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Not Grass-Fed, but at Least Pain-Free

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Op-Ed Contributor

More animals than ever suffer from injuries and stress on factory farms. Veal calves and gestating sows are so confined as to suffer painful bone and joint problems. The high-grain diets provided in feedlots cause severe gastric distress in many animals. And faulty or improperly used stun guns cause the painful deaths of thousands of cows and pigs a year. Because the amount of red meat that Americans eat per capita has held steady at more than 100 pounds a year as the population has increased, we are most likely stuck with factory farms. But it is still possible to reduce the animals' discomfort—through neuroscience. Recent advances suggest it may soon be possible to genetically engineer livestock so that they suffer much less.

Scientists have learned to genetically engineer animals so that they lack certain proteins that are important to the operation of the anterior cingulate cortex, a part of the brain that senses pain. Prof. Min Zhuo and his colleagues at the University of Toronto, for example, have bred mice lacking enzymes that operate in affective pain pathways. When these mice encounter a

painful stimulus, they withdraw their paws normally, but they do not become hypersensitive to a subsequent painful stimulus, as ordinary mice do.

Given the similarity among all mammals' neural systems, it is likely that scientists could genetically engineer pigs and cows in the same way. Because the sensory dimension of the animals' pain would be preserved, they would still be able to recognize and avoid, when possible, situations where they might be bruised or otherwise injured.

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