

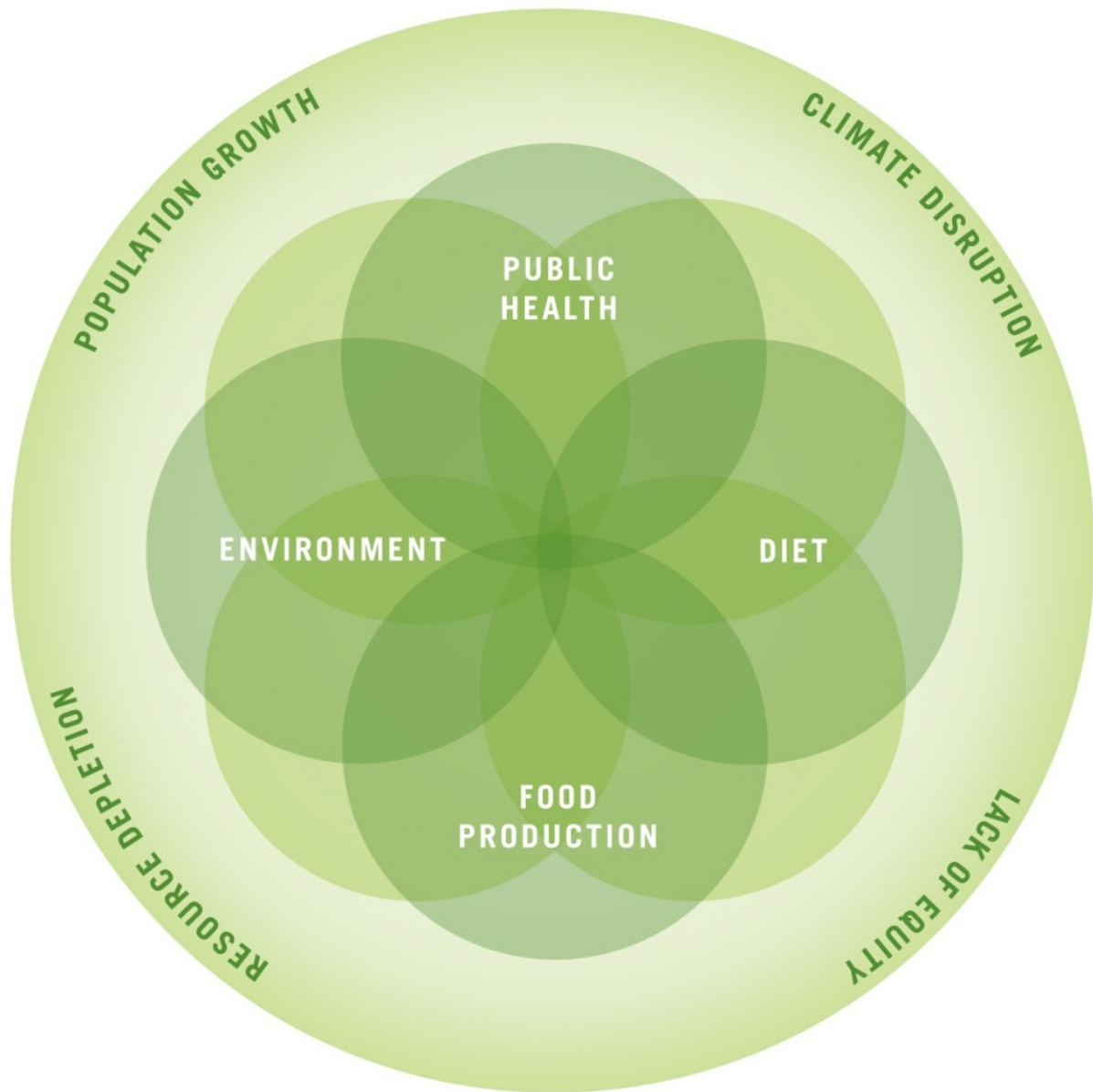
The Impact of Industrial Food Animal Production (IFAP) on Workers and Communities

Brent Kim, MHS

**Factory Farm Forum
January 30, 2016**



JOHNS HOPKINS
CENTER *for* A LIVABLE FUTURE



Overview

- Industry practices
- Public health risks





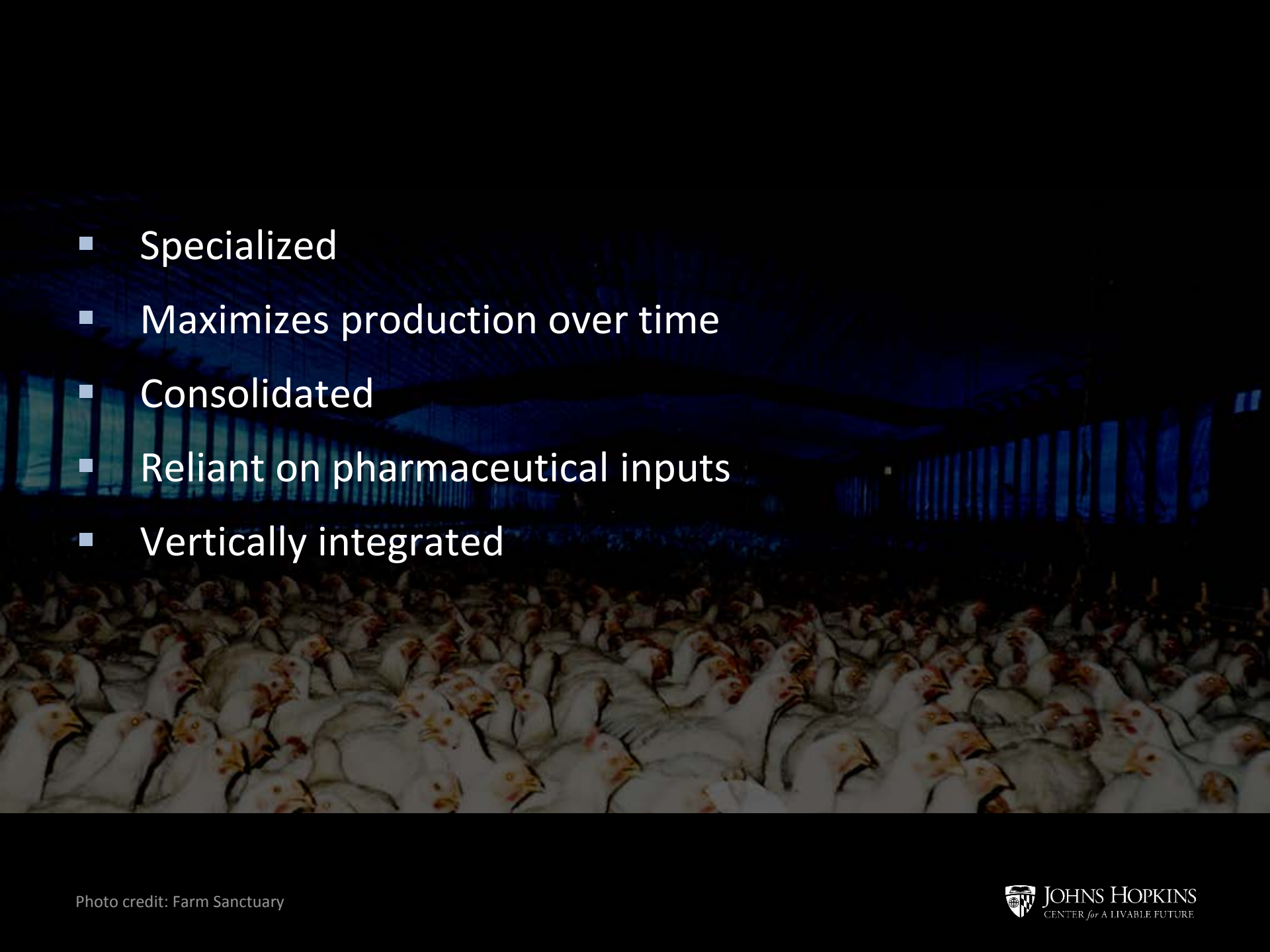
Image copyright



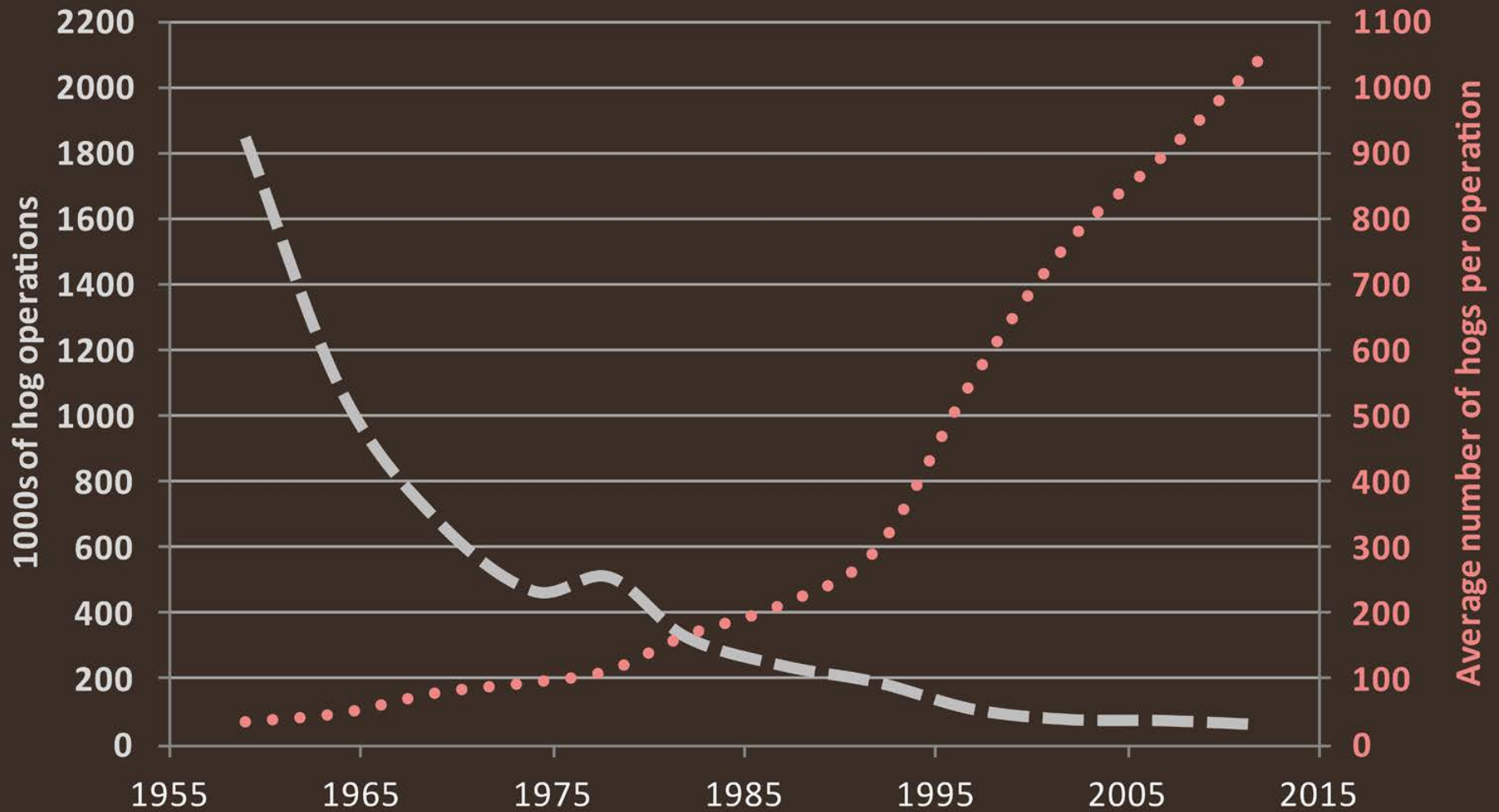
Photo credit: Jeff Vanuga, USDA Natural Resources Conservation Service.



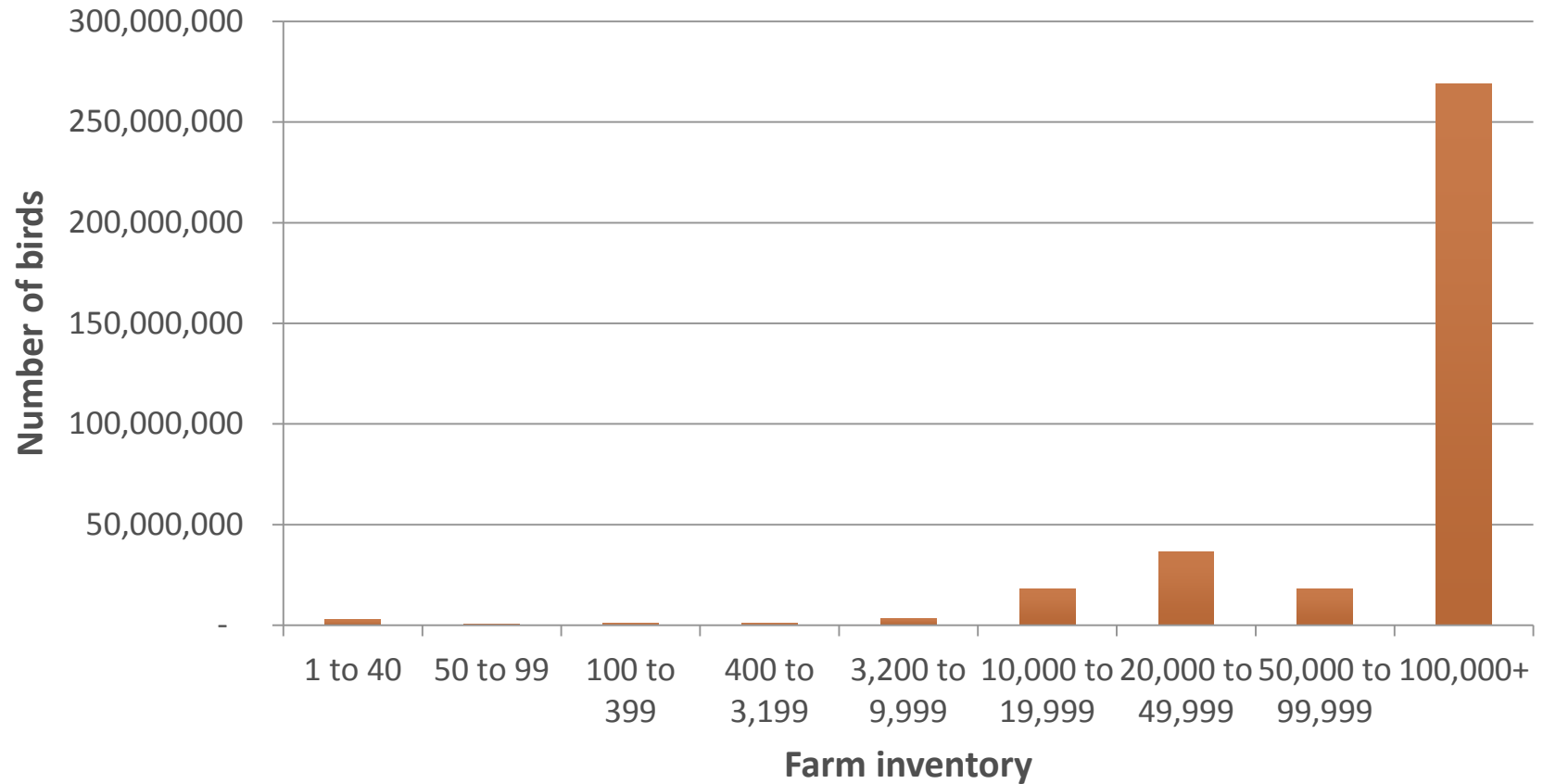
Photo credit: Farm Sanctuary

- 
- A photograph of a large indoor poultry farm, likely a broiler house. The floor is covered with a dense layer of white chickens. The structure is a long, narrow building with a high ceiling and large windows on the sides, creating a bright, industrial atmosphere. The lighting is somewhat dim, highlighting the texture of the chickens' feathers and the repetitive structure of the building.
- Specialized
 - Maximizes production over time
 - Consolidated
 - Reliant on pharmaceutical inputs
 - Vertically integrated

Consolidation – hog production

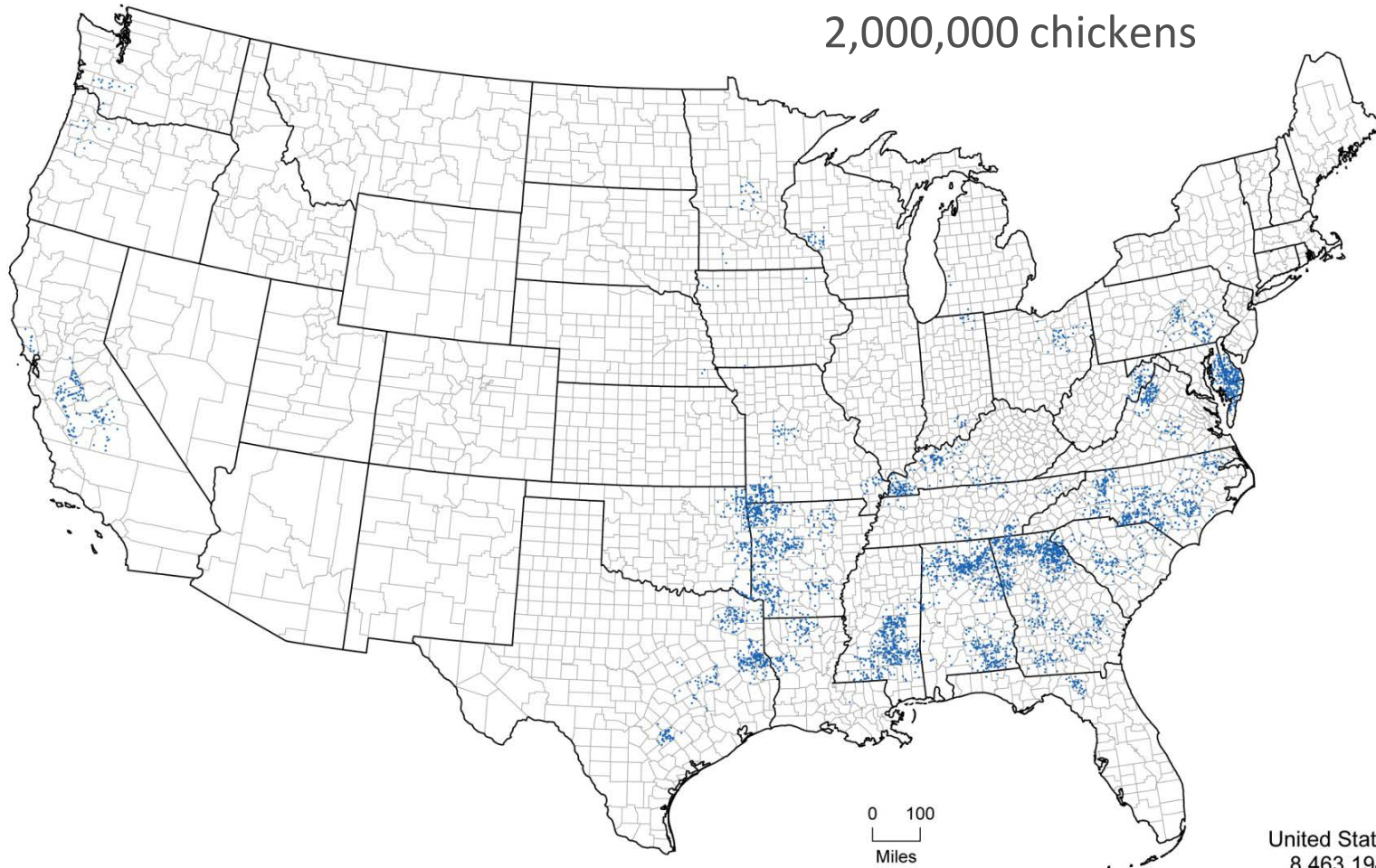


Consolidation – egg production



Geographic concentration (broilers)

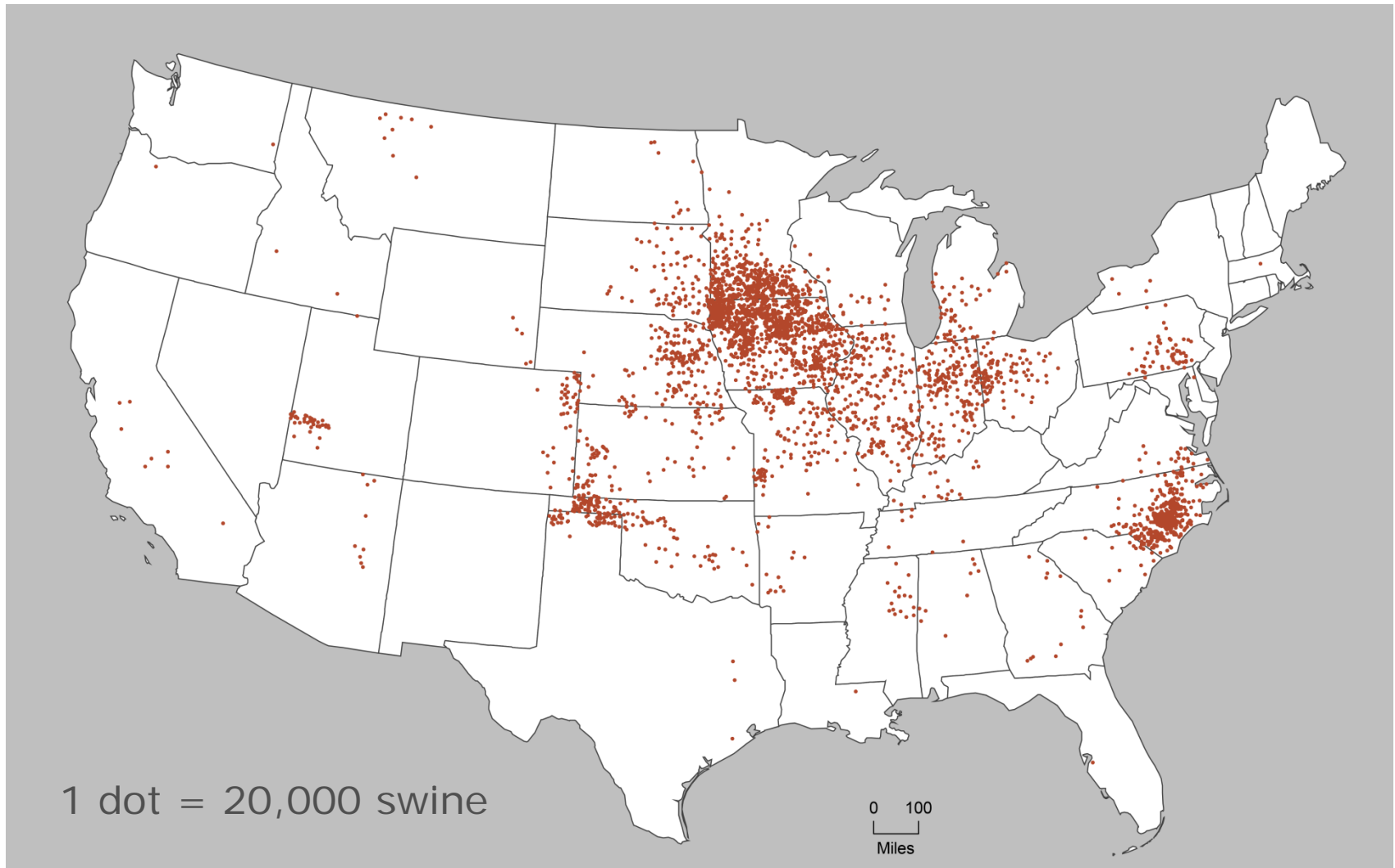
1 dot = annual sales of
2,000,000 chickens



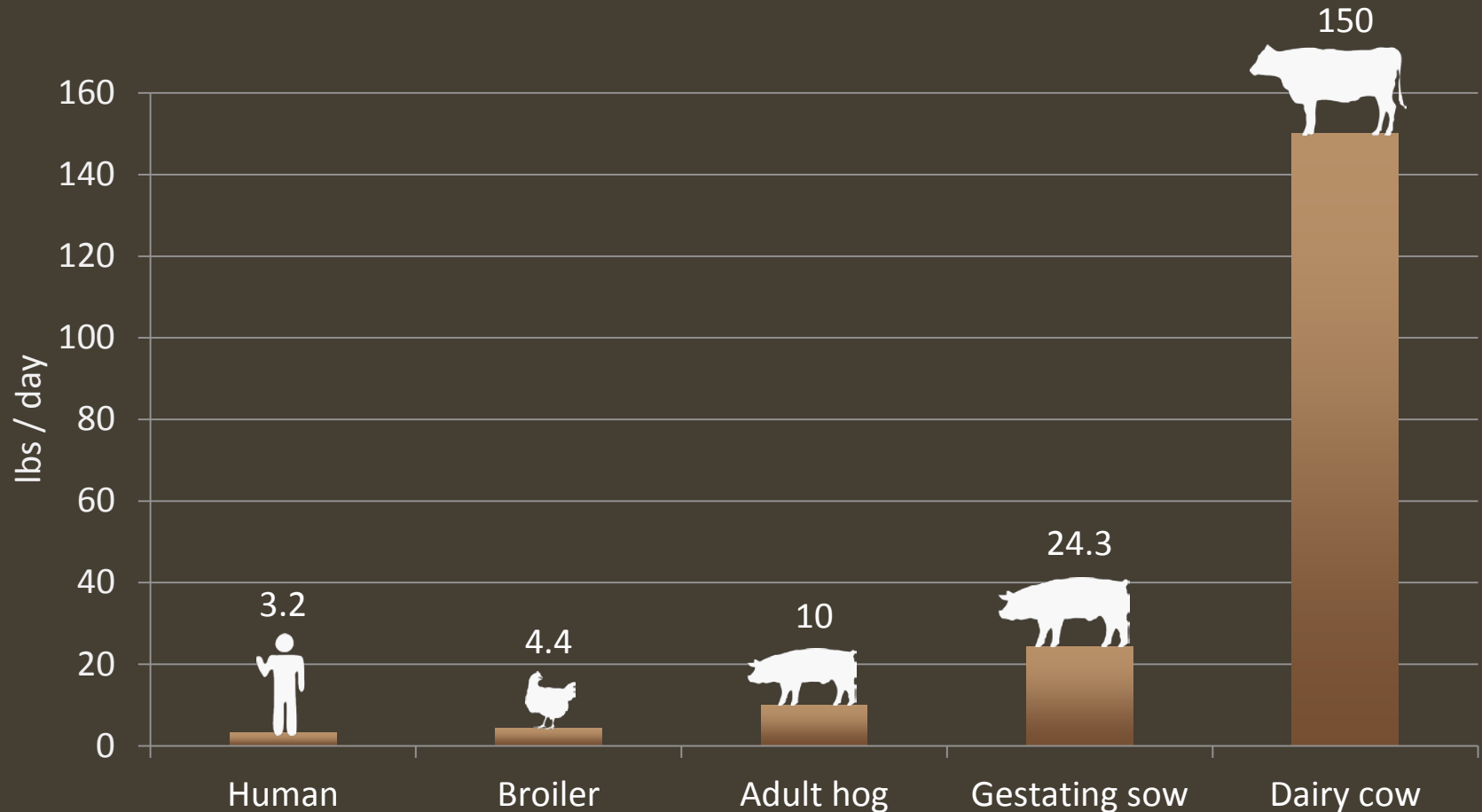
United States Total
8,463,194,794

12-M158
U.S. Department of Agriculture, National Agricultural Statistics Service

Geographic concentration (swine)



Waste generation



Data source: American Society of Agricultural Engineers, 2005.



Photo credit: Jane Thomas, Integration and Application Network
University of Maryland Center for Environmental Science

Waste generation



Waste generation

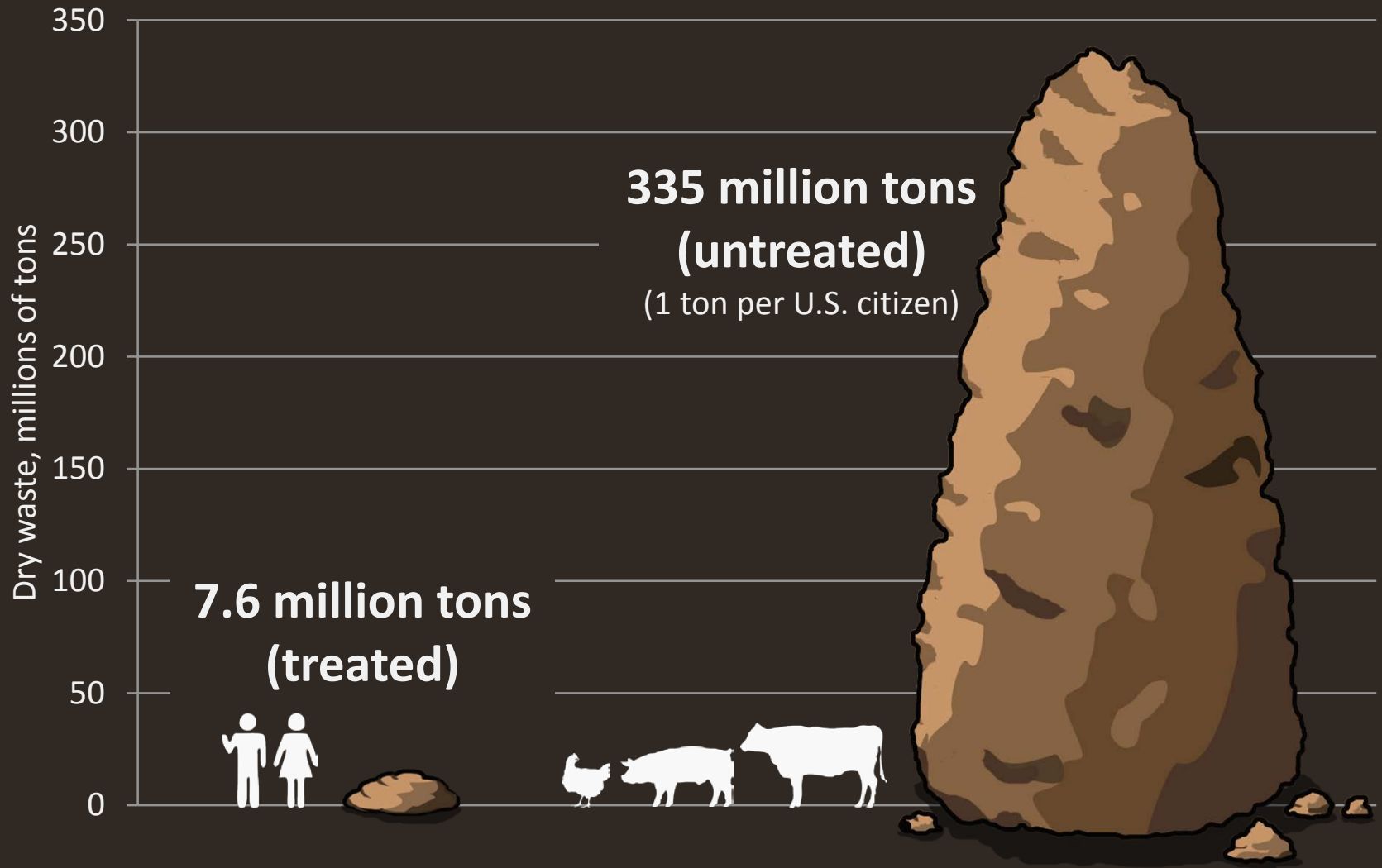




Photo credit: Jeff Vanuga , USDA Natural Resources Conservation Service.

Filters

Animals Shown

-  All
-  Cattle
-  Dairy
-  Hogs
-  Broilers
-  Layers


Census Year

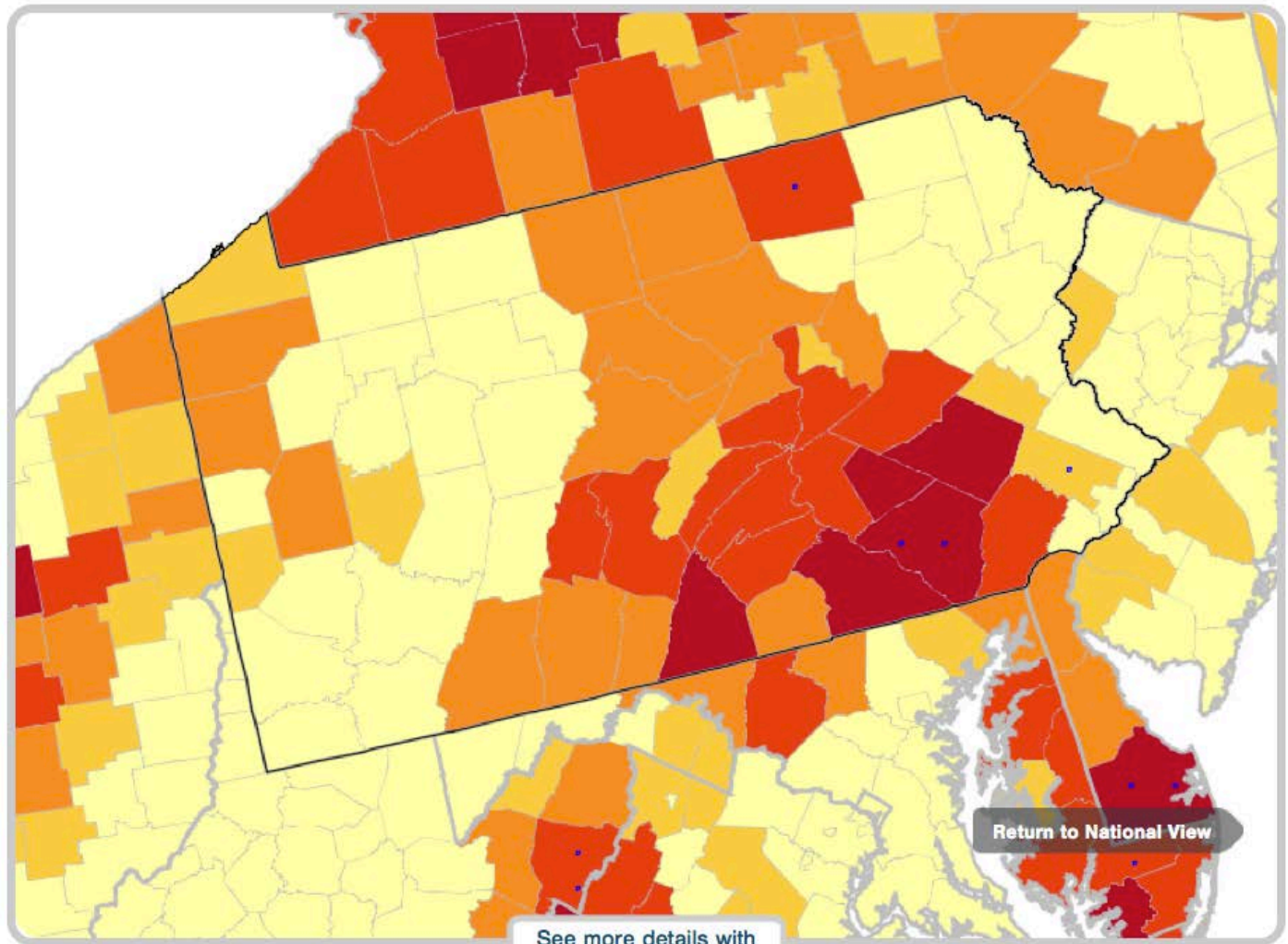
- 1997
- 2002
- 2007

Map Keys

Density Level



 Meat Plants



Overview

- Industry practices
- Public health risks

Hazards associated w/IFAP waste

- Bacteria
- Protozoa
- Viruses
- Pharmaceuticals
- Heavy metals
- Excess nutrients
- Airborne particulates (e.g., animal dander, dried urine)
- Harmful gases (e.g., ammonia, VOCs, hydrogen sulfide)

Feed inputs

- Antibiotic drugs
- Manure
- By-products of slaughtered animals
- Rendered animals
- Industrial waste
- Heavy metals



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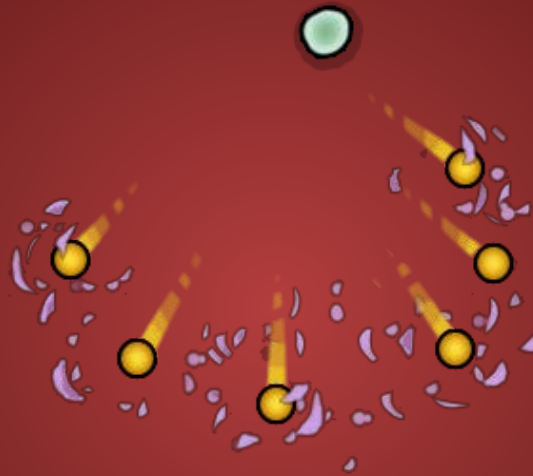




Antibiotics
administered at
low doses



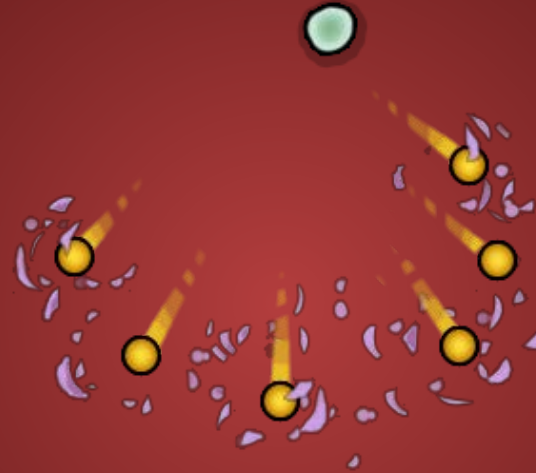
Antibiotics
administered at
low doses



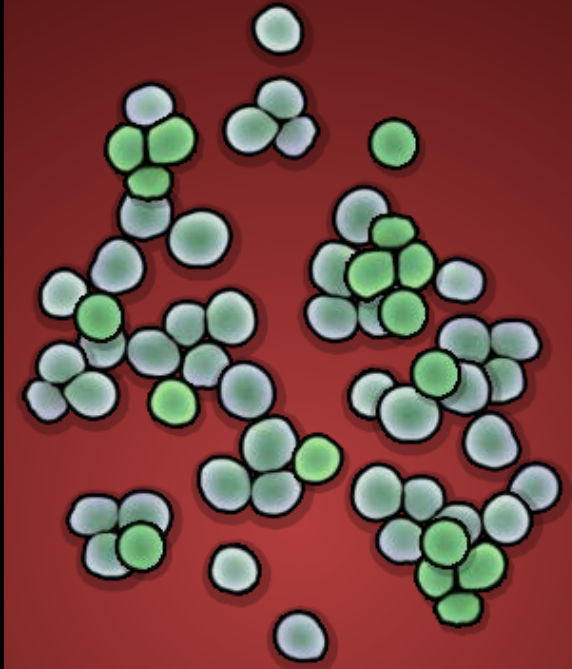
Susceptible
bacteria
eliminated



Antibiotics
administered at
low doses

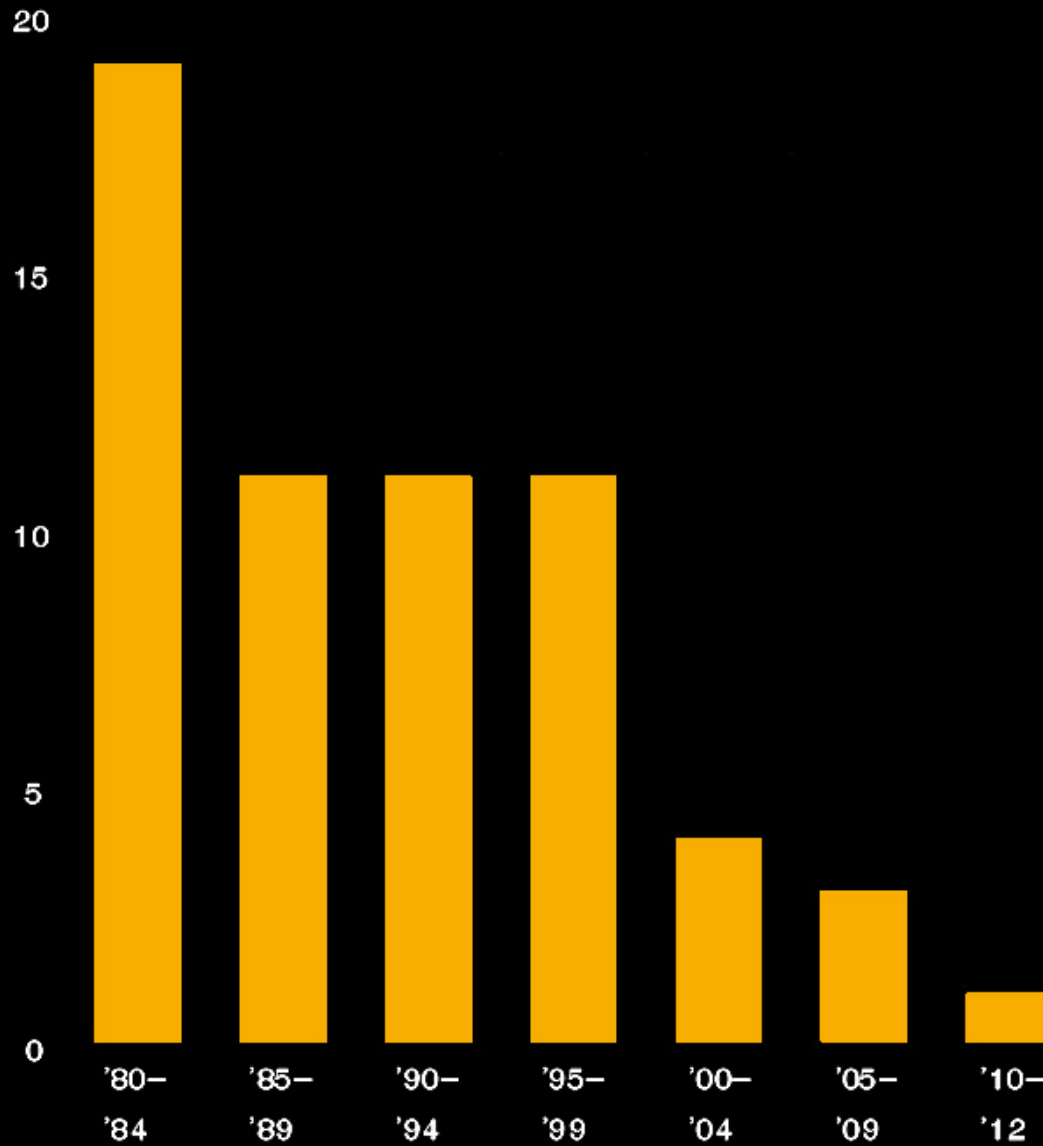


Susceptible
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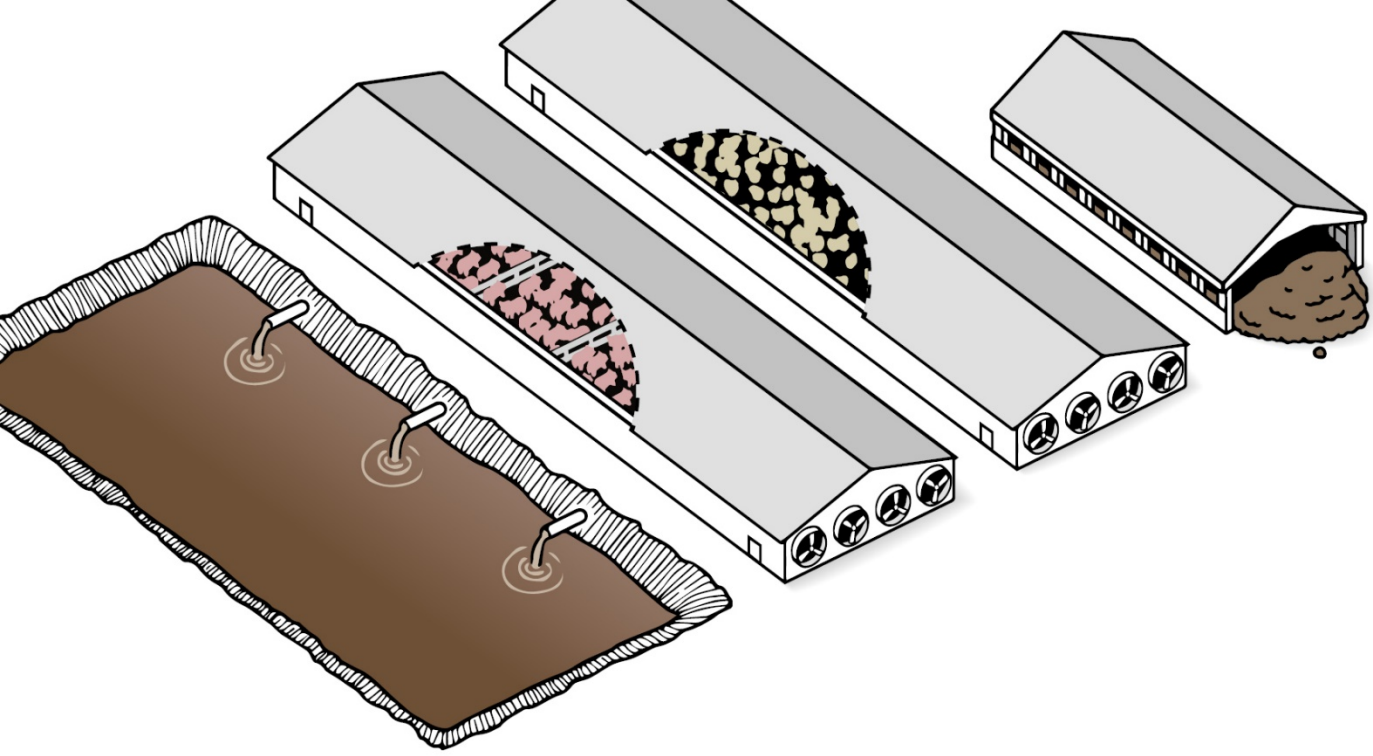
Resistant
bacteria survive
and multiply

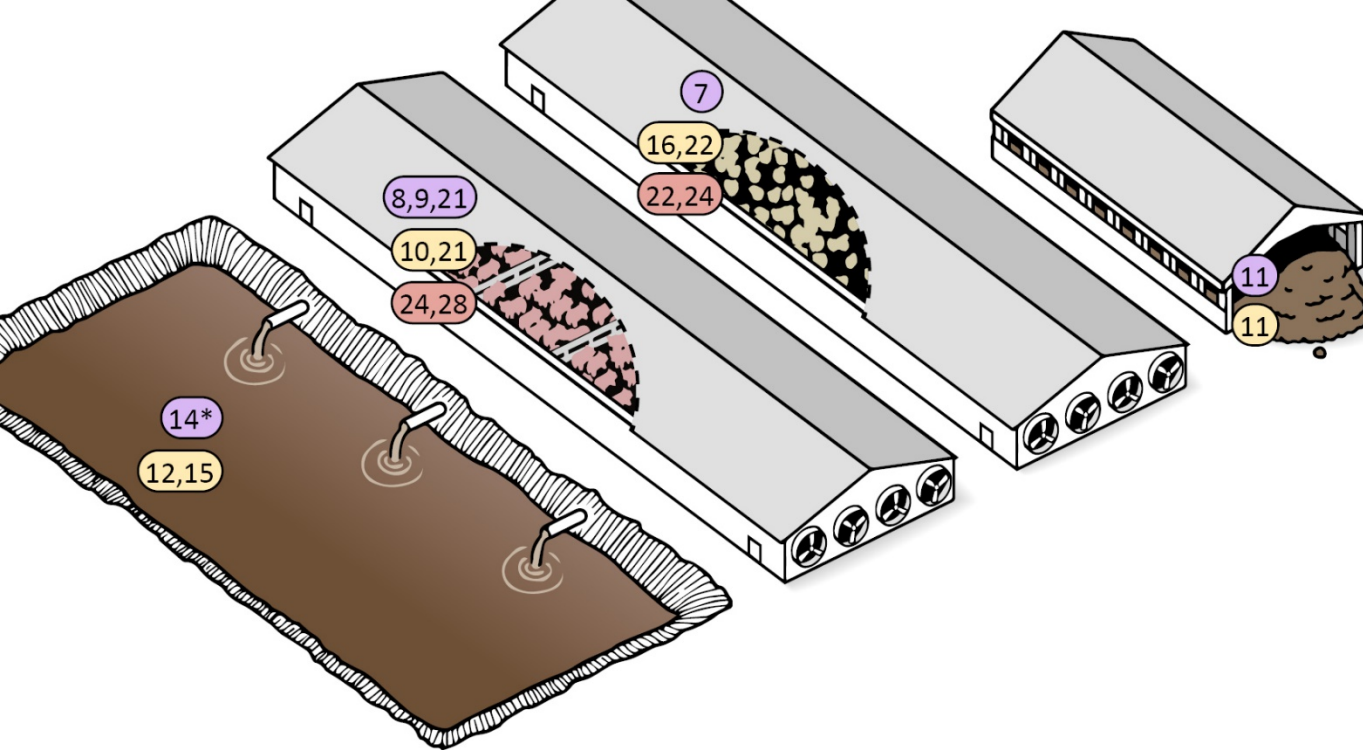
New antibiotic drug approvals



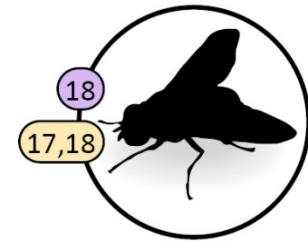
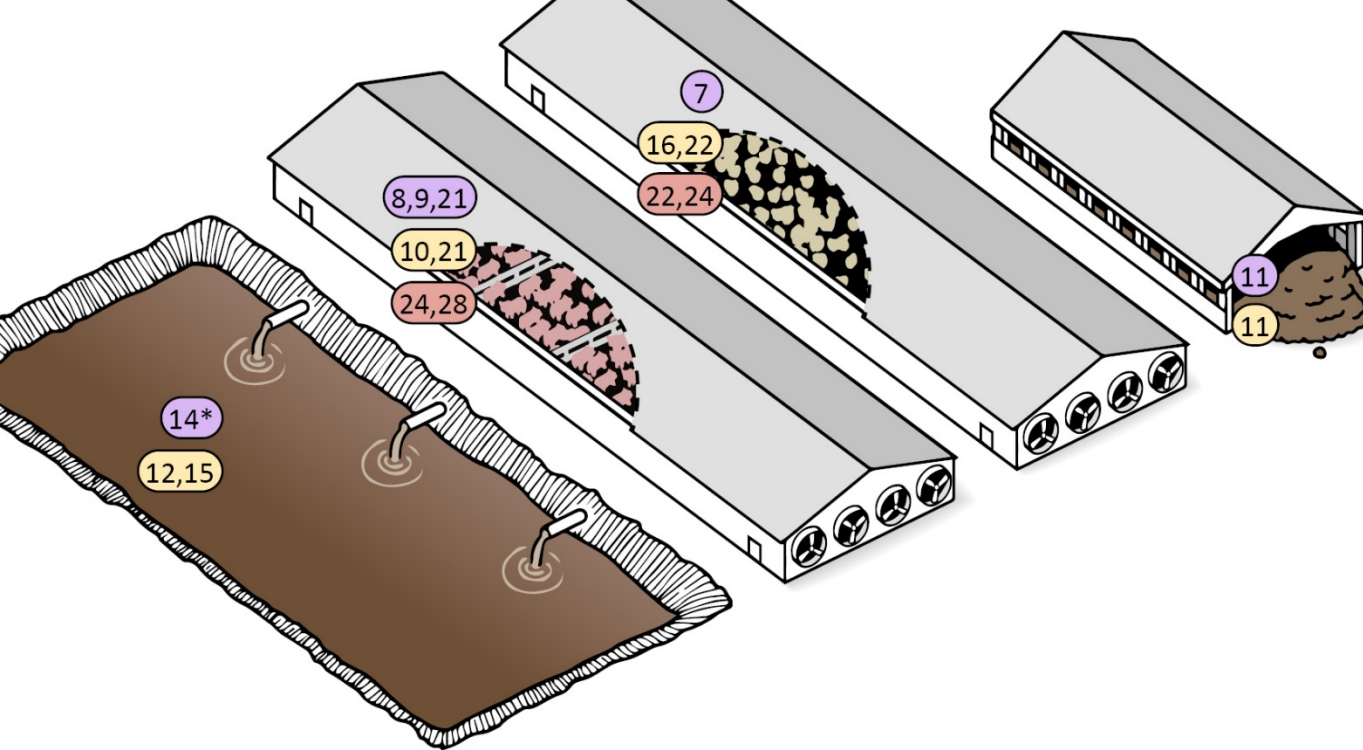
Antibiotic resistance – progress?

- FDA voluntary guidance?
- Eliminating medically-important drugs?

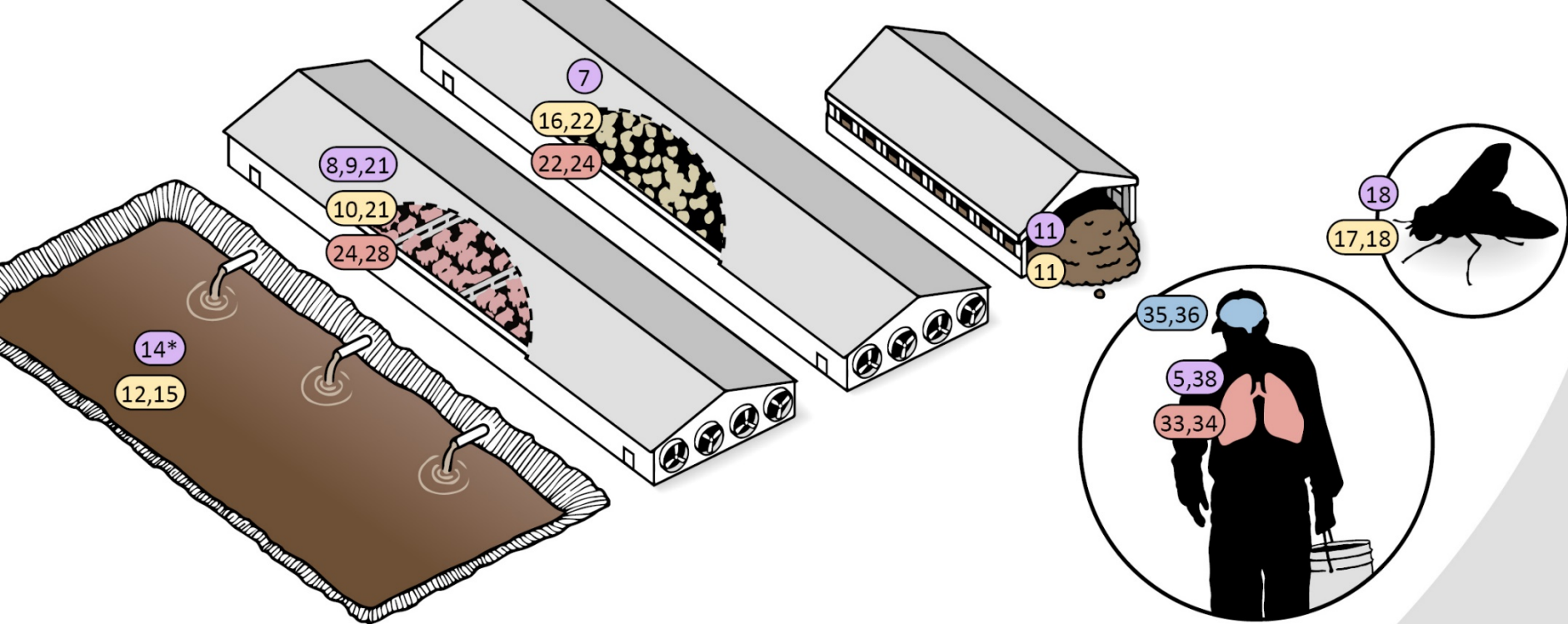




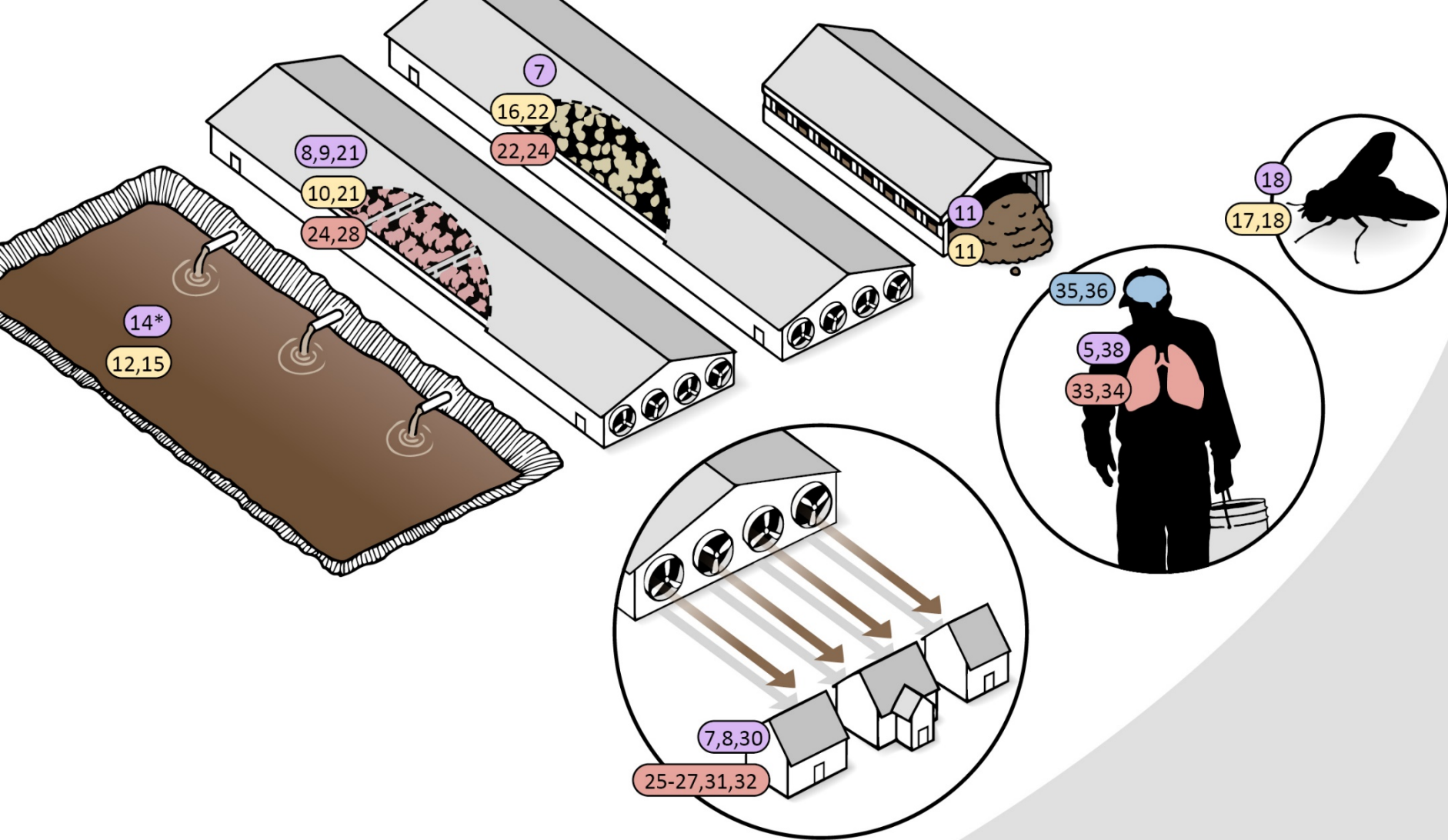
- Resistant *Staphylococcus*
- Resistant *Enterococcus*
- Gases and particulates / respiratory outcomes
- Psychosocial outcomes



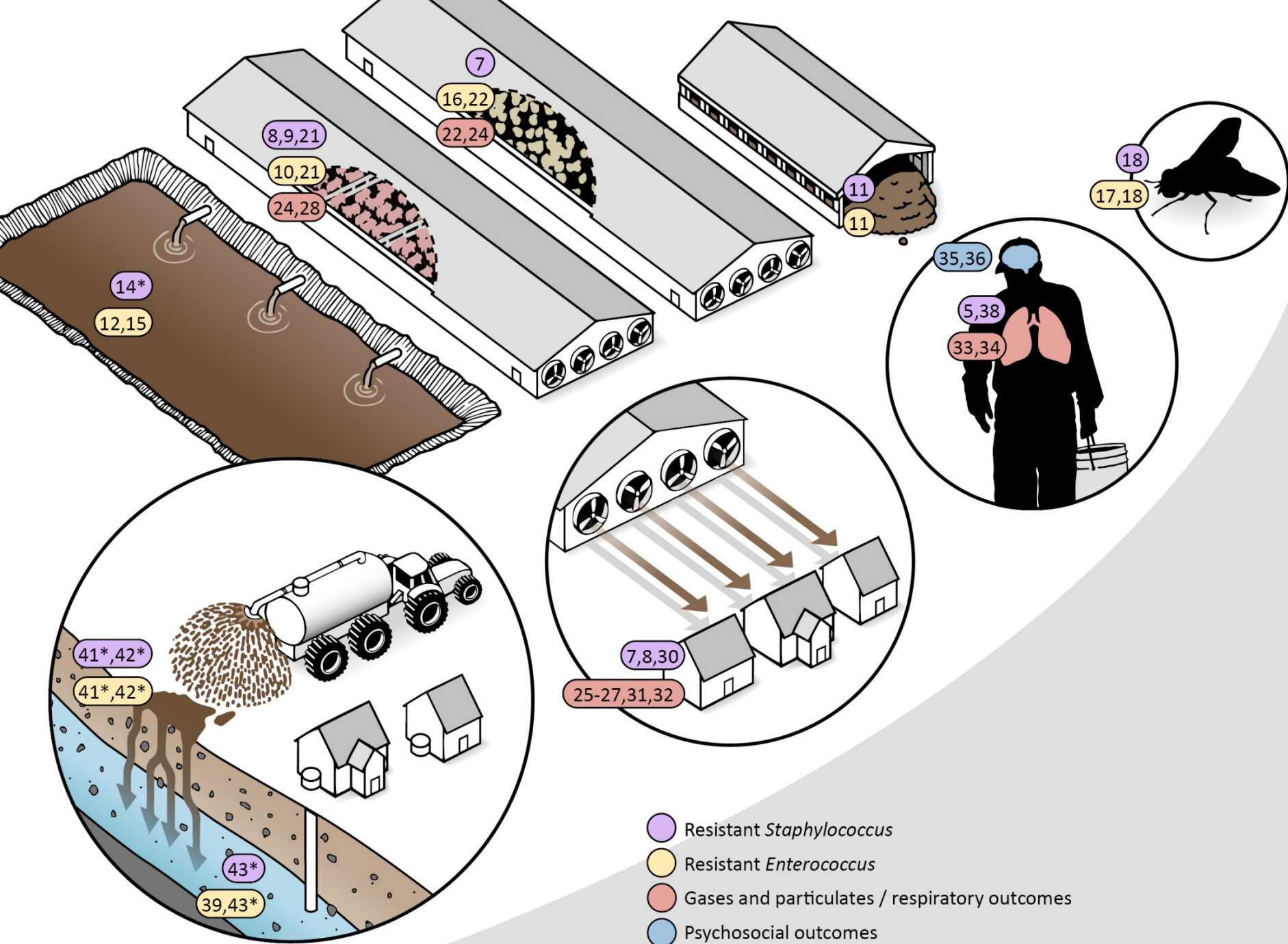
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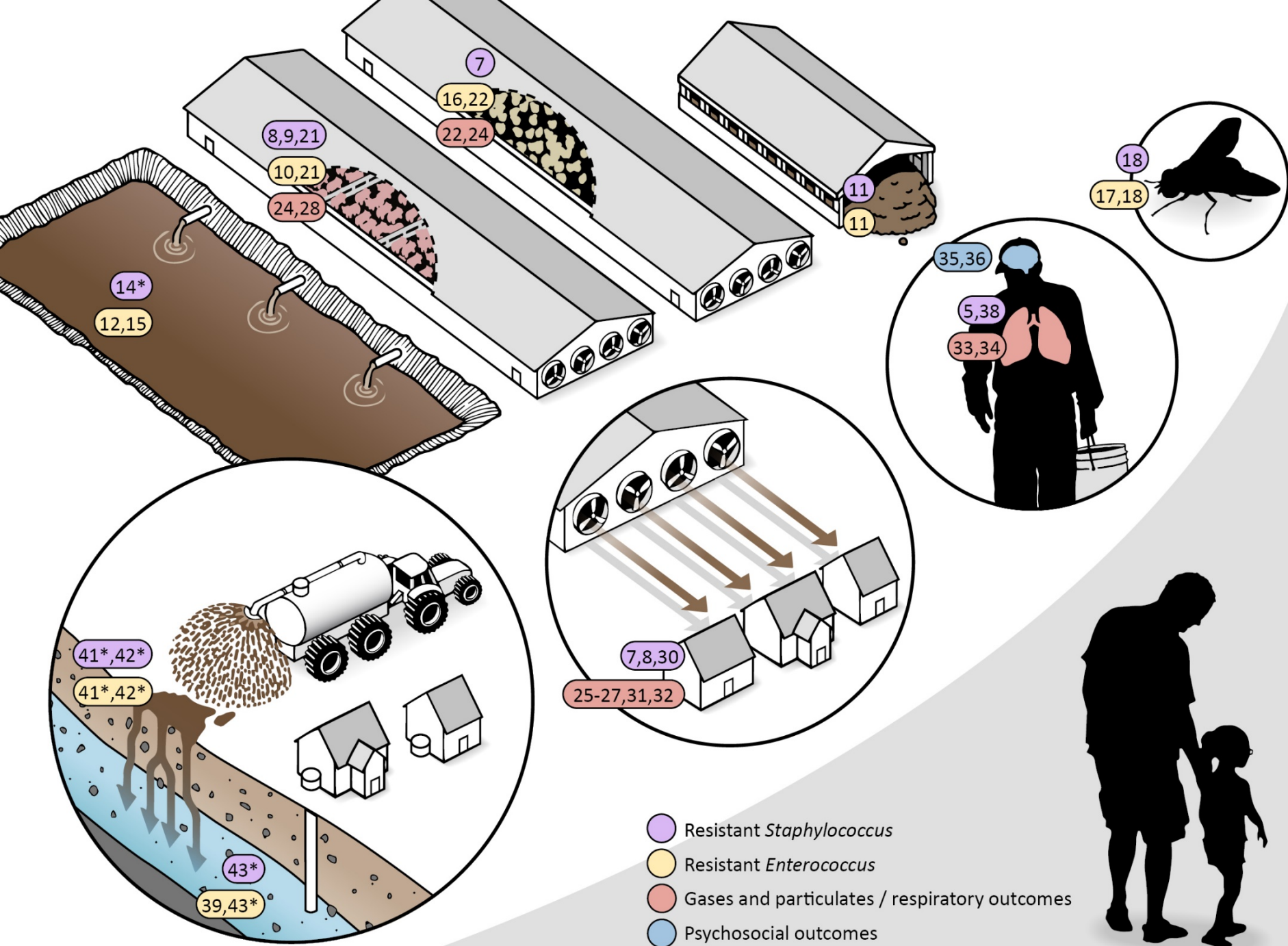


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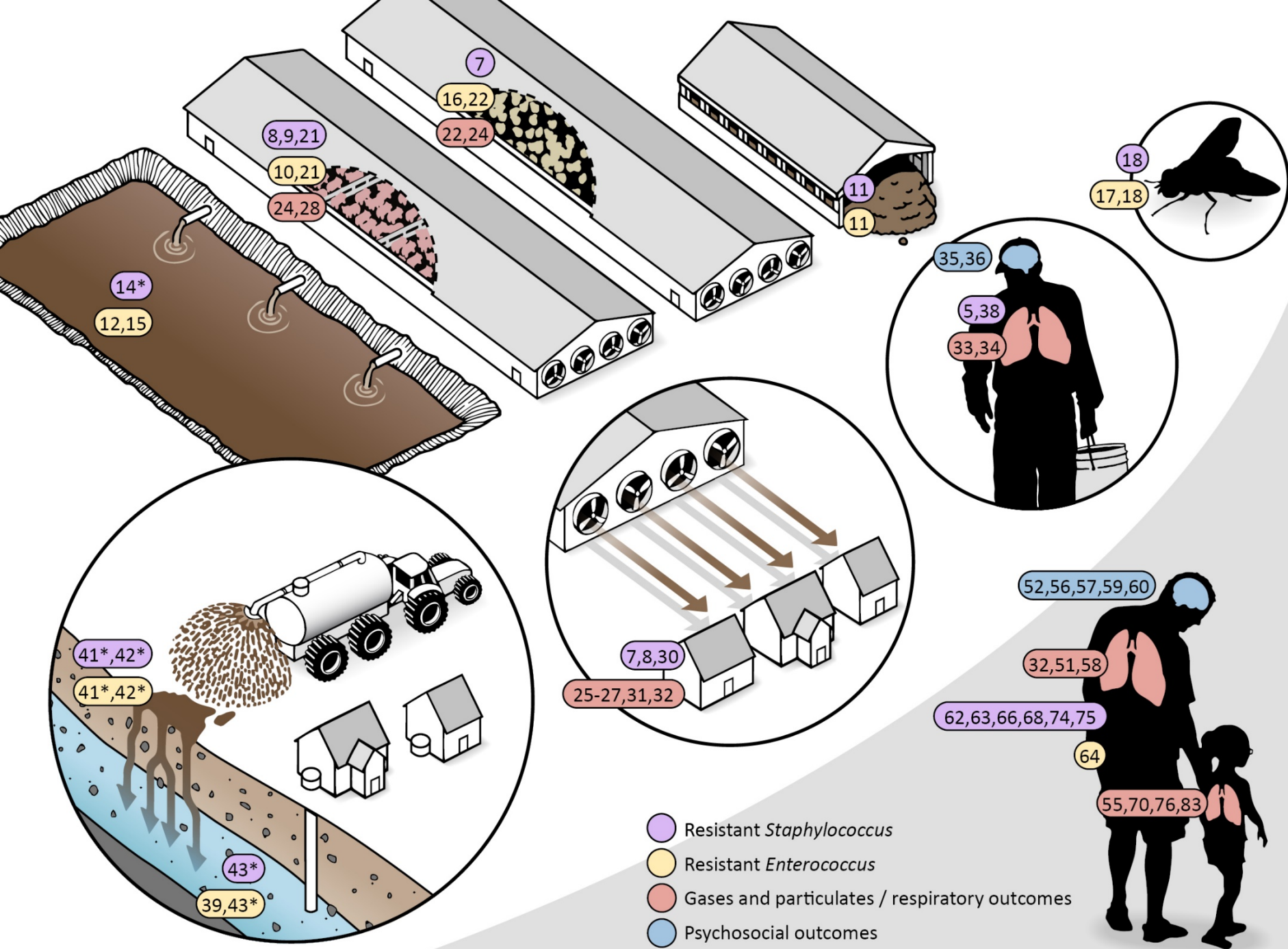


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- Resistant *Staphylococcus*
- Resistant *Enterococcus*
- Gases and particulates / respiratory outcomes
- Psychosocial outcomes



Ground / surface water pollution



Photo credit: Tim McCabe, USDA Natural Resources Conservation Service.

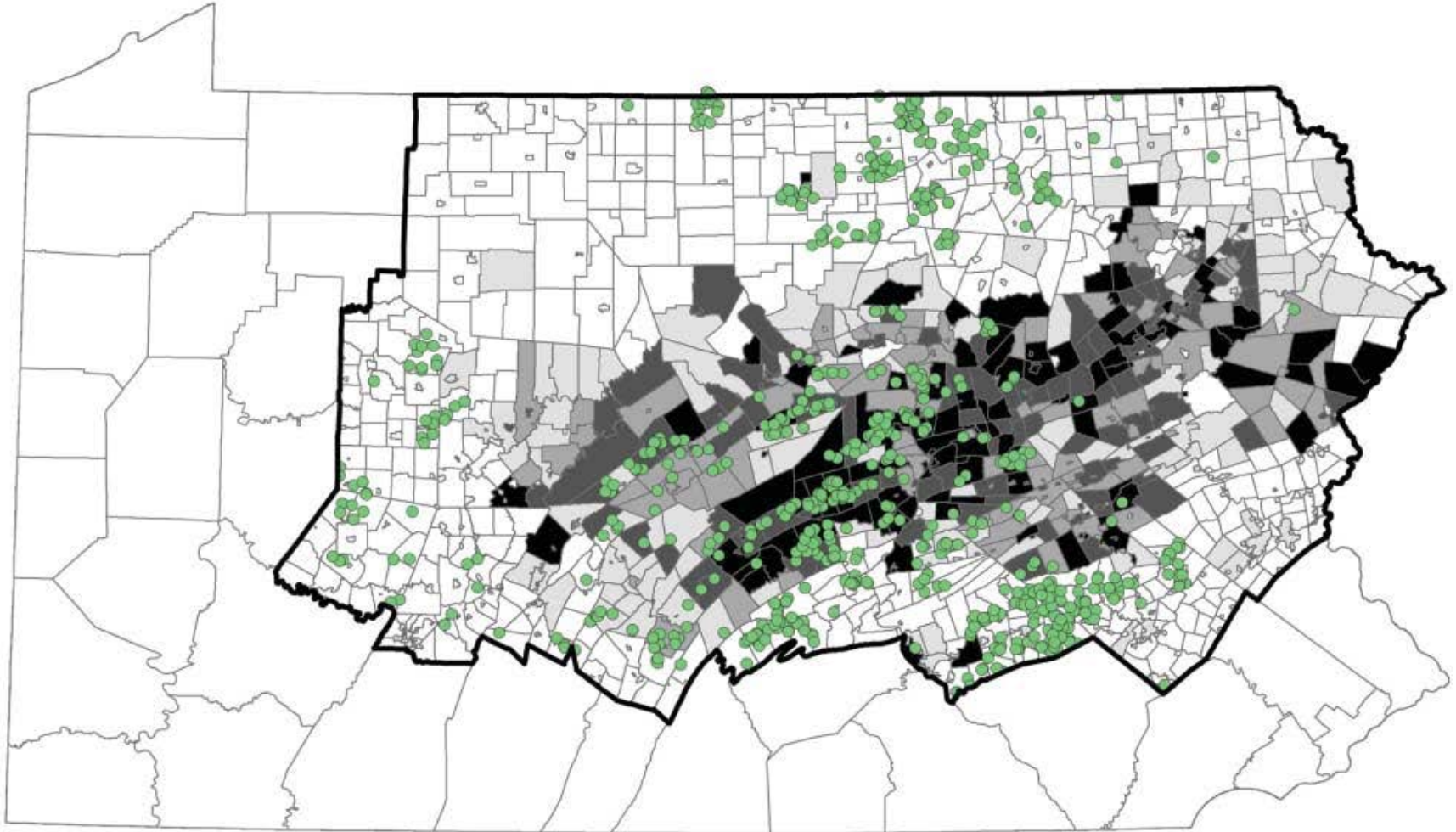
Ground / surface water pollution



Water-borne hazards

- Pathogens
- Nitrates
- Heavy metals

Swine waste, staph infections



High-Density Livestock Operations, Crop Field Application of Manure, and Risk of Community-Associated Methicillin-Resistant *Staphylococcus aureus* Infection in Pennsylvania. *JAMA Internal Medicine*, 2013; 173(21)

Swine waste, staph infections

Characteristic	Odds Ratio (95% CI)					
	CA-MRSA		HA-MRSA		SSTI	
	Univariate	Adjusted	Univariate	Adjusted	Univariate	Adjusted
Seasonal Crop Field Manure Exposure						
Swine ^b						
Quartile 1	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Quartile 2	1.11 (0.93-1.32)	1.09 (0.90-1.31)	1.15 (0.96-1.38)	1.21 (0.98-1.48)	1.03 (0.89-1.20)	1.03 (0.88-1.20)
Quartile 3	1.12 (0.94-1.33)	1.26 (1.04-1.52)	1.09 (0.90-1.31)	1.27 (1.03-1.57)	1.15 (1.00-1.33)	1.22 (1.05-1.41)
Quartile 4	1.34 (1.07-1.64)	1.38 (1.13-1.69)	1.26 (1.03-1.54)	1.30 (1.05-1.61)	1.34 (1.07-1.64)	1.37 (1.18-1.60)
P value ^c	.002	<.001	.04	.01	<.001	<.001

Flies



Photo credit: SRAP

Odors

“I think about the time everybody sat down to eat supper, we had all the windows closed but you couldn't eat because the odor was just that strong...

...It's just like you could eat [your food], but as soon as you got up or went outside ... you threw it back up.”

Odors

- High blood pressure
- Depression
- Anxiety
- Difficulty sleeping

Worker health



Photo copyright





Integrator:

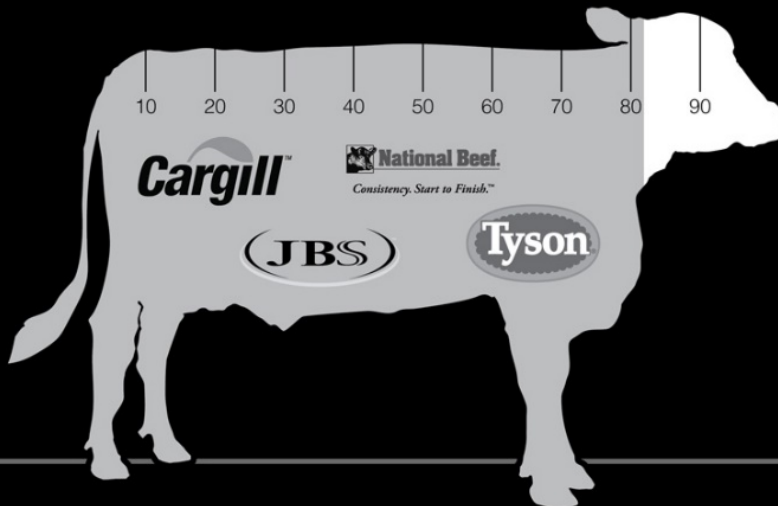
- Owns animals
- Controls inputs
- Owns feed mills, processing plants



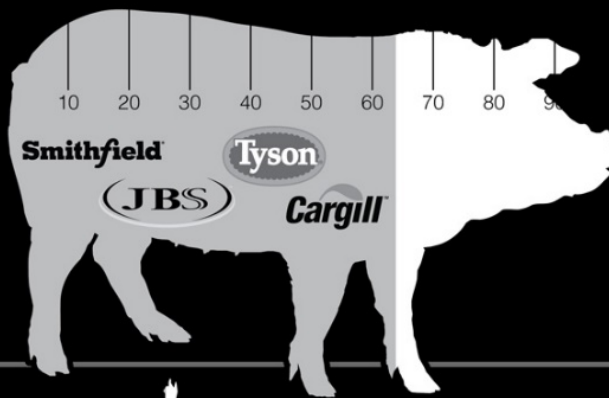
Grower:

- Provides labor
- Owns houses
- Exposed to waste, carcasses, other hazards

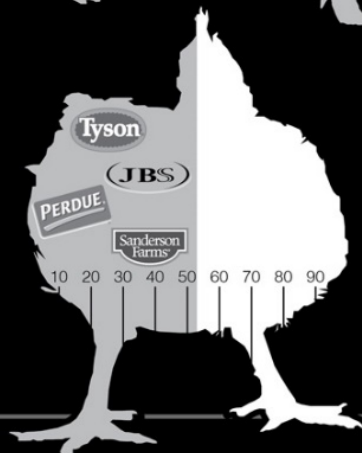
Cattle slaughter
2011: 82%
(up from 69% in 1990)



Hog slaughter
2011: 63%
(up from 45% in 1990)



Broiler slaughter
2011: 53%
(up from 45% in 1990)



Per capita animal product consumption

