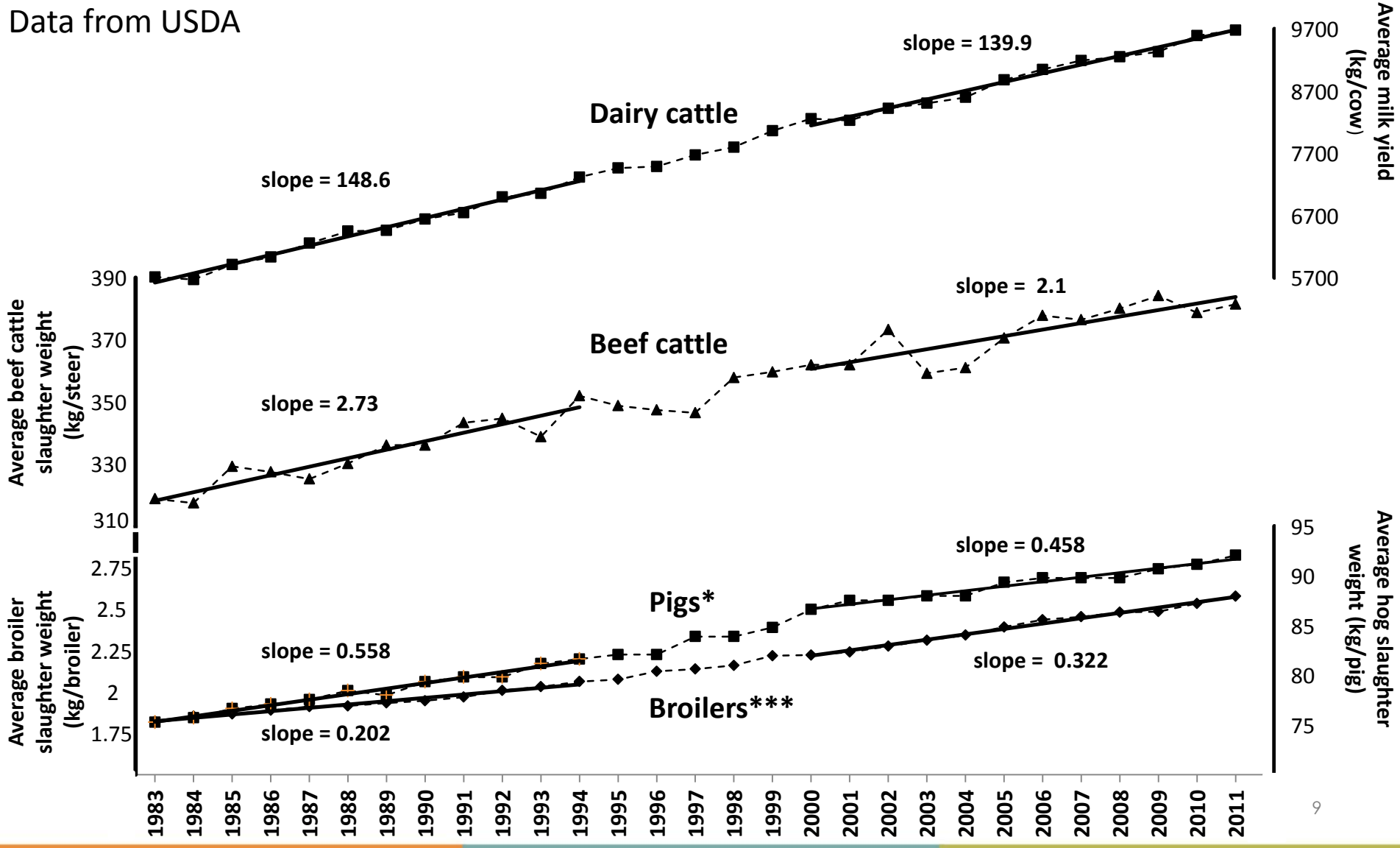


Unpublished data based on Freedom of Information Act Request of USDA FSIS records.



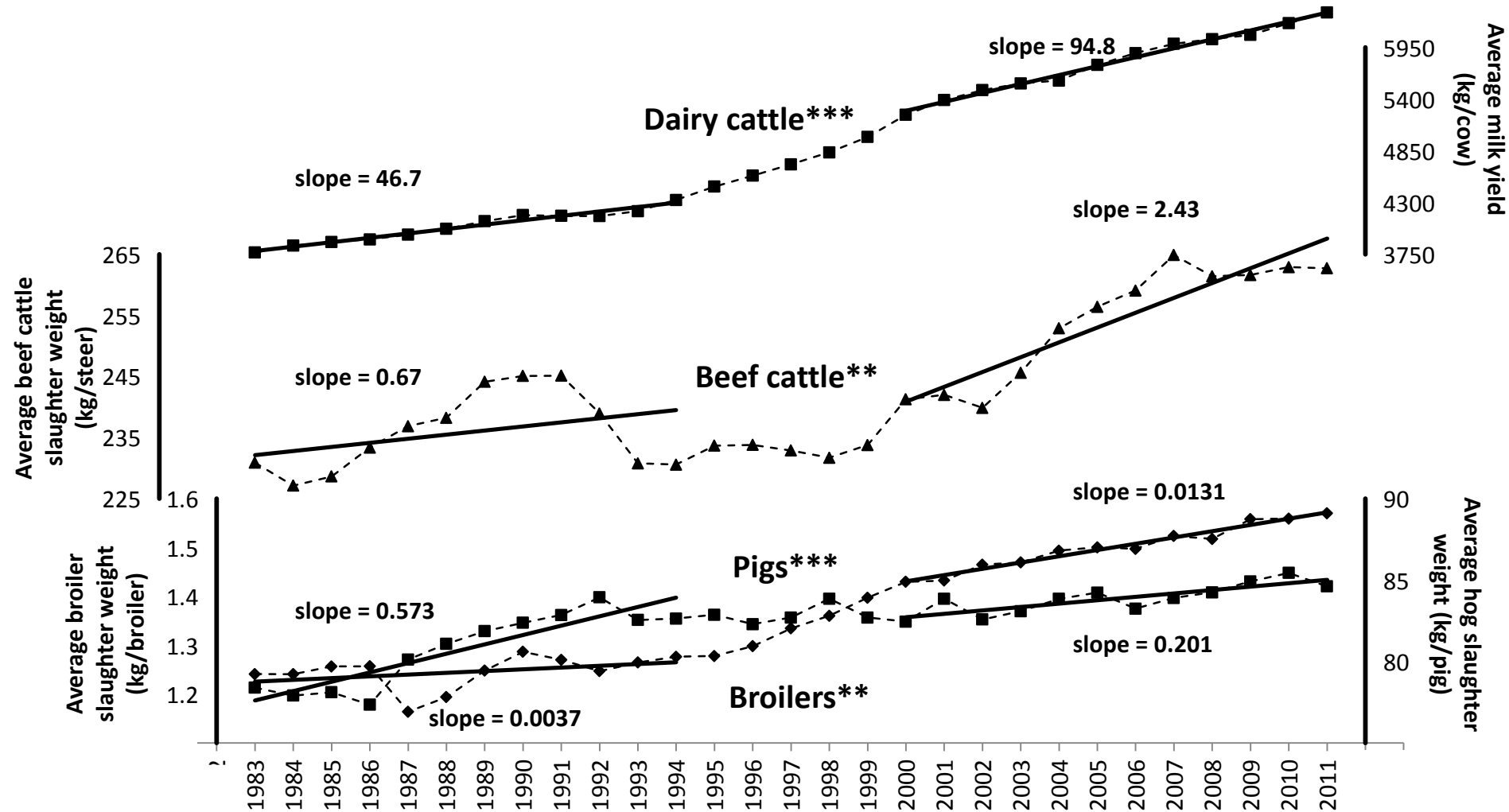
Livestock production statistics for the US prior to and subsequent to the introduction of GM crops in 1996. Slopes differ between time periods 1983-1994 and 2000-2011 (*P < 0.05; **P < 0.01; ***P < 0.001).

Data from USDA





Livestock production statistics for the EU prior to and subsequent to the introduction of GM crops in 1996. Slopes differ between time periods 1983-1994 and 2000-2011 (*P < 0.05; **P < 0.01; ***P < 0.001).



EU data were from FAOSTAT6 and data were summarized for the EU-27 countries.

Year	EU-27 Data				United States Data													
	Milk Yield (kg)	Carcass wt. (kg) broiler	Carcass wt. (kg) hog	Carcass wt. (kg) cattle	Milk Yield (kg)	Carcass wt. (kg) broiler	Carcass wt. (kg) hog	Carcass wt. (kg) cattle	Broiler				Cattle Condemned Post-Mortem (%)				Pigs	
									Post-M Condemned (%)	Market age, d	Mortality (%)	Feed to Gain ratio	Fed cattle		Non-fed cattle		Condemned (%)	
													Steers	Heifers	Cows	Bulls	Ante-M	Post-M
1983	3768	1.24	78.4	230.9	5708	1.82	75.3	318.8	1.54									
1984	3841	1.24	77.9	227.1	5667	1.85	75.7	317.5	1.60									
1985	3880	1.26	78.1	228.6	5910	1.87	76.6	329.3	1.74	49	5	2						
1986	3908	1.26	77.3	233.3	6029	1.89	77.1	327.4	1.90									
1987	3959	1.16	80.1	236.8	6252	1.91	77.6	325.2	1.91									
1988	4020	1.19	81.1	238.2	6446	1.92	78.5	330.2	1.95									
1989	4102	1.25	81.9	244.1	6460	1.93	78.0	336.1	1.95									
1990	4167	1.29	82.4	245.1	6640	1.95	79.4	336.1	1.83	48	5	2						
1991	4159	1.27	82.9	245.1	6742	1.97	79.8	343.3	1.87									
1992	4156	1.25	83.9	238.9	6995	2.01	79.8	344.7	1.72									
1993	4208	1.26	82.5	230.8	7054	2.03	81.2	338.8	1.58									
1994	4328	1.28	82.6	230.6	7315	2.06	81.6	351.9	1.68					2.6				
1995	4469	1.28	82.9	233.7	7461	2.08	82.1	348.8	1.79	47	5	1.95						
1996	4586	1.30	82.3	233.8	7485	2.12	82.1	347.4	1.80									
1997	4707	1.33	82.7	232.9	7671	2.14	83.9	346.5	1.82									
1998	4834	1.36	83.9	231.7	7797	2.16	83.9	357.8	1.86				0.09	0.10	2.22	0.26		
1999	4999	1.40	82.7	233.8	8059	2.22	84.8	359.6	1.74				0.11	0.20	2.11	0.31		
2000	5234	1.43	82.5	241.3	8256	2.22	86.6	361.9	1.56	47	5	1.95	0.13	0.17	2.71	0.32	0.29	0.13
2001	5391	1.43	83.9	242.0	8226	2.24	87.5	361.9	1.31				0.09	0.10	2.67	0.31	0.31	0.14
2002	5497	1.46	82.6	239.8	8422	2.28	87.5	373.2	1.07				0.08	0.09	2.77	0.24	0.24	0.13
2003	5568	1.47	83.1	245.6	8503	2.31	88.0	359.2	1.00				0.09	0.08	2.92	0.75	0.25	0.12
2004	5597	1.49	83.8	252.9	8597	2.34	88.0	361.0	1.13				0.08	0.08	2.44	0.35	0.27	0.12
2005	5764	1.50	84.2	256.4	8878	2.39	89.3	370.5	1.04	48	4	1.95	0.07	0.07	2.59	0.30	0.27	0.11
2006	5891	1.50	83.2	259.1	9048	2.44	89.8	377.8	1.22	48	5	1.96	0.06	0.07	2.34	0.30	0.25	0.10
2007	5989	1.52	83.9	264.9	9191	2.45	89.8	376.4	1.16	48	4.5	1.95	0.05	0.06	2.21	0.28	0.22	0.09
2008	6040	1.52	84.2	261.4	9250	2.48	89.8	380.0	1.10	48	4.5	1.93					0.19	0.08
2009	6084	1.56	84.9	261.6	9332	2.48	90.7	384.1	0.91	47	4.1	1.92					0.19	0.08
2010	6208	1.56	85.4	262.9	9591	2.53	91.2	378.7	0.88	47	4.0	1.92					0.17	0.08
2011	6323	1.57	84.6	262.7	9680	2.58	92.1	381.4	0.87	47	3.8	1.91					0.18	0.07



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