

# Success Stories in Sustainable Agriculture:

Leopold Center support over three years has helped Ajay Nair, assistant professor in Horticulture, set up the ISU Sustainable Vegetable Production Lab, a research and education program to help small producers in Iowa.

## The Story

In just three years at Iowa State University, assistant horticulture professor Ajay Nair has created a successful sustainable vegetable production research and education program. Building on his research in cover crops, he and colleagues recently received a USDA Sustainable Agriculture Research and Education (SARE) grant to test a hypothesis that a terminated cover crop can act as a barrier and maybe even suppress *Listeria* that can contaminate a growing melon crop.

## The Opportunity

Nair began working at ISU in 2011. “When I moved here to Iowa there was a big push in the area of local food production and I could see a lot of [fruit and vegetable] growers getting into the business,” he said. Enthusiasm for vegetable production was high and growers of all sizes were experimenting with a variety of production practices. It was the perfect time for ISU to expand research and education on sustainable vegetable production.

### Connection to the Leopold Center

The Leopold Center shares Nair’s enthusiasm for sustainable production systems. Therefore, when Nair arrived, the Center helped him access essential elements for establishing his research program: a laboratory, graduate students, and connections with colleagues.

*“[Ajay] started us thinking about cover crops and we saw the success on a small scale. He was a major impetus for changing some of our operation.”*

*—Greg Rinehart, farmer and former president of Iowa Fruit and Vegetable Growers Association*

## HELPING IOWA PRODUCERS

First, the Leopold Center provided three years of funding to set up the research lab.

“It helped me set up basic tools for laboratory and field research,”

Nair said. Next, he hired a graduate student to work with him in his research. “That is where the rubber meets the road,” he said. “You need good graduate students to do good research.”



Finally, through Leopold Center connections, Nair was able to meet others at ISU who also work in sustainable agriculture. “I met a group of people who were conducting outstanding research and extension work in the area of local foods. Having the Center was a huge benefit in terms of knowing the colleagues I know now.”



Greg Rinehart owns and operates Rinehart Family Farm in Boone County with his wife Polly. They grow a variety of fruits and vegetables, but sweet corn is one of their most popular produce items.

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### The Strategy

When he first arrived at ISU, Nair met with Leopold Center staff including Craig Chase who leads the Marketing and Food Systems Initiative, to identify priority areas. Today Nair's research focuses on several practices: cover crops, strip tillage, biochar, high tunnels, and crop diversification.

Some of the research has been conducted on Iowa farms. Greg Rinehart, who farms near Boone and is past president of the Iowa Fruit and Vegetable Growers Association, has held several trials on his farm. He shares, "[Ajay] is not afraid to ask different vegetable growers about doing trials on their farms [...] I know at least three of us that do trials for him at times."

Rinehart continues, "We've done nematode studies and planted spring cover crops with oilseed radish and yellow mustard. We're looking at [how cover crops suppress] the nematode population and how it helps [develop] organic matter in the soil." He said he also worked with Nair to apply biochar to pepper fields to aid in nutrient retention and saw improved yields.

Nair's research is combined with educational outreach to farmers to ensure they learn about the new findings. Rinehart says Nair shows growers different options, introducing them to various growing practices and new crops. "He's easy to work with and he's very knowledgeable and he answers questions we may have. He's a hands-on professor [...] He gives a lot of practical education to growers; that is always a great thing."

#### Making a Difference

As a result of participating in Nair's research, Rinehart is using cover crops in the rest of his operation. "He started us thinking about cover crops and we saw the success on a small scale. He was a major impetus for changing some of our operation," he said. Rinehart also will plant a fall cover crop for the first time in his two high tunnels, following a trial that Nair conducted at the ISU Horticulture Station.

For the SARE grant, Nair is working with Angela Shaw in the ISU Food Science and Human Nutrition Department and colleagues at Michigan State University.

"I'm very excited about the project," he said, explaining the research design and hypothesis. "We will establish cover crops in the fall and roll them in the spring [to terminate them]. Before rolling, the



Photos from an August 2014 Fruit and Vegetable Field Day at Iowa State University's Horticulture Research Station north of Ames. Top: Ajay Nair shares results of his research growing crops in high tunnels. Bottom: Nair's graduate student, Dana Jokela, discusses conservation tillage in organic broccoli production.

soil will be inoculated with a non-pathogenic form of *Listeria*. This will be followed by planting a melon crop. In the recent past, melons have been a major concern for food safety due to contamination with *Listeria*. This project will evaluate the potential use of cover crops to suppress and reduce exposure of melon fruits to *Listeria*."



### Contact

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Case study by Arlene Enderton, Fall 2014

Leopold Center competitive grant E2014-16, Quantifying nitrogen credits and impacts of cover crops on soil biology and health, and three years of funding from an unrestricted estate gift