

would have control of 29 per cent of the market for seeds and 28 per cent for pesticides—a threat to farmers, consumers, bees and other pollinators, and the environment.

"The existence of such a powerful player would substantially harm both farmers and the environment by decreasing competition and innovation, resulting in increased costs, and allowing for greater corporate control over farmers' planting choice. It's lose-lose for farmers and consumers," the organisation said. "Of particular concern to NRDC is that the merger would reinforce the chemical-intensive growing practices currently threatening bees and wild pollinators that support between \$200–600 billion worth of crops in the global food supply."

The NRDC has filed a letter with the US Department of Justice, objecting to the proposed takeover.

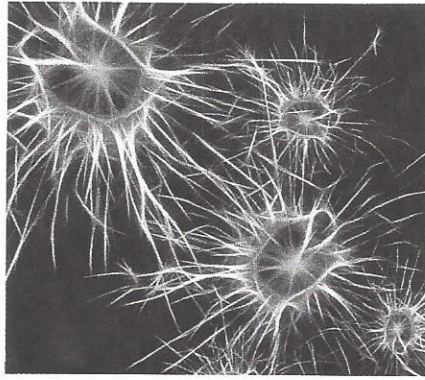
The letter also notes that other major agribusinesses plan to combine, including ChemChina with Syngenta AG and Dow Chemical Company with DuPont.

"Mergers are a big win in a corporate boardroom, but out on the farm, consolidation just means higher costs," said NRDC senior attorney Rebecca Riley. (Source: *EcoWatch.com*, 14 December 2016, <http://tinyurl.com/h36rgzg>)

RHYTHM OF BREATHING AFFECTS EMOTIONS AND MEMORY FUNCTION

Northwestern Medicine scientists have discovered that the rhythm of breathing creates electrical activity in the human brain that enhances emotional judgements and memory recall. These effects on behaviour depend critically on whether you inhale or exhale and whether you breathe through the nose or mouth.

In the study, published in *The Journal of Neuroscience* (7 December 2016), individuals were more likely to remember an object if they encountered it on the inhaled



breath rather than on the exhaled one. The effect disappeared if breathing was through the mouth.

"One of the major findings in this study is that there is a dramatic difference in brain activity in the amygdala and hippocampus during inhalation compared with exhalation," said lead author Dr Christina Zelano, Assistant Professor of Neurology at Northwestern University's Feinberg School of Medicine in Chicago. "When you breathe in...you are stimulating neurons in the olfactory cortex, amygdala and hippocampus, all across the limbic system."

The scientists discovered these differences in brain activity while

studying seven patients with epilepsy who were scheduled for brain surgery. A week prior to surgery, a surgeon implanted electrodes into the patients' brains in order to identify the origin of their seizures. This allowed the scientists to acquire electrophysiological data directly from the patients' brains. The recorded electrical signals showed that brain activity fluctuated with breathing. The activity occurred in brain areas where emotions, memory and smells are processed.

This discovery led the scientists to ask whether cognitive functions—in particular, fear processing and memory—typically associated with these brain areas could also be affected by breathing.

Another potential insight from the research relates to the basic mechanisms of meditation or focused breathing.

"When you inhale, you are in a sense synchronizing brain oscillations across the limbic network," Dr Zelano noted. (Source: *ScienceDaily.com*, 7 December 2016, <http://tinyurl.com/jm9wy9b>)

