Study: Climate Change Will Reduce Milk Production From U.S. Dairy Cows

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A new study conducted by researchers at the University of Washington concludes that milk production in dairy cows could fall dramatically in some areas of the U.S. due to climate change.

The researchers showed that cows, like humans, are sensitive to heat stress. In certain hot and uncomfortable conditions, cows must devote more of their body’s resources to cooling down and devote less energy to milk production. The problem is exacerbated in humid conditions. Because cows perspire to cool down, higher concentrations of water in the air makes it more difficult for sweat to evaporate. Thus, as hot and humid climates become more extreme, they threaten the productivity of dairy cows.

According to one of the researchers:

“Using U.S. Department of Agriculture statistics, if you look at milk production in the Southeast versus the Northwest, it’s very different,” said Guillaume Mauger, a postdoctoral researcher in the UWs Climate Impacts Group and co-author of the paper. “It’s reasonable to assume that some of that is due to the inhospitable environment for cows in the Southeast.”

The study projected the change in nationwide milk production out to the year 2080. Based on climate projections, the researchers suggest that by that time, cows in some locations, such as Maricopa, Arizona, could be producing as little as half the milk they produce today. Overall, the nation will be producing, on average, 6% less milk in 2080 than today.
The loss of milk production will have a major economic impact as well. The study projects that dairy losses will total over $100 million a year for some places, including Tulare, California.

There are short term fixes for overheating cows, such as shade tents and cool water sprays, which can help mitigate milk losses now. These measures, however, present new costs for ranchers dealing with the current drought.

In the long term, as the planet continues to warm, one potential option for dairy cows will be a transition from hot states to cooler states up north, at the expense of the economies of those southern states — but the northern states are going to get awfully crowded if they have to provide all the crops and dairies AND house all the people (see NASA’s Hansen: “If We Stay on With Business as Usual, the Southern U.S. Will Become Almost Uninhabitable”).

Last year’s drought and heat wave in the American Southwest cost farmers almost $8 billion. As this study shows, additional costs for southern farmers are on the horizon.

— Max Frankel