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How Should We Regulate Agriculture That Doesn't Produce Food?

Should farmers who raise thoroughbred horses receive the same regulatory exemptions as those who grow vegetables? How about farmers who grow tobacco, flowers, or corn for ethanol, or who raise animals for fur coats? These are the questions that emerged in the forefront of my mind as I waded through the hundreds of pages of data contained in the recently released 2017 Census of Agriculture. The census is a treasure trove of information that paints a picture of the current state of farms, farmers, and farming in the United States—and, importantly, it reminded me that agriculture is not limited to food production.

Many dozens of hours would be required to get exact calculations on how much of our agricultural acreage is dedicated to non-food uses, but Figure 1 below can help us visualize my rough estimates to that effect.

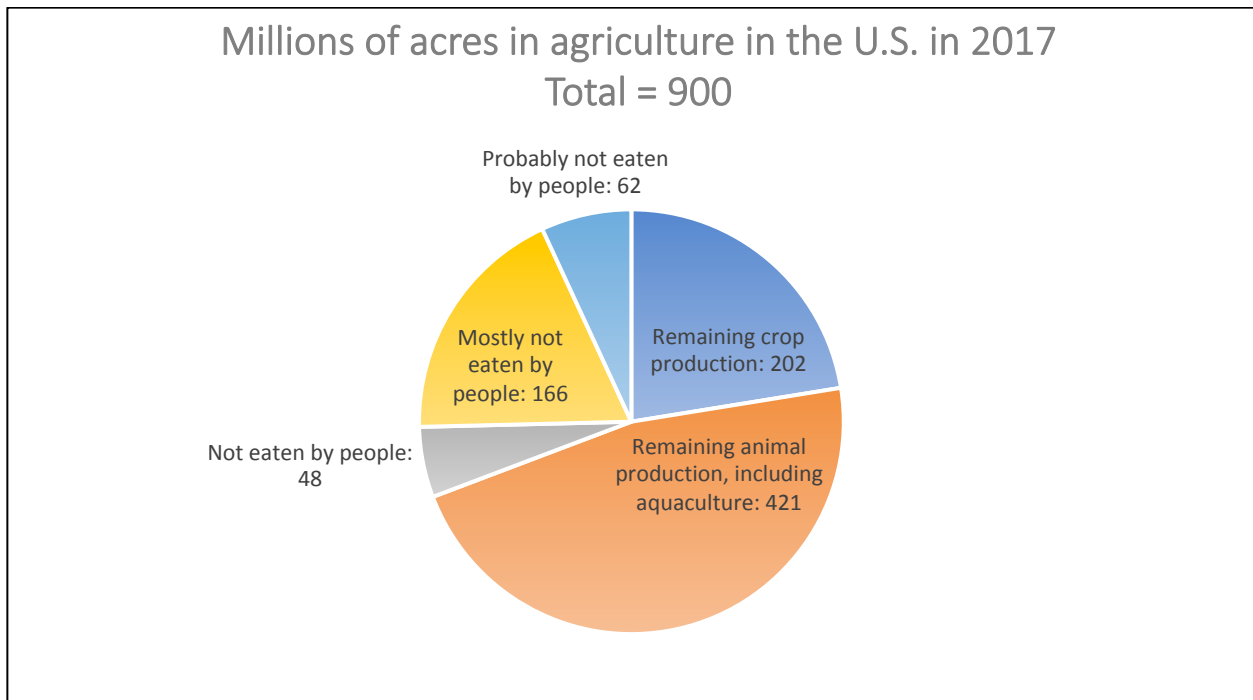


Figure 1 Data taken from "Table 48. Selected Characteristics of Farms by North American Industry Classification System: 2017" of the 2017 Census of Agriculture (USDA, 2019). The **Not eaten by people** category is made up of acreage dedicated to flowers, tobacco, fur-bearing animals, and hay. The **Mostly not eaten by people** category is made up of acreage dedicated to cotton, corn, and soybeans. The **Probably not eaten by people** category is made up of acreage dedicated to thoroughbred horses, burros, donkeys, mules, ponies,

*and other horses, nursery and tree production, and animals raised for pets and other non-specified uses. These three categories, meant to give some idea of how much US agriculture goes toward non-food production, represent an under accounting, as data for all crops that might have been included in them (e.g. Kentucky bluegrass and sorghum) was not readily available for inclusion. The **Remaining crop production** category = total acreage in crop production, excluding crop acreage accounted for in Not eaten by people, Mostly not eaten by people, and Probably not eaten by people. The **Remaining animal production, including aquaculture** category = total acreage in animal production excluding acreage accounted for in Not eaten by people and Probably not eaten by people.*

Goods that are “Not eaten by people” include flowers³, tobacco, fur-bearing animals, and hay. Because of a lack of specific data, my calculation excludes, for example, Kentucky Bluegrass⁴ and the roughly 16 million acres we dedicated to growing cotton.

We do impressively eat a small amount of cotton and feed it to the farmed animals that we then eat (EPA, 2013). Thus, cotton is accounted for in my next category of “Mostly not eaten by people.” Also in this category are

- corn – about 46% of which is dedicated to ethanol production for use in gasoline, 42% dedicated to livestock feed, and the remainder going toward high fructose corn syrup and non-food, industrial uses (ERS, 2019) and
- soybeans – about 70% of which are used for livestock feed with another 5% going to biodiesel production (USDA, 2015).

It matters that we feed a portion of these crops to farmed animals because we lose a lot of the resources that we put into growing them in the process. In the United States, we sacrifice 66%-90% of the **protein** we feed to aquatic and land animals and 75-95% of **calories** (Fry et al., 2018). This loss stems from the fact that all animals use calories and nutrients to grow and stay alive. Many of us think of burning calories in terms of something we strive for by exercising, but all animals burn calories simply by living. This process involves putting to use the energy we consume in food to help us grow in childhood, then keep our hearts beating, our lungs functioning, and powering every action we take in daily life. We call using this energy – all of which ultimately comes from plants photosynthesizing light from the sun into edible calories – “burning” because we release all the calories we use as heat into the environment (see Figure 2). The animals that we eat likewise burn calories, especially when growing from infancy to slaughter weight, and those calories are thus no longer available for human consumption (Fry et al., 2018; Shepon et al., 2016; Heitschmidt, Short & Grings, 1996). Similarly, animals use the nutrients they eat, like protein, to perform the necessary functions of staying alive and building body parts. Farmed animals excrete some of these nutrients in urine and feces throughout their lives. We also generally do not eat all body parts of food animals in the United States and thus fail

¹ <https://siccode.com/naics-code/112920/horses-equine-production>

² <https://siccode.com/naics-code/11142/nursery-floriculture-production>

³ <https://siccode.com/naics-code/11142/nursery-floriculture-production>

⁴ <https://siccode.com/naics-code/111998/crop-farming>

to eat the nutrients stored in bones, blood, brains, teeth, etc. Many of these nutrients (including as poop) are currently recycled as feed for the next generation of farmed animals. Even in the very most efficient conceivable system, however, energy losses are inevitable the higher we eat up the food chain (Heitschmidt, Short & Grings, 1996). Thus we might, very conservatively, consider over half of the land dedicated to growing livestock feed to be simply wasted (Aleksandrowicz et al. 2016), with the majority of the remaining “Mostly not eaten by people” category going to transportation fuel.

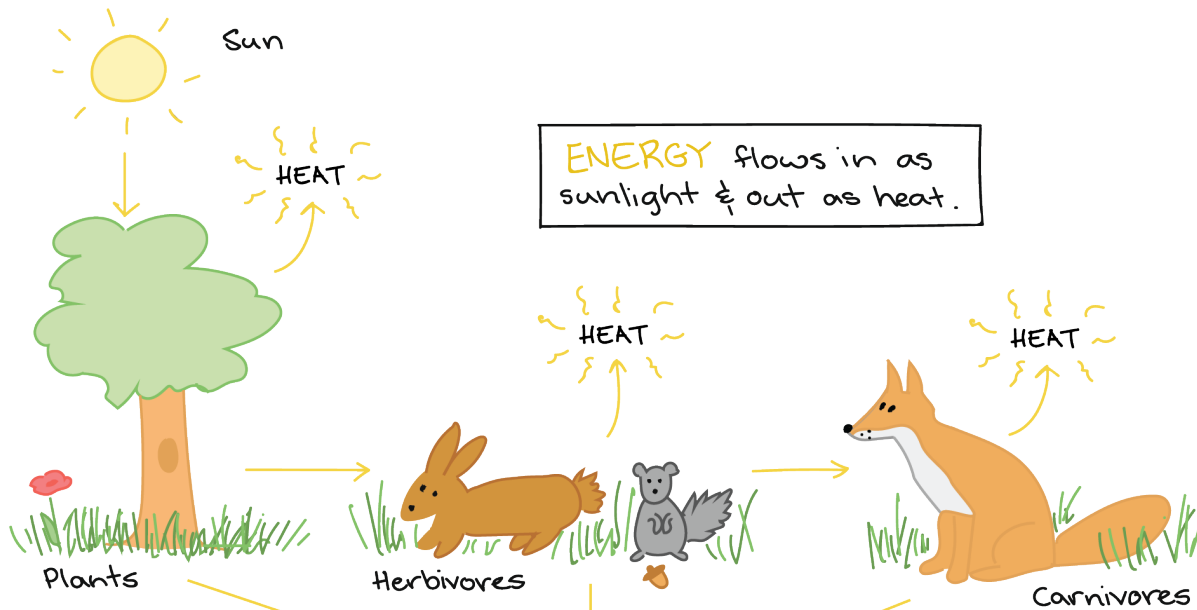


Figure 2 Energy as heat/ metabolism loss up the food chain. Image source <https://www.khanacademy.org/science/biology/ecology/intro-to-ecosystems/a/energy-flow-primary-productivity>

In the “Probably not eaten by people” category in Figure 1 I have further attempted to capture goods without adequate data. It includes thoroughbred horses, burros, donkeys, mules, ponies, and other horses⁵, nursery and tree production⁶, and animals raised for pets and other non-specified uses⁷. I suspect that nearly all of these plants and animals are used for non-food purposes, but I cannot verify that suspicion – thus the “Probably not eaten by people” category.

⁵ <https://siccode.com/naics-code/112920/horses-equine-production>

⁶ <https://siccode.com/naics-code/11142/nursery-floriculture-production>

⁷ <https://siccode.com/naics-code/112990/animal-production>

All of this is meant to make the point that we, in the United States, dedicate substantial acreage to agriculture that does not actually feed us – a distinction that matters because we give the agriculture industry many exemptions from rules designed to protect our public health. My understanding is that these exemptions are justified by the fundamental idea that food production is different than the production of all other goods. This concept comes from the whole “people-needing-food-to-live” thing.

Here’s a snapshot of some of the rules for which agriculture is given meaningful exemptions:

- [National labor laws](#) (Code of Federal Regulations, 2018), including paying minimum wage, adhering to child labor laws, and providing workers compensation insurance
- Meeting certain water pollution emissions standards set forth in the Clean Water Act (Congressional Research Service, 2014; Pollans, 2015)
- Meeting certain air pollution emissions standards set forth in the and Clean Air Act (Pollans, 2015)
- Driving regulations designed to reduce motor vehicle accidents (Federal Motor Vehicle Carrier Safety Administration, 2016)

At the same time, most farmers have tough lives that include a lot of hard work and often high debts and narrow profit margins (Baldwin, 2018; USDA, 2019) that are further squeezed by having to comply with regulations. I also know that none of us want to pay more than we have to at the grocery store register. Of course, we globally pay all the costs for the things we produce and consume. If we don’t bear those costs in the prices we pay, we bear them in “externalities” like our health, medical bills, environmental clean-up costs, etc. (Pretty et al., 2001). Thus, I’m a huge fan of fundamentally changing our food system so that those who grow our food earn what they deserve and so that everyone can afford to eat good food (yes, such a system is possible, as briefly described in my previous blog posts).

In the meantime, is there low-hanging fruit in terms of internalizing some of the costs of producing non-food agricultural items in the United States? I think that at least some of the agricultural goods I’ve highlighted here might provide part of that low-hanging fruit. In exchange for stricter labor and environmental health regulations to improve the public health, can we afford to pay more for cotton fabrics, thoroughbred horses, tobacco, pets purchased in the pet-trade (versus adopted), and fur coats? What do you think?

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