

What can we learn from the farming insects?

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Farming evolved independently in humans at least nine times. The practice was among the innovations that enabled complex civilizations to develop. But we weren't the first species to raise our own food: various leafcutter ants, termites, and beetles have been cultivating other organisms for millions of years.

Such analogous behavior piqued the interest of SFI External Professor Peter Peregrine, a Lawrence University anthropologist who develops datasets and tools to analyze [human](#) behavior and culture over time. "If you can hit upon an adaptation that's a really good one, like agriculture, then you're apparently tremendously successful [as a species]," he says, pointing out that both humans and [leafcutter ants](#) live everywhere on Earth.

A "typical broad-ranging SFI conversation over lunch" some years ago uncovered farming parallels between humans and various [insects](#), he says, enough to prompt him to propose a working group of archaeologists, entomologists, and evolutionary biologists.

The group, Convergent Evolution of Agriculture in Insects and Humans, first met in August 2014 to discuss the evolution, fundamental practices, and social effects of farming. This week the group has reconvened at SFI with empirical data on this topic and on species' agricultural practices, including managing substrates, mutations, weeds, and pests. Other compelling topics may also be explored. (An intriguing social note: human health is known to have declined as agriculture arose – might insects have faced similar impacts?)

Not surprisingly, comparing impacts of agriculture on or between insect [species](#) is markedly tricky. "For humans, we have a record of the way things were before [agriculture](#) and how it looks afterward," Peregrine says. "Agriculture in ants is 50 million years old." Despite the paucity of before-and-after pictures of farming insects, their success (often with mono-crops) might offer insights into how to improve our own techniques, he says.

Provided by Santa Fe Institute

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