

# Summer and winter vegetable and cover crop cultivar performance in Organic fresh vegetable cropping systems in Oregon

## Final report for MW18-006

Project Type: Enhanced State Grants

Funds awarded in 2018: \$24,974.00

Projected End Date: 12/31/2019

Grant Recipient: Oregon State University

Region: Western

State: Oregon

Principal Investigator:

[Nick Andrews](#)

Oregon State University

## Project Information

### Abstract:

Our goal is to help farmers select cultivars for summer and winter vegetables and cover crops for irrigated Organic fresh vegetable cropping systems west of the Cascade Mountains. We discussed priority crops and cultivars for the varieties with farmers, seed companies, chefs, wholesale distributors and breeders in the cultivar evaluation and breeding process. We developed evaluation criteria for the various crops included in the trials and conducted replicated variety trials at OSU's North Willamette Research & Extension Center (NWREC). We hosted summer and winter vegetable and cover crop field days in February, April and September, 2019. These events drew 83 agricultural professionals and 73 farmers (156 total). 52 people (33% of participants) submitted evaluation forms. 61% of respondents said that they learned about sustainable agriculture, and all respondents said that they plan to use information from the field days in their work. If these responses are representative of the whole audience, 95 participants learned about sustainable agriculture, and 83 agricultural professionals plan to use information in their work. Results from our replicated vegetable and cover crop variety trials are being worked up. Pepper, tomato and melon variety trial reports have been added to an online vegetable variety trial database: <https://varietytrials.eorganic.info/>, cover crop trial results will contribute to an online cover crop trial sharing system being developed by the Western Cover Crop Council.

### Project Objectives:

1. Conduct summer and winter vegetable and cover crop variety trials at OSU-NWREC
2. Develop evaluation criteria for the crops chosen

3. Host field days that facilitate interaction between agricultural professionals, students and farmers
4. Evaluate the field days and the crops included the trials, and make the variety trial results available online

#### Introduction:

The performance of crop cultivars varies depending on where they are grown and other factors. Seed industry representatives and vegetable farmers told us for years that publicly available variety trials would facilitate networking between farmers, seed company sales staff and breeders, Extension and other agencies. Since 2014, seed companies have provided donations to fund unreplicated variety demonstrations and field days at OSU-NWREC. Those demonstrations provided good opportunities for networking, and opportunities to look at cultivar performance in the field. This grant allowed us to begin developing evaluation protocols, and conducting replicated variety trials.

## Education

#### Educational approach:

We prioritized crops and cultivars to include in our trials with farmers, seed company sales staff, and plant breeders. We developed simple evaluation criteria for vegetables and cover crops included in the trials.

Our three field days at the OSU North Willamette Research & Extension Center were the main educational events. 65 people attended our winter vegetable variety field day on Feb 26, 2019, including 10 chefs, 3 Extension agents, 5 researchers, 12 seed company staff, 3 plant breeders, 6 produce buyers, 1 non-profit staff, 1 journalist, 1 graduate student and 22 farmers. 17 participants completed evaluation forms, of these, 11 came for networking, 14 came for education, and 14 came to find new varieties to grow. All evaluators said they will use information gained at the field day, 14 (82%) said they would grow new crops, 6 (35%) said they would buy new crops, and 2 said they would change production practices or recommend varieties and production techniques to customers.

24 people attended our cover crop field day on April 10, 2019, including 7 research and extension, 6 seed company staff, and 11 farmers. 18 submitted evaluations. 4 attended for networking, 11 for education and 9 to find cover crops to grow. 15 said they plan to use information gained in their work, 11 said they will grow new cover crops and 6 will change their production practices.

62 people attended our combined summer vegetable and cover crop field day on September 12, 2019, including 4 Extension, 4 researchers, 3 non-profit, 1 agency, 10 unspecified service providers, 2 students and 38 farmers. 22 completed our new scan-tron evaluation forms. All 22 evaluators attended the vegetable field day, 9 attended the cover crop field day. All evaluators said they will use information learned at the field day, 15 to grow new crops, 9 to buy new crops and 3 to change their production practices.

In spring 2019, Heidi Noordijk wrote one article discussing the winter vegetable variety trials for OSU-NWREC's *Down on the Farm* newsletter:

<https://extension.oregonstate.edu/sites/default/files/documents/10061/2019-spring-down-farm-final-4-17-19.pdf>

Results from our vegetable variety trials have been posted online at the eOrganic Variety Trial Reports website: <https://varietytrials.eorganic.info/>

Cover crop trial results will contribute to a cover crop trial results database being developed by the Western Cover Crops Council ([WRGR19-02](#)).

## Education & Outreach Initiatives

### **Variety field days**

Objective:

Host vegetable and cover crop field days to increase networking between farmers, breeders and seed companies. Collect variety performance data to help growers and seed distributors select varieties.

Description:

Attendance at our field days exceeded our expectations (see above). Participants included Extension agents, researchers, plant breeders, seed company staff, students, non-profit staff, and farmers. All participants were given farm maps, information about growing conditions during the trials, and additional information about related sustainable agriculture projects such as Croptime, our winter vegetable project, an OSU winter squash project, and the Northern Organic Vegetable Improvement Collaborative.

At the beginning of the events we provided updates on related sustainable agriculture projects. Lane Selman (cooperator) walked everyone through the trials noting the performance of different varieties. Seed company representatives, plant breeders and experienced farmers shared commentary on varieties they were familiar with, and all participants had time to walk through the trials and look at crop performance.

Outcomes and impacts:

Farmers and agricultural professionals used the event to develop their professional networks, and discuss vegetable and cover crop variety performance during field days. A total of 156 people attended these events, including 83 agricultural professionals and 73 farmers. Almost every participant that evaluated the events reported learning something useful for their work (see evaluation results above).

## Educational & Outreach Activities

**4** Consultations

**3** Curricula, factsheets or educational tools

**1** Published press articles, newsletters

**3** Workshop field days

## **PARTICIPATION SUMMARY:**

- 19** Extension
- 17** Researchers
- 4** Nonprofit
- 6** Agency
- 34** Ag service providers (other or unspecified)
- 73** Farmers/ranchers
- 3** Others

## Learning Outcomes

**95** Participants gained or increased knowledge, skills and/or attitudes about sustainable agriculture topics, practices, strategies, approaches

**83** Ag professionals intend to use knowledge, attitudes, skills and/or awareness learned

## Project Outcomes

**4** Grants received that built upon this project

**12** New working collaborations

**5** Agricultural service provider participants who used knowledge and skills learned through this project (or incorporated project materials) in their educational activities, services, information products and/or tools for farmers

**73** Farmers reached through participant's programs

### Additional Outcomes:

This grant gave us an opportunity to develop simple evaluation protocols for summer and winter vegetables and cover crops. We will continue to improve these protocols in future variety trials.

Partly as a result of our work on this grant, Nick has been PI or co-PI on four successful grant proposals related to this project.

1. Oregon Department of Agriculture Specialty Crop Block grant: "Developing Oregon's Winter Vegetable Industry": \$174,982. PI is Nick Andrews, co-PI's: Lane Selman and Alex Stone.
2. Tualatin Soil & Water Conservation District TREE grant: "Cover Crops and Nutrient Management in Vegetables": \$76,305. PI is Nick Andrews.
3. WSARE R2GR grant: "On-Farm Cover Crop Use, Evaluation, and Data Sharing with the Western Cover Crop Council": \$49,983. PI is Doug Collins, co-PIs are Nick Andrews, Stephen Hines and Clare Sullivan.

4. WSARE State Enhancement grant: “Developing the Western Cover Crop Council and Promoting the Regenerative Agriculture Movement Through Cover Crops and Human Health”. PI is Lauren Golden, co-PIs are Clare Sullivan, Nick Andrews, Doug Collins, Soren Newman, Annie Young-Matthews, Justin O’Dea, Matt Yost, Tara Zimmerman, Monica Hubbard and Jeffrey Mitchell.

During this project our work on cover crops was also strengthened by the formation of the Western Cover Crops Council. The mission of the WCCC is to facilitate and enhance communication and collaboration that promotes the successful adoption and integration of cover cropping into Western U.S. agricultural systems. At the end of 2019 the WCCC elected a Board of Directors that includes Jeremy Allen (Oregon farmer), Doug Collins (WSU), Linda Schott (UI), Clare Sullivan (OSU), Javier Fernandez-Salvador (OSU), Nick Andrews (OSU), Sarah Light (UC), Billy Synk (Project Apis m), Ben Bowell (Oregon Tilth).

As a result of this project we have decided to focus our future variety trials on grant funded projects where cultivar performance is an important aspect of the project.

#### Success stories:

The popularity of the winter vegetable variety trials and field days has exceeded our expectations. Farmers and agricultural professionals attending that event gave us some input on future winter vegetable grant proposals. Heidi Noordijk and Nick Andrews intend to collaborate on a future winter vegetable production proposal. Comments from participants included “this was amazing”, “thank you so much”, “it was so helpful”, “I am really excited.”

Laura Masterson from 47<sup>th</sup> Avenue Farm is a leading Organic vegetable farmer in the Willamette Valley. In addition to growing summer vegetables, she has been growing winter vegetables and using cover crops for more than 15 years. “These trials gave us a great chance to look at crop performance and discuss specific varieties, harvest slots and production methods with breeders, Extension agents, seed company representative, and other farmers. It was really helpful to see different cover crop varieties and winter vegetable varieties because there’s still so much to learn about them. Thanks for this work!”

#### Recommendations:

There is very strong interest in winter vegetable production and cover crops west of the Cascades. We hope to continue working in these areas to help growers take advantage of these opportunities.

## Face of SARE

#### Face of SARE:

All farmers and agricultural professionals attending the field days were made aware of the WSARE funding that supported this work. We also gave them updates on related grant-funded projects that are generating sustainable agriculture research findings and educational content.

**73** Farmers received information about SARE grant programs and information resources

**83** Ag professionals received information about SARE grant programs and information resources

## Information Products

- [Variety Trial Reports](#) (Fact Sheet)

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