# Trends in Meat Production

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### **Abstract**

In this piece we will examine trends in the production of farmed animals. These trends can reveal which countries and species need the most focus, and can also help determine which species or countries may currently be overlooked. These trends can also be used in the future to help determine progress of the animal advocacy movement. This write up focuses on farmed land vertebrates, because they are the animals for whom data is most readily available.



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#### FAO data

The United Nations Food and Agriculture Organization (FAO) <u>compiles yearly statistics</u> on livestock production and population. Information is provided on both the number of animals slaughtered and the tons of meat produced. Unsurprisingly, countries with large populations dominate the lists, but there are a number of trends that can be observed.

#### Number of animals slaughtered

We first look in terms of the number of animals being slaughtered, broken down by species, in the most recent year available (2016). For almost all species, China tops the lists—usually by a large margin. The United States is often high on lists, but there are many exceptions (such as for ducks, rabbits, and geese).

It is also notable how few European countries appear on these lists. In particular, no European countries are among the top ten countries in chicken slaughtering. The European countries producing large amounts of meat can best be seen when we turn to look at the total tons of meat produced in each country. These tables suggest that there is a great need for animal advocacy in non-European countries.

Country	Totals slaughtered	Totals slaughtered per capita
World	74,171,872,986	9.93
China, mainland	13,714,304,809	9.77
United States of America	9,331,441,493	28.96
European Union	8,351,146,351	16.43
Brazil	6,261,689,332	30.15
Indonesia	2,781,838,037	10.65
India	2,603,793,812	1.97
Russian Federation	2,499,046,703	17.36
Iran (Islamic Republic of)	1,876,830,955	23.38
Mexico	1,723,321,241	13.51
Myanmar	1,537,161,690	29.07
Thailand	1,241,852,065	18.03

Country	Chickens slaughtered	Chickens slaughtered per capita
World	65,847,411,000	8.82
China, mainland	9,225,812,000	6.57
United States of America	8,909,014,000	27.65
European Union	7,418,459,000	14.60
Brazil	6,078,968,000	29.27
Indonesia	2,713,234,000	10.39
India	2,483,019,000	1.88
Russian Federation	2,432,698,000	16.90
Iran (Islamic Republic of)	1,851,879,000	23.07

Country	Chickens slaughtered	Chickens slaughtered per capita
Mexico	1,676,866,000	13.15
Myanmar	1,393,579,000	26.35
Thailand	1,199,528,000	17.42

Country	Ducks slaughtered	Ducks slaughtered per capita
World	3,056,103,000	0.41
China, mainland	2,243,872,000	1.60
European Union	171,960,000	0.34
Myanmar	118,408,000	2.24
Vietnam	106,067,000	1.12
France	69,917,000	1.08
Bangladesh	52,116,000	0.32
Malaysia	51,009,000	1.64
Indonesia	40,126,000	0.15
China, Taiwan Province of	36,184,000	1.54
Egypt	31,416,000	0.33
Hungary	28,867,000	2.96

Country	Pigs slaughtered	Pigs slaughtered per capita
World	1,478,167,073	0.20
China, mainland	705,756,377	0.50
European Union	260,012,426	0.51
United States of America	118,303,900	0.37

Country	Pigs slaughtered	Pigs slaughtered per capita
Germany	59,480,468	0.73
Vietnam	51,115,510	0.54
Spain	47,258,610	1.02
Brazil	39,805,749	0.19
Russian Federation	38,603,959	0.27
Philippines	26,628,771	0.26
France	24,138,654	0.37
Poland	22,098,424	0.58

Country	Rabbits slaughtered	Rabbits slaughtered per capita
World	980,785,000	0.13
China, mainland	562,739,000	0.40
European Union	167,589,000	0.33
Democratic People's Republic of Korea	132,830,000	5.24
Egypt	58,520,000	0.61
Spain	47,357,000	1.02
France	33,247,000	0.51
Italy	26,916,000	0.45
Germany	22,652,000	0.28
Czechia	20,575,000	1.94
Algeria	8,345,000	0.21
Sierra Leone	8,118,000	1.10

Country	Turkeys slaughtered	Turkeys slaughtered per capita
World	673,278,000	0.09
United States of America	243,255,000	0.76
European Union	226,867,000	0.45
Brazil	90,551,000	0.44
France	52,245,000	0.81
Poland	37,482,000	0.98
Germany	37,366,000	0.46
Italy	30,944,000	0.52
Spain	21,482,000	0.46
Canada	21,231,000	0.59
United Kingdom	15,400,000	0.23
Могоссо	14,323,000	0.41

Country	Geese and guinea fowl slaughtered	Geese and guinea fowl slaughtered per capita
World	658,903,000	0.09
China, mainland	611,779,000	0.44
European Union	14,632,000	0.03
Egypt	9,980,000	0.10
Poland	7,102,000	0.19
Myanmar	5,082,000	0.10
Hungary	5,061,000	0.52
China, Taiwan Province of	4,500,000	0.19
Ukraine	4,284,000	0.10

Country	Geese and guinea fowl slaughtered	Geese and guinea fowl slaughtered per capita
Madagascar	4,232,000	0.17
Iran (Islamic Republic of)	1,044,000	0.01
Israel	994,000	0.12

Country	Sheep slaughtered	Sheep slaughtered per capita
World	551,420,651	0.07
China, mainland	144,027,014	0.10
European Union	52,278,200	0.10
Australia	29,788,600	1.23
New Zealand	24,776,360	5.32
Turkey	22,025,280	0.28
India	19,529,269	0.01
Nigeria	17,141,531	0.09
Algeria	16,063,931	0.40
Sudan	15,513,159	0.39
United Kingdom	14,556,000	0.22
Pakistan	11,264,000	0.06

Country	Goats slaughtered	Goats slaughtered per capita
World	459,861,000	0.06
China, mainland	163,167,869	0.12
India	50,519,315	0.04
Bangladesh	29,812,862	0.18

Country	Goats slaughtered	Goats slaughtered per capita
Nigeria	25,167,866	0.14
Pakistan	17,667,177	0.09
Sudan	12,445,013	0.31
Iran (Islamic Republic of)	10,343,166	0.13
Indonesia	7,402,290	0.03
Mali	6,813,294	0.38
South Sudan	6,789,002	0.56
Yemen	6,462,449	0.23

Country	Cows slaughtered	Cows slaughtered per capita
World	302,018,862	0.04
China, mainland	49,184,749	0.04
Brazil	37,595,000	0.18
United States of America	31,188,800	0.10
European Union	27,159,481	0.05
Argentina	11,720,350	0.27
India	8,825,483	0.01
Australia	8,796,400	0.36
Russian Federation	8,100,928	0.06
Mexico	7,957,971	0.06
Uzbekistan	5,189,349	0.17
New Zealand	4,763,321	1.02

## Tons of meat

The UN FAO data also provides information on the total tons of meat produced across all species. Here we see that while European countries are generally not very high in terms of the number of animals killed for meat production, they are high in terms of tons of meat produced. This can be explained by the differences in species produced, with European countries generally raising larger species of animals.

Among western European countries, the top producers of meat (in tons, not in the number of animals slaughtered) are Germany, Spain, and France. In particular, Germany is the third largest producer of pig meat and turkey meat, and France is the second largest producer of duck meat. These trends suggest a possible direction for species-specific advocacy.

Country	Total meat (tons)	Total meat (kilograms per capita)
World	329,890,425	44.18
China, mainland	85,987,175	61.27
European Union	47,471,558	93.41
United States of America	44,623,827	138.51
Brazil	27,440,984	132.15
Russian Federation	9,899,183	68.76
Germany	8,425,255	102.85
India	7,191,588	5.43
Mexico	6,553,805	51.39
Spain	6,196,330	133.69
France	5,655,531	87.38
Argentina	5,219,781	119.04

Country	Chicken meat (tons)	Chicken meat (kilograms per capita)
World	107,143,008	14.35

Country	Chicken meat (tons)	Chicken meat (kilograms per capita)
United States of America	18,708,326	58.07
Brazil	13,894,450	66.91
China, mainland	12,721,408	9.06
European Union	11,924,789	23.47
Russian Federation	4,141,365	28.77
India	3,398,812	2.57
Mexico	3,077,874	24.13
Japan	2,345,193	18.36
Iran (Islamic Republic of)	2,126,286	26.49
Indonesia	2,110,861	8.08
Poland	1,994,697	52.18

Country	Duck meat (tons)	Duck meat (kilograms per capita)
World	4,534,578	0.61
China, mainland	2,965,312	2.11
European Union	492,986	0.97
France	238,900	3.69
Malaysia	150,426	4.82
Myanmar	133,514	2.52
Vietnam	127,280	1.35
Republic of Korea	82,830	1.63
Hungary	78,769	8.08
Egypt	76,772	0.80

Country	Duck meat (tons)	Duck meat (kilograms per capita)
China, Taiwan Province of	66,967	2.84
United States of America	61,307	0.19

Country	Pig meat (tons)	Pig meat (kilograms per capita)
World	118,168,709	15.83
China, mainland	54,129,762	38.57
European Union	23,618,044	46.47
United States of America	11,320,182	35.14
Germany	5,589,639	68.24
Spain	3,947,015	85.16
Vietnam	3,664,556	38.75
Brazil	3,514,098	16.92
Russian Federation	3,368,235	23.40
France	2,185,430	33.77
Canada	2,047,946	56.43
Poland	2,008,800	52.55

Country	Rabbit meat (tons)	Rabbit meat (kilograms per capita)
World	1,428,085	0.19
China, mainland	849,150	0.61
European Union	257,001	0.51
Democratic People's Republic of Korea	172,680	6.81

Country	Rabbit meat (tons)	Rabbit meat (kilograms per capita)
Egypt	65,602	0.69
Italy	54,347	0.91
Spain	50,552	1.09
France	48,396	0.75
Czechia	39,692	3.74
Germany	35,971	0.44
Russian Federation	18,189	0.13
Ukraine	12,200	0.27

Country	Turkey meat (tons)	Turkey meat (kilograms per capita)
World	6,060,883	0.81
United States of America	2,712,976	8.42
European Union	2,024,512	3.98
Brazil	596,302	2.87
Germany	487,100	5.95
France	393,287	6.08
Italy	331,859	5.58
Spain	192,629	4.16
Poland	178,537	4.67
Canada	168,547	4.64
United Kingdom	164,000	2.49
Chile	112,768	6.30

Country	Goose and guinea fowl meat (tons)	Goose and guinea fowl meat (kilograms per capita)
World	2,542,632	0.34
China, mainland	2,393,635	1.71
European Union	70,607	0.14
Poland	30,996	0.81
Egypt	26,894	0.28
Hungary	25,856	2.65
China, Taiwan Province of	18,134	0.77
Madagascar	12,696	0.51
Myanmar	8,380	0.16
Germany	5,100	0.06
Israel	3,308	0.40
United Kingdom	2,883	0.04

Country	Sheep meat (tons)	Sheep meat (kilograms per capita)
World	9,310,532	1.25
China, mainland	2,349,982	1.67
European Union	813,506	1.60
Australia	678,812	28.14
New Zealand	480,607	103.12
Turkey	353,942	4.45
Iran (Islamic Republic of)	310,676	3.87
United Kingdom	290,000	4.41

Country	Sheep meat (tons)	Sheep meat (kilograms per capita)
Algeria	271,388	6.68
Sudan	254,286	6.42
India	234,386	0.18
Russian Federation	194,510	1.35

Country	Goat meat (tons)	Goat meat (kilograms per capita)
World	5,621,333	0.75
China, mainland	2,264,966	1.61
India	505,371	0.38
Pakistan	301,589	1.56
Nigeria	243,230	1.31
Bangladesh	208,719	1.28
Sudan	111,532	2.82
Mali	95,415	5.30
Iran (Islamic Republic of)	82,958	1.03
Myanmar	79,418	1.50
Mongolia	76,903	25.40
Turkey	69,668	0.88

Country	Cow meat (tons)	Cow meat (kilograms per capita)
World	65,973,820	8.84
United States of America	11,470,489	35.60
Brazil	9,284,000	44.71

Country	Cow meat (tons)	Cow meat (kilograms per capita)
European Union	7,878,784	15.50
China, mainland	6,997,279	4.99
Argentina	2,644,000	60.30
Australia	2,360,756	97.85
Mexico	1,878,705	14.73
Russian Federation	1,618,972	11.25
France	1,458,284	22.53
Germany	1,155,483	14.11
Canada	1,132,879	31.22

#### Total stock

The FAO also provides information on the total stock of animals in each country, broken down by species. This gives a snapshot of the total number of animals involved in agriculture at a given moment. Because of the variation in age at which animals are slaughtered, we see that the cows form a much greater proportion of animals involved in animal agriculture at a given time than they do of animals slaughtered per year. Other longer-lived species such as sheep and goats follow a similar pattern. However, a majority of the farmed land animals in the analysis are still small animals, particularly chickens.

The countries with the largest populations of farmed animals are generally also those that slaughter many such animals. Some differences can be seen, with animals in countries with highly industrialized farming systems, such as the U.S. and much of Europe, generally seeming to live shorter lives than those in countries where animal farming is less industrialized.

Country	Stock, All Species	Stock per capita, All species
World	30,148,764,815	4.04
China, mainland	7,298,726,300	5.20
United States of America	2,405,244,146	7.47
Indonesia	2,164,461,633	8.29

Country	Stock, All Species	Stock per capita, All species
European Union	1,940,900,910	3.82
Brazil	1,683,721,479	8.11
India	1,300,953,378	0.98
Iran (Islamic Republic of)	1,099,772,595	13.70
Pakistan	695,866,933	3.60
Mexico	643,658,938	5.05
Russian Federation	610,019,370	4.24
Bangladesh	404,146,441	2.48

Country	Chickens	Chickens per capita
World	22,705,417,000	3.04
China, mainland	5,062,592,000	3.61
Indonesia	2,053,397,000	7.86
United States of America	1,971,947,000	6.12
European Union	1,411,155,000	2.78
Brazil	1,352,291,000	6.51
Iran (Islamic Republic of)	1,025,815,000	12.78
India	774,250,000	0.58
Mexico	549,125,000	4.31
Pakistan	505,902,000	2.62
Russian Federation	490,418,000	3.41
Turkey	329,011,000	4.14

Country	Cows	Cows per capita
World	1,474,887,717	0.20
Brazil	218,225,177	1.05
India	185,987,136	0.14
United States of America	91,918,000	0.29
European Union	90,057,258	0.18
China, mainland	84,374,700	0.06
Ethiopia	59,486,667	0.58
Argentina	52,636,778	1.20
Pakistan	42,800,000	0.22
Mexico	33,918,906	0.27
Sudan	30,559,650	0.77
United Republic of Tanzania	27,015,712	0.49

Country	Ducks	Ducks per capita
World	1,241,388,000	0.17
China, mainland	810,503,000	0.58
Vietnam	71,286,000	0.75
Bangladesh	52,240,000	0.32
Indonesia	47,360,000	0.18
European Union	44,481,000	0.09
Russian Federation	30,896,000	0.21
France	24,534,000	0.38
Myanmar	23,627,000	0.45

Country	Ducks	Ducks per capita
India	21,019,000	0.02
Thailand	13,711,000	0.20
Malaysia	10,656,000	0.34

Country	Sheep	Sheep per capita
World	1,173,353,790	0.16
China, mainland	162,062,500	0.12
European Union	98,317,716	0.19
Australia	67,543,092	2.80
India	63,016,181	0.05
Iran (Islamic Republic of)	42,501,987	0.53
Nigeria	42,091,042	0.23
Sudan	40,552,860	1.02
United Kingdom	33,943,000	0.52
Turkey	31,507,934	0.40
Ethiopia	30,697,942	0.30
Pakistan	29,800,000	0.15

Country	Pigs	Pigs per capita
World	981,797,339	0.13
China, mainland	451,125,000	0.32
European Union	148,854,114	0.29
United States of America	71,500,400	0.22

Country	Pigs	Pigs per capita
Brazil	39,950,320	0.19
Spain	29,231,595	0.63
Vietnam	29,075,315	0.31
Germany	27,376,056	0.33
Russian Federation	21,506,497	0.15
Mexico	16,753,231	0.13
Myanmar	16,524,336	0.31
Canada	12,770,461	0.35

Country	Goats	Goats per capita
World	1,002,810,368	0.13
China, mainland	148,934,400	0.11
India	133,874,637	0.10
Nigeria	73,879,561	0.40
Pakistan	70,300,000	0.36
Bangladesh	56,083,240	0.34
Sudan	31,325,105	0.79
Ethiopia	30,200,226	0.29
Kenya	26,745,916	0.55
Mongolia	25,574,861	8.45
Mali	22,141,497	1.23
Indonesia	19,608,181	0.08

Country	Turkeys	Turkeys per capita
World	468,745,000	0.06
United States of America	244,000,000	0.76
European Union	91,533,000	0.18
Chile	34,973,000	1.95
Brazil	32,501,000	0.16
Italy	25,141,000	0.42
France	20,582,000	0.32
Germany	13,352,000	0.16
Morocco	12,341,000	0.35
Poland	11,706,000	0.31
Tunisia	11,496,000	1.01
Portugal	6,436,000	0.62

Country	Geese and guinea fowl	Geese and guinea fowl per capita
World	380,620,000	0.05
China, mainland	315,350,000	0.22
Russian Federation	15,448,000	0.11
Mozambique	12,291,000	0.43
European Union	10,975,000	0.02
Egypt	7,045,000	0.07
Ukraine	5,115,000	0.12
Romania	4,688,000	0.24
Poland	3,989,000	0.10

Country	Geese and guinea fowl	Geese and guinea fowl per capita
Myanmar	3,455,000	0.07
Madagascar	3,014,000	0.12
China, Taiwan Province of	2,394,000	0.10

Country	Rabbits and hares	Rabbits and hares per capita
World	316,686,000	0.04
China, mainland	226,202,000	0.16
Democratic People's Republic of Korea	35,946,000	1.42
European Union	23,396,000	0.05
Czechia	6,049,000	0.57
Italy	5,766,000	0.10
Ukraine	5,043,000	0.11
Nigeria	4,647,000	0.02
Russian Federation	3,721,000	0.03
Egypt	3,638,000	0.04
Spain	3,569,000	0.08
Romania	1,826,000	0.09

## USDA data

From the tables above, we see that the United States is one of the key countries in meat production. For this reason, we will look further into trends over time in the production of farmed animals in the United States. In order to understand these trends, the primary two metrics we consider are the number of animals killed per capita and the pounds of meat produced per capita. We look at the numbers on a per capita basis

in order to control for effects of population growth and make other trends more apparent. In the United States, monthly data on meat production from vertebrate land animals is provided by the <u>United States</u> <u>Department of Agriculture (USDA)</u>. Monthly population data is provided by the <u>Federal Bank of St.</u> <u>Louis</u>. To get a sense of the overall trends we first look at the total number of animals slaughtered per capita and the total pounds of meat produced per capita.

In the plots below, each dot represents the value in a given month. Fit lines are given using local regression, a generalization of linear regression which is useful for data exhibiting non-linear trends. Data is available for birds going back to 1960 and mammals going back to 1983, but we display only the data from 2000 to the present because we are most interested in tracking the progress of the present-day animal advocacy movement. *The R code used to generate these plots is available upon request.* 

## Number of animals slaughtered

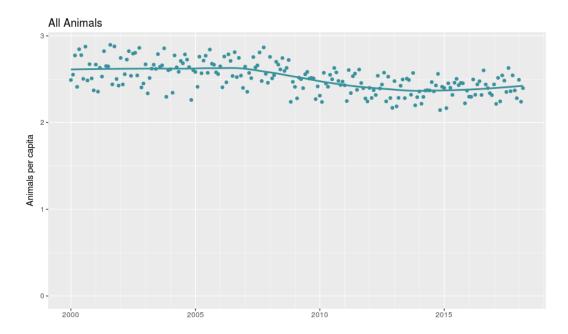


Figure 1: Number of vertebrate land animals slaughtered per capita per month from 2000 to 2018

In Figure 1 we see an overall downward trend in the number of animals slaughtered per capita, particularly around the years 2008 and 2009. While the number of animals slaughtered per capita has decreased in this time frame, it must be stressed that because the United States population has increased, this does not mean that the total number of animals slaughtered has decreased. The average number of animals slaughtered per capita each month was 2.51.

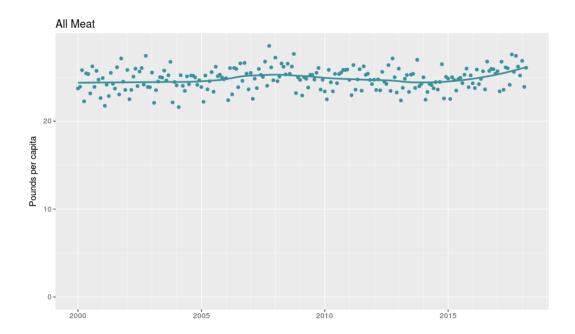


Figure 2: Pounds of vertebrate land animal meat produced per capita per month from 2000 to 2018

The overall trend in Figure 2 shows that the pounds per capita of meat produced has remained relatively constant between 2000 and 2018. Over this time period, the average was 24.8 pounds of meat produced per capita each month.

In both Figure 1 and Figure 2 a notable feature is the downturn in production around the years 2008 and 2009. This downturn is especially pronounced in Figure 1, where the most recent numbers show that the total number of animals slaughtered per capita is still below its peak between 2000 and 2005. While Figure 1 shows an overall decrease in one measure of production, Figure 2 shows an overall increase. The reason for the differences between these plots is change in the relative numbers of different species being produced and changes in the average weights of those species. When heavier animals are killed, meat production in pounds per capita can increase while the number of animals slaughtered per capita can decrease.

To get a better sense of the trends, we look at a breakdown by species. By far the majority of land animals slaughtered are chickens, so the plot of chickens slaughtered per capita looks similar to the plot of all animals slaughtered per capita.

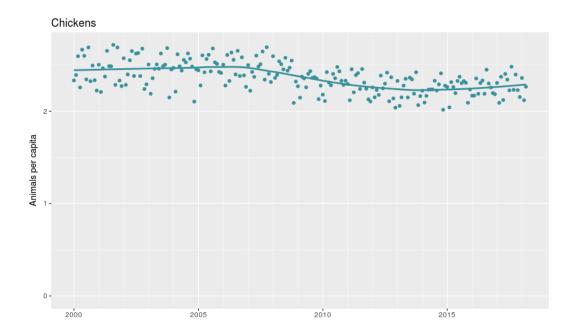


Figure 3: Number of chickens slaughtered per capita per month from 2000 to 2018

In Figure 3 we see generally the same trend as in Figure 1. The average number of chickens slaughtered per capita in this time period was 2.36 per month, which makes up the bulk of the total 2.51 animals slaughtered per capita per month seen in Figure 1.

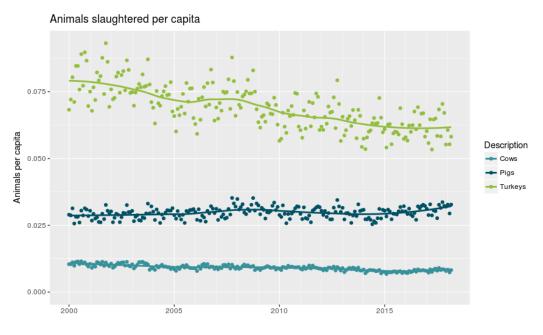


Figure 4: Number of turkeys, pigs, and cows slaughtered per capita per month from 2000 to 2018

For turkeys, the trend in Figure 4 is an overall decrease, and the average over the time period shown is 0.0691 turkeys slaughtered per capita per month (or 0.829 per year).

We see in Figure 4 that while there has been some variation in the slaughter of pigs—with a peak around 2008—the number slaughtered per capita has, overall, increased beyond its level in 2000. We also note that the average number of pigs slaughtered per capita from 2000 to 2018 was 0.0297 per month (or 0.356 per year).

The trend for cows has been an overall decrease in the number slaughtered per capita from 2000 to 2018, with an average of 0.00911 per month (or 0.109 per year). However, it should be noted that total number of cows slaughtered appears to be rising since the minimum in 2015.

#### Pounds of meat

While the number of animals being slaughtered is an important metric in that it directly shows the number of animals affected by meat production, the total pounds of meat produced gives us a better view of consumer choices. While the number of animals slaughtered varies greatly from species to species, the pounds of meat produced doesn't vary as much across species, so we can more easily make comparisons between species and see some shifts in the types of meat being produced.

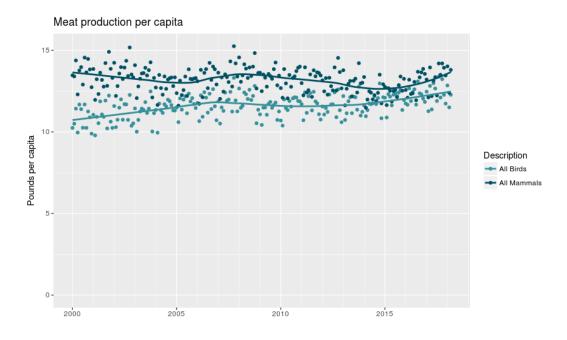


Figure 5: Pounds of meat produced per capita per month from 2000 to 2018 (separated by birds and mammals)

We see from Figure 5 that the total amount of mammal meat ("red meat") being produced and the total amount of bird meat ("poultry") being produced are nearer than they have been in the past. Over this time period, the total amount of mammal meat produced per capita per month was 13.2 pounds, while for bird meat it was 11.6 pounds.

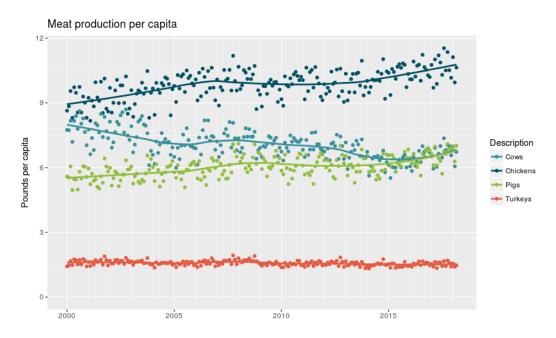


Figure 6: Pounds of meat produced per capita per month from 2000 to 2018 (separated by species)

Figure 6 provides further detail for the trends seen in Figure 5. Namely, the decrease in mammal meat production per capita is primarily due to a decrease in the amount of cow meat produced per capita, whereas pig meat production per capita has increased over this time. In this time period, the per capita meat production for chickens has averaged 9.86 pounds per month. For cows it has averaged 7.05 pounds per month, and for pigs it has averaged 6.04 pounds per month.

While the total number of chickens slaughtered per capita is below its level in 2000, Figure 6 shows that the total pounds of chicken meat produced per capita has increased beyond its level in 2000.

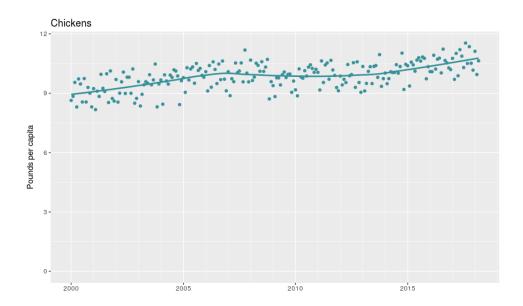


Figure 7: Pounds of chicken meat produced per capita per month from 2000 to 2018

The explanation for this is that the average weight of chickens has increased somewhat linearly over this time period.

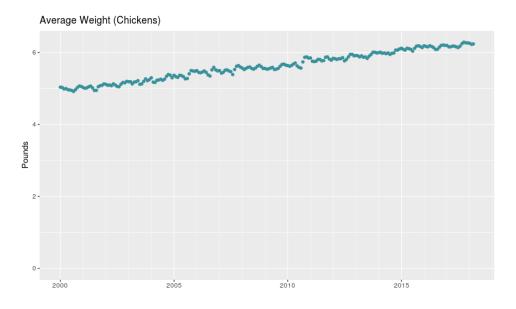


Figure 8: Average chicken weight at slaughter from 2000 to 2018

Figure 8 shows that the average weight of chickens has increased from about 5 pounds at slaughter in 2000 to 6.3 pounds in 2018.

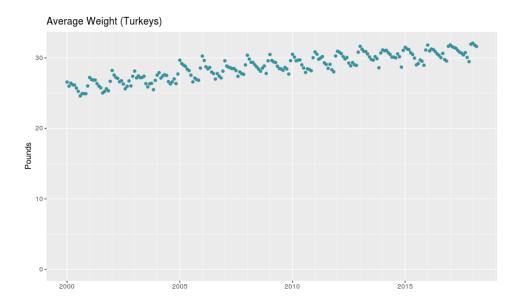


Figure 9: Average turkey weight at slaughter from 2000 to 2018

In Figure 9 we see a similar trend in turkeys, increasing in weight from around 26 pounds in 2000 to around 31 pounds in 2018. In turkeys, the average weight at slaughter appears to exhibit more seasonal variation than the average chicken weight seen in Figure 10.

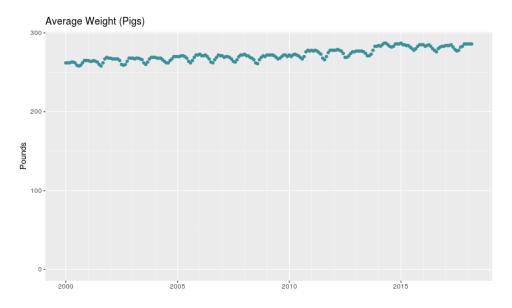


Figure 10: Average pig weight at slaughter from 2000 to 2018

We also see an increasing trend in the average weight of pigs at slaughter in Figure 10, from around 260 pounds in 2000 to around 285 pounds in 2018. While the overall trend for average pig weight in this time period is increasing, there are, again, seasonal variations.

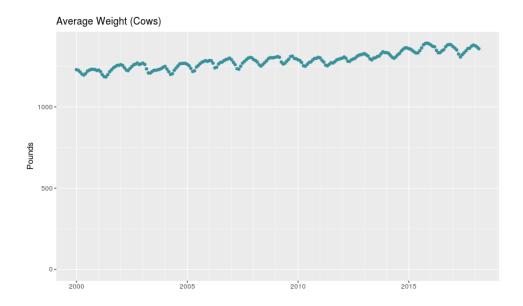


Figure 11: Average cow weight at slaughter from 2000 to 2018

In Figure 11 we see that average cow weight at slaughter has increased from about 1,225 pounds in 2000 to around 1,360 pounds in 2018. Again, there appear to be seasonal variations.

## Conclusion

From the FAO data we see that the main countries producing meat (in terms of animals slaughtered, weight of meat produced, and total stock) are China, the United States, Brazil, and Indonesia. We also see that, relative to other countries, European countries tend to favor the production of larger animals. While these animals also tend to be longer-lived and therefore account for a greater proportion of the total stock than of animals slaughtered, European countries are still not among the highest producers by that metric. We also see that some of the species most affected by animal agriculture are ducks, rabbits, geese, and guinea fowl, which are not commonly among animals represented in animal advocacy. This reflects the movement's focus on the western hemisphere.

In the United States, the number of animals slaughtered per capita has decreased since 2000, while the weight of meat produced per capita has increased. This appears to be due to the increasing weight of the animals being slaughtered. While the pounds of meat per capita have overall increased since 2000, there are time periods during which it decreased.

## Further questions

Further research should work towards ascertaining the extent to which these trends can be explained by economic factors such as meat price and gross domestic product (GDP) per capita. A better understanding of this relationship will help determine to what extent meat production is influenced by other factors, among them animal advocacy. In addition, understanding the effect of meat prices on meat production will help advocates determine the value of advocacy efforts that affect those prices.

Another avenue of further research is to explore similar trends in the production of invertebrates and fish.

Finally, exploring trends over time in other countries—particularly China—could prove quite valuable, especially as the animal advocacy movement begins to devote more resources towards China. In addition, we would be interested in exploring trends in total stock over time in the U.S., although we were not able to find the relevant data at this time.

## Key resources

<u>Livestock Production</u>. (2018). The Food and Agriculture Organization Corporate Statistical Database (FAOSTAT).

<u>Livestock & Meat Domestic Data</u>. (2018). United States Department of Agriculture Economic Research Service.