How do cows emissions impact climate change?

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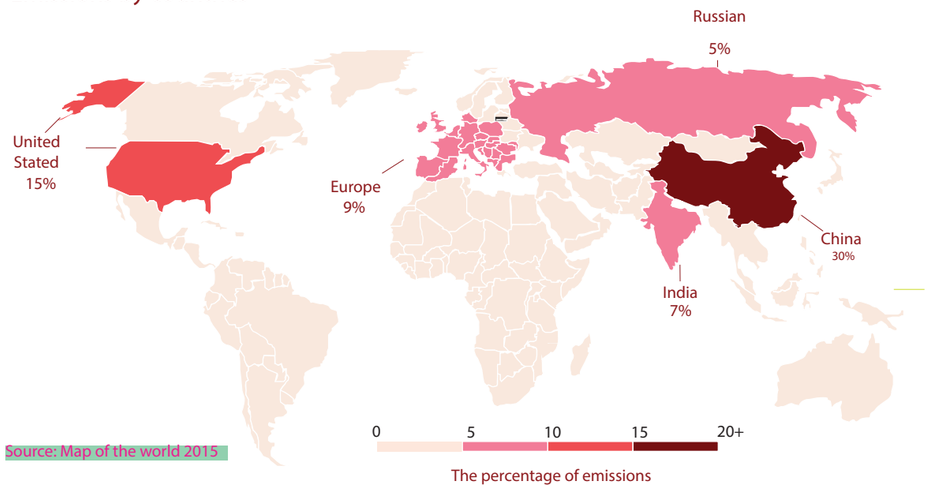
Climate change can not be ignored

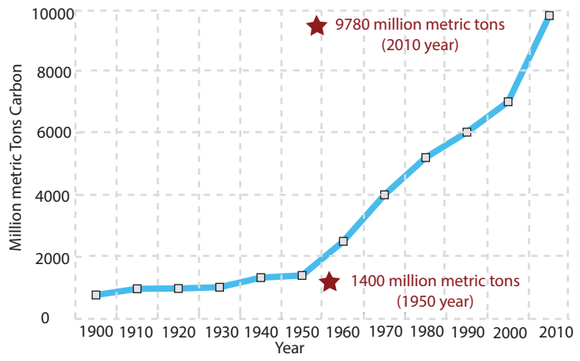
Emissions cause climate change. Many countries have been paying attention to environmental issues because of climate change. However, these three countries produce more emssions compared to other countries, including china (30%), United states (15%), and Europe (9%).

Emissions by countries



Source: Map of the world 2015

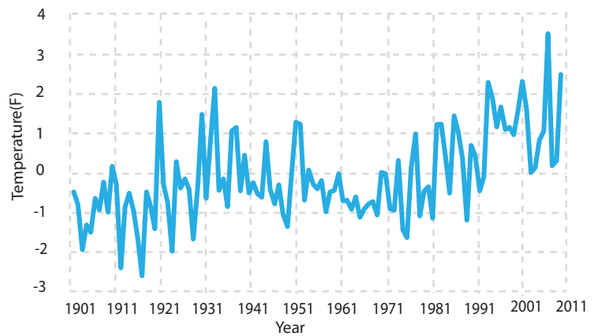
Emissions by years



As we can see, the number of emissions have been increasing from 1900 to 2010. Especially, since 1950 to 2010, the emissions of growth rate are close to 7 times. Therefore, many countries are researching solutions to reduce cow's emissions in order to protect our environment.

SOURCE: Boden, T.A., Marland, G., 2017

Global warming trend



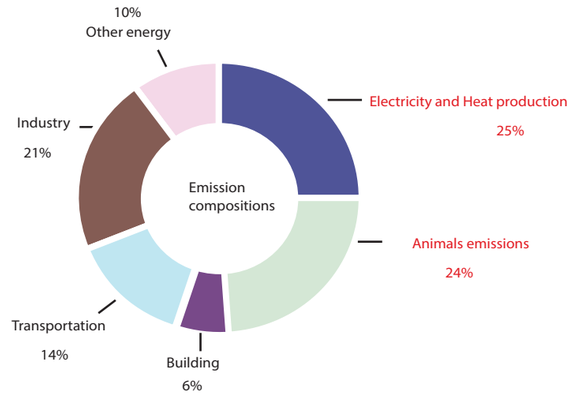
Temperature has increased from 1901 to 2011. Earth's average surface air temperature has increased over 2°F since 1900, with over half of the increase occurring since the mid-1970s. It can clearly be seen that emissions have a serious impact on global warming.

Source: NOAA Climate.gov

Cows' emissions cause climate change

Many reasons can cause climate change, including electricity and heat producation, industries, animals emissions, and transportation, etc. A large part of emission comes from food. in all food, beef is the largest percentage, and the second one is fish.

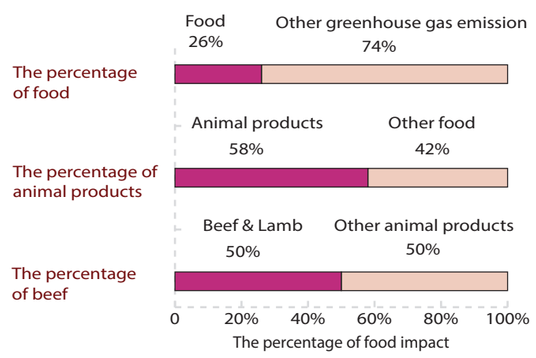
Emissions composition



Global greenhouse gas emissions can be broken down by the economic activities that lead to their production. In all emisions composition, Electricity and Heat production (25%) and animal emissions (24%) are the largest percentages of emissions. Moreover, global greenhouse gas emissions come mostly from agriculture crops and livestock.

Source: IPCC 2014

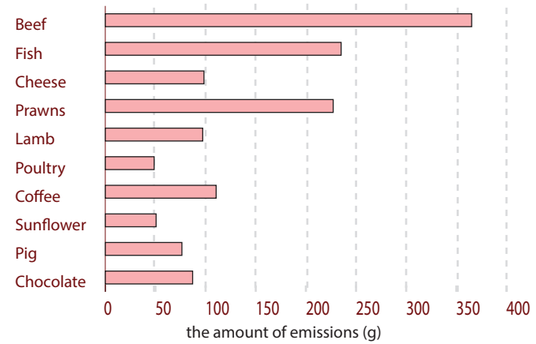
Greenhouse gas emissions from food



Food production contributes to global warming. Food accounts for about a quarter of greenhouse gas emissions. Livestock contributes to global warming through the methane gas of the animals produce. Moreover, there is 58% emissions that come from animal products. In all animal products, beef and lamb account for 50 percent.

Source: Poore & Nemecek (2018), Science

Compared with animal's and plants emissions



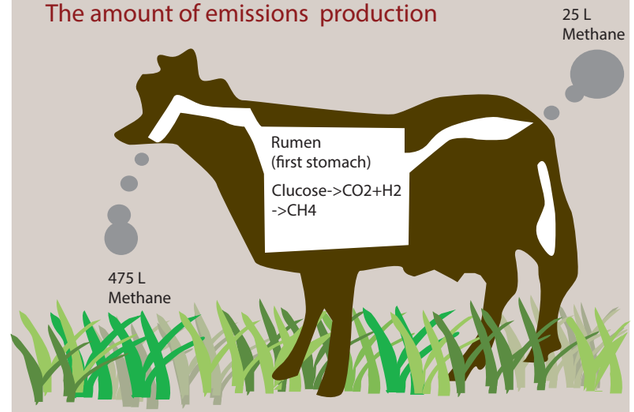
We must pay more attention to the emissions of animals because it accounts for about a quarter of all emissions. In all animals and plants, beef is the largest proportion, fish is the second one, and prawns is the third one. Therefore, reducing the emissions of cows is an important topic.

Source: Poore & Nemecek (2018), Science

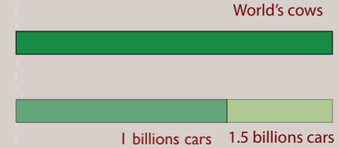
Cows' emissions prodocutions and reducing ways of cow's emissions

The emission of cow is 500L of methane every day. This emission corresponds to 1.5 times of 1 billion cars on the road. Using feed additives, composting, and changing human's diet behavior is beneficial to improve our environment.

The amount of emissions production



Cosws' emissions are corresponding to 1.5 times of cars



Source: DSM, Barclays Research

Solution method

Feed additives

It is synthetic chemicals, natural supplements and compound, and fats and oils. Feeding one type of seaweed at 3% of the diet has resulted in up to 80% reduction in methane emissions from cattle.

Composting

Composting is a low-cost method to reduce methane emissions that is easy to implement. Composting makes the compounds in manure more stable and therefore reduces the amount that is released into the atmosphere.

Diet change

Changing diet behavior is hard, but it is the effective way to reduce emissions and impvrove climate change.

Source: Julia Lindgren in UNL water